

## SDN-P™ DIN Rail Series

The SolaHD SDN-P DIN Rail Series power supplies provide industry leading performance. Sag Immunity, transient suppression and noise tolerant, the SDN-P Series ensures compatibility in demanding applications. Power factor correction to meet European directives, hazardous location approvals and optional redundant accessories allow the SDN-P series to be used in a wide variety of applications. Wide operation temperature range, high tolerance to shock and vibration and reliable design make the SDN-P series the preferred choice of users.



### Applications

- Industrial/Machine Control
- Process Control
- Conveying Equipment
- Material Handling
- Vending Machines
- Packaging Equipment
- DeviceNet™
- Amusement Park Equipment
- Semiconductor Fabrication Equipment

### Features

- Power Factor Correction (per EN61000-3-2)
- Auto Select 115/230 Vac, 50/60 Hz Input
- Improved metal mounting clip
- DC OK Signal
- Adjustable Voltage
- Parallel Capability standard on all units
- Industrial grade design
  - -10°C to 60°C operation without derating. Indefinite short circuit, overvoltage and overtemperature protection.
  - Powers high inrush loads without shutdown or foldback
  - Rugged metal case and DIN connector
- Narrow width on rail for space critical applications
- User-friendly front panel
  - Large, rugged, accessible, multiple connection screw terminations
  - Easy installation
- 12 Vdc and 48 Vdc single phase models available
- Highly efficient >90% switching technology
- High MTBF and reliability

### Accessories

- SDN-C Redundant Modules
- Chassis Mount Bracket (SDN-PMBRK2)

### 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, 2nd Edition
- UL Recognized Component, Haz. Loc., E234790
  - ISA 12.12.01, CSA C22.2 No. 213
  - Class I, Division 2, Groups A, B, C, D
- - Low Voltage Directive
  - IEC/EN60950-1, 2nd Edition
- Sag Immunity: SEMI F47
- RoHS Compliant

