

SDN-D High Performance DIN Rail Series

In spite of its small size, the SDN-D high performance DIN rail power supply boasts one of the highest efficiencies available in the market today. Higher efficiency means less heat is generated, potentially extending the life of all components in the enclosure. Extensive diagnostic monitoring capabilities are possible with the optional SCM network communication module, which utilizes popular industrial network protocols to provide critical power supply data to computers, PLCs, DCSs HMI, and other devices. For applications requiring even higher reliability, combine the SDN-D with SDN redundancy modules. With its extensive capabilities, compact design, and notable global certifications, the SDN-D is the ideal solution for use in harsh environments, extreme temperatures (-40°C to $+70^{\circ}\text{C}$), and hazardous locations worldwide.

Applications

- Industrial Automation
- Process Control
- Material Handling and Conveyors
- Hazardous Locations

Features

- High performance unit in a compact package
- Optional network communications modules provides important diagnostic information to controllers, HMI, and computers
- Continuous Power Boost: Up to 120% continuous, for temperatures up to 50°C
- Multi-turn potentiometer simplifies accurate setting of output voltage
- Extensive international hazardous location certifications, including Class I Zone 2, ATEX, and IECEx. Hazardous location temperature code (T-Code) rating of T4
- Inductive Load Power Boost additional short term power, to assist in starting loads with high inrush current
- Dual output terminals for convenience in wiring
- DC OK relay to provide diagnostic information to a PLC, controller, or monitoring system
- Circuit Interruption Power Boost provides short duration peak current sufficient to trip properly-sized load side fuse or circuit breaker in the event of a load fault
- Universal AC and DC input voltages to accommodate global requirements
- Wide operating temperature range accommodates both extreme hot and extreme cold environments
- Active Power Factor Correction greater than 0.98
- Parallel operation capability standard
- Supports redundant power supply operation using optional SDN™ Redundancy modules
- 5-year limited warranty

* Refer to user manual for installation requirements when used in hazardous locations.



UL us
E61379

IECEx
E137632
E234790

IECEx

Certifications and Compliances *

- Listed, Electrical Equipment for Measurement, Control and Laboratory Use; Control Equipment, E61379
 - UL 61010-1, UL 61010-2-201, CSA 61010-1, CSA 61010-2-201
- UL Recognized Component, ITE, E137632
 - UL/CSA 60950-1, UL/CSA 62368-1
- UL Recognized Component, Haz Loc, E234790; Class I Div 2, Groups A, B, C, D T4
 - UL 121201/CSA 213
- - Low Voltage Directive
 - IEC/EN60950-1, IEC/EN 62368-1, IEC/EN 61010-1, IEC/EN 61010-2-201
- ATEX Directive
 - Model SDN 10-24-100D**
 - EN IEC 60079-0, EN IEC 60079-7
 - II 3 G, Ex ec IIC T4 Gc
 - Model SDN 20-24-100D**
 - EN IEC 60079-0, EN IEC 60079-7, EN IEC 60079-15
 - II 3 G, Ex ec nC IIC T4 Gc
 - Model SDN 10-24-100D**
 - IEC 60079-0, IEC 60079-7; Ex ec IIC T4 Gc
 - Model SDN 20-24-100D**
 - IEC 60079-0, IEC 60079-7, IEC 60079-15; Ex ec nC IIC T4 Gc
- IECEx Certified
 - Model SDN 10-24-100D**
 - IEC 60079-0, IEC 60079-7; Ex ec IIC T4 Gc
 - Model SDN 20-24-100D**
 - IEC 60079-0, IEC 60079-7, IEC 60079-15; Ex ec nC IIC T4 Gc
- RoHS (Europe, China)