#### Models SDN 2.5-24-100P, SDN 4-24-100LP

- Class II per UL 1310, CSA C22.2 No. 223

### Related Products

- SVL Series
- SDP™ Series
- SCP Series
- SCL Series
- SDU UPS

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

## SDN-P Specifications (Single Phase), 24 Vdc Output

| Description                       | Catalog Number                                                                                                                                                                                                                                                                           |                                              |                                                                   |                                                                   |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|
|                                   | SDN 2.5–24–100P                                                                                                                                                                                                                                                                          | SDN 4–24–100LP                               | SDN 5–24–100P                                                     | SDN 10–24–100P                                                    |
| Input                             |                                                                                                                                                                                                                                                                                          |                                              |                                                                   |                                                                   |
| Nominal Voltage                   | 115/230 Vac, Auto select                                                                                                                                                                                                                                                                 |                                              |                                                                   |                                                                   |
| –AC Range                         | 85-264 Vac                                                                                                                                                                                                                                                                               | 85-132/176-264 Vac                           |                                                                   |                                                                   |
| –DC Range <sup>1</sup>            | 90 - 375 Vdc                                                                                                                                                                                                                                                                             | 210 - 375 Vdc                                |                                                                   |                                                                   |
| –Frequency                        | 47 - 63 Hz                                                                                                                                                                                                                                                                               |                                              |                                                                   |                                                                   |
| Nominal Current <sup>2</sup>      | 1.3 / 0.7 A                                                                                                                                                                                                                                                                              | 2.1 / 1.0 A                                  | 2.2 / 1.0 A                                                       | 5 / 2 A typ.                                                      |
| –Inrush current max.              | typ. < 25 A                                                                                                                                                                                                                                                                              | typ. < 20 A                                  |                                                                   | typ. < 40 A                                                       |
| Efficiency (Losses <sup>3</sup> ) | > 86 % (10.0 W)                                                                                                                                                                                                                                                                          | > 86 % (14.1 W)                              | > 88% typ. (16.4 W)                                               | > 88 % (33.0 W)                                                   |
| Power Factor Correction           | Units Fulfill EN61000-3-2                                                                                                                                                                                                                                                                |                                              |                                                                   |                                                                   |
| Output                            |                                                                                                                                                                                                                                                                                          |                                              |                                                                   |                                                                   |
| Nominal Voltage                   | 24 Vdc<br>(22.5 - 28.5 Vdc adj.)                                                                                                                                                                                                                                                         | 24 Vdc<br>(22.5 - 25.7 Vdc adj.)             | 24 Vdc<br>(22.5 - 28.5 Vdc adj.)                                  |                                                                   |
| –Tolerance                        | < ±2% overall (combination Line, load, time and temperature related changes)                                                                                                                                                                                                             |                                              |                                                                   |                                                                   |
| –Ripple <sup>4</sup>              | < 50 mVpp                                                                                                                                                                                                                                                                                |                                              |                                                                   |                                                                   |
| Overvoltage Protection            | < 33 Vdc                                                                                                                                                                                                                                                                                 | < 27 Vdc                                     | < 33 Vdc                                                          |                                                                   |
| Nominal Current                   | 2.5 A (60 W)                                                                                                                                                                                                                                                                             | 3.8 A (92 W)                                 | 5 A (120 W)                                                       | 10 A (240 W)                                                      |
| –Current Limit                    | Fold Forward (Current rises, voltage drops to maintain constant power during overload up to max peak current)                                                                                                                                                                            |                                              |                                                                   |                                                                   |
| Holdup Time <sup>5</sup>          | > 20 ms @ full load                                                                                                                                                                                                                                                                      |                                              |                                                                   |                                                                   |
| Parallel Operation                | Single or Parallel use is selectable via Front Panel Switch<br>(SDN 2.5, 4 should not be used in parallel as Class II rating would be violated.)                                                                                                                                         |                                              |                                                                   |                                                                   |
| General                           |                                                                                                                                                                                                                                                                                          |                                              |                                                                   |                                                                   |
| EMC:<br>–Emissions                | EN61000-6-3, -4; Class B EN55011, EN55022 Radiated and Conducted including Annex A. EN61000-3-2                                                                                                                                                                                          |                                              |                                                                   |                                                                   |
| –Immunity                         | EN61000-6-1, -2; EN61000-4-2 Level 4, EN61000-4-3 Level 3; EN61000-4-6 Level 3; EN61000-4-4 Level 4 input and Level 3 output; EN61000-4-5 Isolation Class 4, EN61000-4-11;                                                                                                               |                                              |                                                                   |                                                                   |
| Temperature                       | Storage: -25°C...+85°C Operation. -10°-60°C full power with operation to 70°C possible with a linear derating to half power from 60°C to 70°C (Convection cooling, no forced air required).<br>Operation up to 50% load permissible with sideways or front-side-up mounting orientation. |                                              |                                                                   |                                                                   |
| Humidity                          | The relative humidity is < 90% RH, noncondensing; IEC 68-2-2, 68-2-3.                                                                                                                                                                                                                    |                                              |                                                                   |                                                                   |
| MTBF:                             | > 820,000 hours                                                                                                                                                                                                                                                                          | > 640,000 hours                              |                                                                   | > 600,000 hours                                                   |
| – Standard                        | Bellcore Issue 6 Method 1 Case 3 @ 40°C                                                                                                                                                                                                                                                  |                                              |                                                                   |                                                                   |
| Warranty                          | 5 year limited warranty                                                                                                                                                                                                                                                                  |                                              |                                                                   |                                                                   |
| General Protection/Safety         | Protected against continuous short-circuit, overload, open-circuit. Protection Class I (IEC536), degree of protection IP20 (IEC 529) Safe low voltage: SELV (acc. EN60950)                                                                                                               |                                              |                                                                   |                                                                   |
| Status Indicators                 | Green LED and DC OK signal (N.O. Solid State Contact rated 200 mA / 60 Vdc)                                                                                                                                                                                                              |                                              |                                                                   |                                                                   |
| Installation                      |                                                                                                                                                                                                                                                                                          |                                              |                                                                   |                                                                   |
| Fusing<br>–Input                  | Internally fused. External 10 A slow acting fusing for the input is recommended to protect input wiring.                                                                                                                                                                                 |                                              |                                                                   |                                                                   |
| –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 system for DIN Rail TS35/7.5 or TS35/15 or chassis-mounted (optional screw mounting set SDN-PMBRK2 required).                                                                                                                                                             |                                              |                                                                   |                                                                   |
| Connections                       | Input: IP20-rated screw terminals, connector size range: 16-10 AWG (1.5-6 mm²) for solid conductors. 16-12 AWG (0.5-4 mm²) for flexible conductors. Output: Two connectors per output, connector size range: 16-10 AWG (1.5 - 6 mm²) for solid conductors.                               |                                              |                                                                   |                                                                   |
| Case                              | Fully enclosed metal housing with fine ventilation grid to keep out small parts.                                                                                                                                                                                                         |                                              |                                                                   |                                                                   |
| –Free Space                       | 25 mm above and below,<br>25 mm left and right, 10 mm in front                                                                                                                                                                                                                           |                                              | 25 mm above and below, 25 mm<br>left and right,<br>15 mm in front | 70 mm above and below, 25 mm<br>left and right,<br>15 mm in front |
| Dimensions – WxDxH in (mm)        | 4.88. x 1.97 x 4.55<br>(124.0 x 50.0 x 116.0)                                                                                                                                                                                                                                            | 4.88 x 2.56 x 4.55<br>(124.0 x 65.0 x 116.0) |                                                                   | 4.88 x 3.26 x 4.55<br>(124.0 x 83.0 x 116.0)                      |
| Weight – lbs (kg)                 | 1.6 (.73)                                                                                                                                                                                                                                                                                | 2.4 (1.10)                                   |                                                                   | 3.3 (1.50)                                                        |