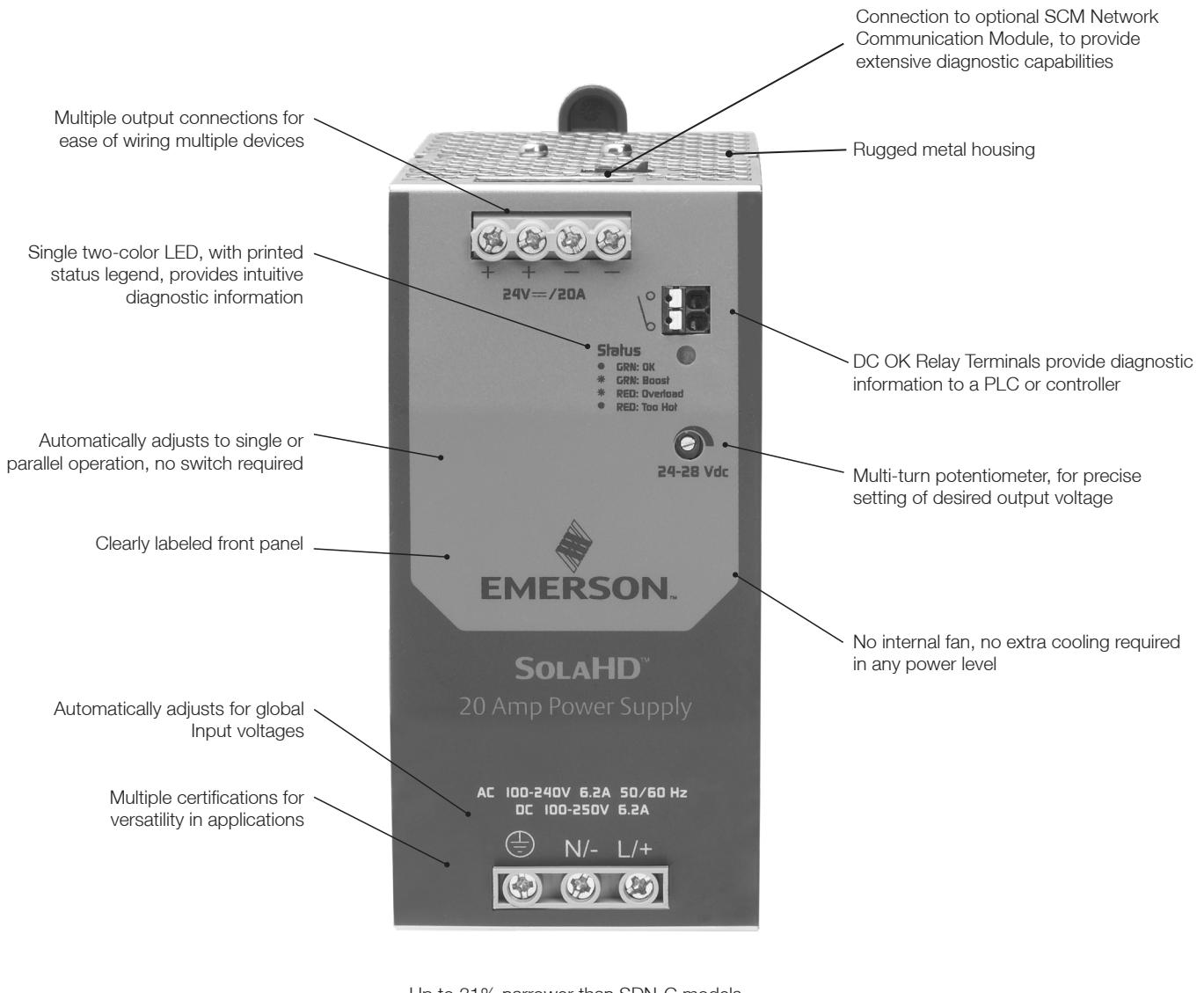
Related Products

- IP67 SCP-X Standalone Power Supplies
- SDU UPS

Accessories

- SCM Network Communication Modules for Power Supplies
- SDN Redundancy Modules
- Chassis Mount Brackets

The SolaHD Difference



LED Light Status Conditions

Bi-color LED: Green indicates output power is present. Red indicates no output power due to power supply protection circuitry.

| OK | Loss of AC | Continuous Power Boost | Inductive Load Power Boost | Overload | Too Hot |
|----------------|------------|------------------------|---|----------------|--------------|
| Green (steady) | – | Green (blinking) | Power alternatives On/Off: Green (4s blinking): Output ON Red (4s blinking): Output OFF | Red (blinking) | Red (steady) |

SDN-D Specifications (Single Phase)

| Description | Catalog Number | |
|--|---|---|
| | SDN 10-24-100D | SDN 20-24-100D |
| Input | | |
| Nominal Input Voltage, AC (Range) | 100 - 240 Vac (85-264 Vac) | |
| Nominal Input Voltage, DC (Range) | 100-300 Vdc (90-375 Vdc) | 100-250 Vdc (90-275 Vdc) |
| Frequency, AC Input | 43 - 67 Hz | |
| Input Current, AC (typical value at 24.5 Vdc, 10A/20A output) | 3.0A at 100 Vac, 1.11A at 240 Vac | 6.2A at 100 Vac, 2.19A at 240 Vac |
| Input Current, DC (typical value at 24.5 Vdc, 10A/20A output) | 3.0A at 100 Vdc, 0.85A at 300 Vdc | 6.2A at 100 Vdc, 2.04A at 250 Vdc |
| Typical Input Inrush current, AC 120 Vac, 25 °C, 100% full load current | <7A | <10A |
| Worst case Input Inrush current, AC 240 Vac, 60 °C, 100% full load current | <10A | <13A |
| Efficiency (Losses) at full load. Losses are heat dissipation in watts | 93.7% | 94.2% |
| Power Factor Correction (PFC) at 25 °C | Active PFC >0.98 | |
| Output | | |
| Output Voltage, Nominal | 24 Vdc | |
| Output Voltage, Adjustable Range | Multi-turn potentiometer: 3-turn (approximate) Minimum range: 24-28 Vdc Absolute Maximum: 28.8 Vdc Typical Maximum: 28.6 Vdc | |
| Output Voltage, Initial Factory Setting | 24.5 V ± 1% | |
| Output Voltage, Tolerance | < ±2 % overall | |
| Output Voltage Ripple, typical (measured with a 20 MHz bandwidth scope and 50 Ohm resistor) | <50 mvpp | |
| Periodic and Random Deviation (PARD) | <100 mvpp | |
| Nominal Output Current (Power) | 10A (240W) at +60 °C, continuous | 20A (480W) at +60 °C, continuous |
| Continuous Power Boost | 12A (288W) from -40 °C to +50 °C, continuous | 22A (528W) from -40 °C to +50 °C, continuous |
| High Temperature Output Power De-rating | Linear derating from 240W to 216W power from +60 °C to +70 °C | Linear derating from 480W to 360W power from +60 °C to +70 °C |
| Parallel Output Operation for increased power (using similar SDN-D power supplies) | Power supplies can be connected in parallel for increased power. However, for loads higher than 100% of individual SDN-D, it is recommended that power supplies are initially powered up with no load applied. The outputs of SDN-D should also be adjusted to <100mV of each other. Otherwise, unexpected results may occur due to differences in power up time for each power supply. | |
| Parallel Output Operation for Redundancy (using two similar SDN-D power supplies) | Yes, with SDN Redundancy modules. | |
| Turn On Time, after AC is applied to input, 25 °C | Resistive load: < 1.0 sec Capacitive load (7000µF): < 1.5 sec | |
| Holdup Time | > 20 msec | |
| Output Voltage Fall Time (from 95% to 10% rated voltage, at full load, 25 °C) | < 150 msec | |

NOTE: Unless otherwise noted, all specifications apply to the full range of rated line, load, and temperature parameters, after 5 minutes run time. Convection cooled; no fans required.

SDN-D Specifications (Single Phase)

| Description | Catalog Number | |
|--|---|--|
| | SDN 10-24-100D | SDN 20-24-100D |
| Protection | | |
| Inductive Load Power Boost | | Short duration: 1.5X for 4 sec |
| Circuit Interruption Power Boost | | Peak Current: 6X for 15 msec at >19 V |
| Short Circuit Protection | | Output automatically goes to near zero and output is protected from continuous short circuit. Auto-recovery. |
| Back EMF Immunity | | < 35 V No damage, Auto-recovery |
| Overvoltage Protection | | 30.0 V maximum. Auto-recovery. |
| Overtemperature Protection | | Output shutdown, LED Alarm. Auto-recovery. |
| Environmental Data | | |
| Surge Ratings | 2kV L-N, 4kV L-PE, 4kV N-PE (EN 61000-4-11, Criterion A) | |
| Emissions | EN61000-6-3, EN61000-6-4, EN 61326-1, EN55011, EN55032 Class B. EN61000-3-2, EN 61000-3-3 | |
| Immunity | EN61000-6-1, EN61000-6-2, EN 61326-1, EN 55035, IEC 61000-4 Series (Level 4, Class A). SEMI F47 Sag Immunity | |
| General Protection / Safety | Protected against continuous short circuit, continuous overload, continuous open circuit. IEC 62477-1: Overvoltage Category III, Pollution Degree II, up to 3000m. Overvoltage Category II from 3000-6000m UL/CSA 60950-1, UL/CSA 62368-1, Overvoltage Category II, Pollution Degree II, SELV UL/CSA 61010-1, UL/CSA 61010-2-201, Overvoltage Category II, Pollution Degree II CB Report: IEC/EN 60950-1, IEC/EN 62368-1 Overvoltage Category II, Pollution Degree II, SELV | |
| Environmental Rating | Pollution Degree II | |
| Ingress Protection (IP) Rating | IP20 | |
| Temperature, Operating | From -40 °C to +70 °C. Refer to temperature-dependent de-rating and Continuous Power Boost specifications in Output section. Convection cooling | |
| Temperature, Storage | -40 °C to +85 °C | |
| Humidity | 5 to 95 % RH Non-Condensing; IEC 60068-2-2, IEC 60068-2-3 | |
| Vibration | 2.5(g) RMS, 10-2000 Hz (random); three axes for 20 minutes each - IEC 60068-2-6 | |
| Shock | 30g 6 msec, 20g 11 msec, 3-axis, 3 bumps/direction (18 bumps in total) - IEC 60068-2-27 | |
| Altitude | 0-3000 meters full power | |
| Restriction on Hazardous Substances (RoHS) | Directive 2011/65/EU amended with Directive EU 2015/863, China RoHS | |

NOTE: Unless otherwise noted, all specifications apply to the full range of rated line, load, and temperature parameters, after 5 minutes run time. Convection cooled; no fans required.

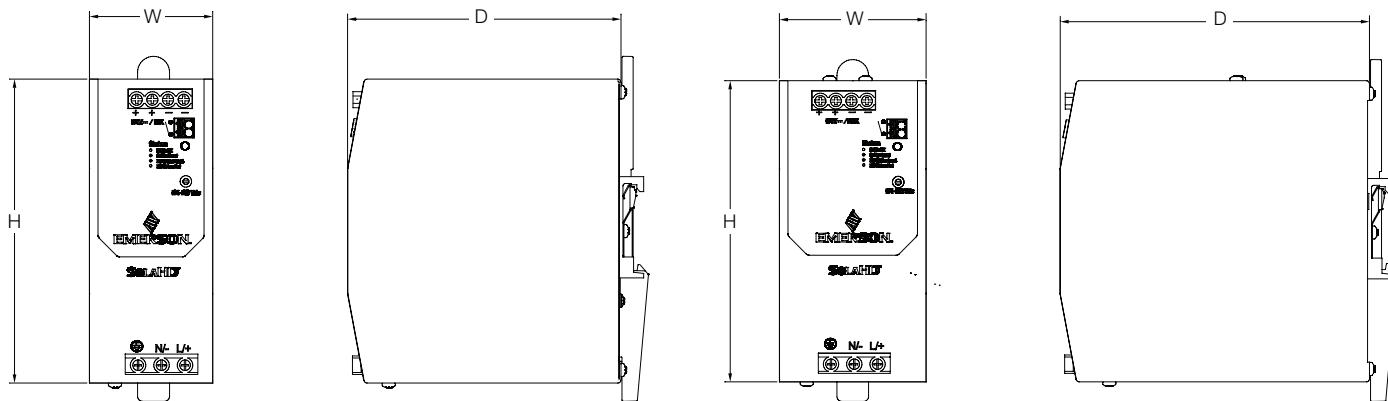
SDN-D Specifications (Single Phase)

| Description | Catalog Number | |
|---|--|---|
| | SDN 10-24-100D | SDN 20-24-100D |
| Reliability | | |
| MTBF: Telcordia SR-332 Issue 2 Method 1 Case 3 | >773,575 hours @ 115 Vac, 25 °C >869,055 hours @ 230 Vac, 25 °C >527,547 hours @ 115 Vac, 40 °C >584,514 hours @ 230 Vac, 40 °C | >944,000 hours @ 115 Vac, 25 °C >1,048,000 hours @ 230 Vac, 25 °C >609,000 hours @ 115 Vac, 40 °C >837,000 hours @ 230 Vac, 40 °C |
| Operating Service Life¹ | >304,000 hours @ 100 Vac input, 25 °C, 24 Vdc @ 10A output >453,100 hours @ 230 Vac input, 25 °C, 24 Vdc @ 10A output >198,600 hours @ 100 Vac input, 40 °C, 24 Vdc @ 10A output >260,300 hours @ 230 Vac input, 40 °C, 24 Vdc @ 10A output | >114,600 hours @ 100 Vac input, 25 °C, 24 Vdc @ 20A output >322,100 hours @ 230 Vac input, 25 °C, 24 Vdc @ 20A output >56,000 hours @ 100 Vac input, 40 °C, 24 Vdc @ 20A output >154,200 hours @ 230 Vac input, 40 °C, 24 Vdc @ 20A output |
| Installation | | |
| Fusing – Input | Internal non-replaceable fuse. | |
| Fusing – Output | Outputs are capable of providing high currents for short periods of time for inductive load startup 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 to DIN TS35/7.5 or TS35/15 rail system. | |
| Input Terminal Connections | Screw terminals. Connector size range: 16–10 AWG (1.5–6 mm ²) for solid or stranded conductors. Screw torque: 4.4–6.5 lb-inch (50–73 N-cm). Use only one copper wire per terminal. | |
| Output Terminal Connections | Two terminals per output. Connector size range: 16–10 AWG (1.5–6 mm ²) for solid or stranded conductors. Screw torque: 4.4–6.5 lb-inch (50–73 N-cm). Use only one copper wire per terminal. | |
| DC OK Terminal Connections | Connector size range: 16–24 AWG (1.5–0.25 mm ²) solid or stranded conductors. Use only one copper wire per terminal. | |
| Free Space – Above and Below | 0.98 in (25 mm) | |
| Free Space – Left and Right | 0.39 in (10 mm) | |
| Free Space – Front | 0.59 in (15 mm) | |
| Dimensions – WxDxH in (mm) | 4.8 x 2.0 x 4.4 (123 x 50 x 111) | 4.8 x 2.4 x 5.0 (123 x 60 x 127) |
| Weight – lbs (kg) | 1.54 lbs (0.7 kg) | 2.2 lbs (1.0 kg) |
| General | | |
| Case | Fully enclosed metal housing with fine ventilation grid to keep out small parts. | |
| Diagnostic Status Indicators | Single 2-color LED "DC OK" Relay: N.O. contact rated 50 Vdc, 1A. Signal Active when Vout > 18.5 Vdc +/- 5%. | |
| Warranty | 5 Year Limited Warranty | |

1. Based on the lifetime expectancy of the built-in electrolytic capacitors, as reported by the capacitor manufacturer's specification. Values exceeding 131,400 hours are theoretical calculations, provided for comparison purposes only.

NOTE: Unless otherwise noted, all specifications apply to the full range of rated line, load, and temperature parameters, after 5 minutes run time. Convection cooled; no fans required.

SDN-D Series Dimensions



| Catalog Number | Dimensions – inches (mm) | | |
|----------------|--------------------------|----------|-----------|
| | H | W | D |
| SDN-10-24-100D | 4.8 (123) | 2.0 (50) | 4.4 (111) |
| SDN-20-24-100D | 4.8 (123) | 2.4 (60) | 5.0 (127) |

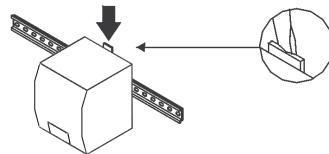
SDN-D Series Mounting

SolaHD SDN-D power supplies are designed to be easily and reliably mounted to DIN rail. For applications requiring mounting the power supply directly to the panel, optional Panel Mount Adapter Brackets are available.

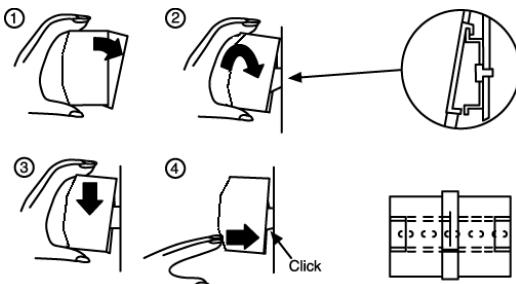
DIN Rail Mounting

Snap on the DIN rail:

1. Tilt unit slightly backwards. Put it onto the DIN rail
3. Push downwards until stopped
4. Push at the lower front edge to lock
5. Shake the unit slightly to ensure that the retainer has locked



Detachment from DIN Rail:

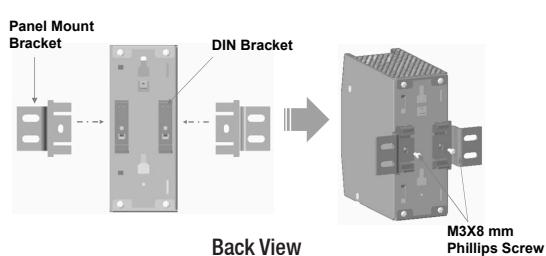


Panel Mounting

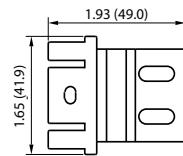
Panel mounting of SDN-D power supplies is simplified by using an optional SDN-PMBRK3 Panel Mounting Bracket kit. Each kit comes with two brackets for screw mounting one power supply to a panel. Note that the Panel Mount bracket will add approximately 2-4mm in depth, compared to DIN rail mounting. Refer to the manual that comes with the bracket kit for detailed instructions on assembly and mounting.

SDN-PMBRK3

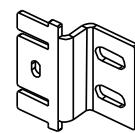
| Power Supply |
|----------------|
| SDN 10-24-100D |
| SDN 20-24-100D |



Dimensions - in. (mm)



Top View



3D View