1. Not UL listed for DC input.

2. Input current ratings are conservatively specified with low input, worst case efficiency and power factor.

3. Losses are heat dissipation in watts at full load, nominal input line.

4. Ripple/noise is stated as typical values when measured with a 20 MHz, bandwidth scope and 50 Ohm resistor.

5. Full load, 100 Vac Input @ T<sub>amb</sub> = +25°C

## SDN-P Specifications (Single Phase), 12 Vdc and 48 Vdc Output

| Description                       | Catalog Number                                                                                                                                                                                                                                             |                                           |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
|                                   | SDN 9–12–100P                                                                                                                                                                                                                                              | SDN 5–48–100P                             |
| Input                             |                                                                                                                                                                                                                                                            |                                           |
| Nominal Voltage                   | 115/230 Vac auto select                                                                                                                                                                                                                                    |                                           |
| –AC Range                         | 85-132/176-264 Vac; 210 - 375 Vdc                                                                                                                                                                                                                          |                                           |
| –DC Range <sup>1</sup>            | 210 - 375 Vdc                                                                                                                                                                                                                                              |                                           |
| –Frequency                        | 47 - 63 Hz                                                                                                                                                                                                                                                 |                                           |
| Nominal Current <sup>2</sup>      | 2.0 A / 1.5 A                                                                                                                                                                                                                                              | 4 A / 2.3 A                               |
| –Inrush current max.              | Typ. < 20 A                                                                                                                                                                                                                                                | typ. < 40 A                               |
| Efficiency (Losses <sup>3</sup> ) | > 82 % (23.4 W)                                                                                                                                                                                                                                            | > 87 % (32.6 W)                           |
| Power Factor Correction           | Units fulfill EN61000-3-2                                                                                                                                                                                                                                  |                                           |
| Output                            |                                                                                                                                                                                                                                                            |                                           |
| Nominal Voltage                   | 12 V (11.6-15.2 Vdc Adj.)                                                                                                                                                                                                                                  | 48 V (35.8 - 52 Vdc Adj.)                 |
| Tolerance                         | < ±2 % overall (combination Line, load, time and temperature related changes)                                                                                                                                                                              |                                           |
| –Line Regulation                  | < 0.5%                                                                                                                                                                                                                                                     |                                           |
| –Load Regulation                  | < 0.5%                                                                                                                                                                                                                                                     |                                           |
| –Time & Temp. Drift               | < 1%                                                                                                                                                                                                                                                       |                                           |
| Ripple <sup>4</sup>               | < 50 mVpp                                                                                                                                                                                                                                                  |                                           |
| Overvoltage Protection            | < 16 Vdc with auto-recovery                                                                                                                                                                                                                                | < 60 Vdc with auto-recovery               |
| Nominal Current                   | 9 A (108 W)                                                                                                                                                                                                                                                | 5 A (240 W)                               |
| –Current Limit                    | 110% of nominal - Fold Forward (Current rises, voltage drops to maintain constant power during overload up to max peak current)                                                                                                                            |                                           |
| Holdup Time <sup>5</sup>          | >20 ms @ full load                                                                                                                                                                                                                                         |                                           |
| Parallel Operation                | Supplies will not be damaged with parallel operation                                                                                                                                                                                                       |                                           |
| Power Back Immunity               | 16 Vdc                                                                                                                                                                                                                                                     | 60 Vdc                                    |
| General                           |                                                                                                                                                                                                                                                            |                                           |
| EMC: –Emissions                   | EN61000-6-3, EN61204-3, EN55022 Class B, EN61000-3-2, EN61000-3-3                                                                                                                                                                                          |                                           |
| –Immunity                         | EN61000-6-2, EN61204-3, EN55024, IEC61000-4-2, IEC61000-4-3, IEC61000-4-4, IEC61000-4-5, IEC61000-4-6, IEC61000-4-8, IEC61000-4-11                                                                                                                         |                                           |
| Temperature                       | Storage: -25 to +85°C, Operation -10 to +60°C full power; with linear derating to half power from 60 to 70°C (Convection cooling, no forced air required). Operation up to 50% load permissible with sideways or front-side-up mounting orientation.       |                                           |
| Humidity                          | < 90% RH, non-condensing; IEC 68-2-2, 68-2-3                                                                                                                                                                                                               |                                           |
| MTBF:                             | >500,000 hrs                                                                                                                                                                                                                                               |                                           |
| – Standard                        | Telcordia/Bellcore, Issue Case 3 @ 25°C                                                                                                                                                                                                                    |                                           |
| Warranty                          | 5 year limited warranty                                                                                                                                                                                                                                    |                                           |
| General Protection/Safety         | Protected against continuous short -circuit, continuous overload, continuous open circuit. Protection Class I (IEC536), Degree of Protection IP20 (IEC 529) Safe low voltage: SELV (acc. EN60950)                                                          |                                           |
| Status Indicators (Visual)        | Green LED on when V <sub>out</sub> > 75% (with ± 5% tolerance) of nominal output voltage                                                                                                                                                                   |                                           |
| Status Indicators (Relay)         | Normally Open solid state relay - signal active when V <sub>out</sub> >70% of nominal output voltage (rated up to 200 mA, 60 Vdc)                                                                                                                          |                                           |
| Installation                      |                                                                                                                                                                                                                                                            |                                           |
| Fusing                            | Internally fused                                                                                                                                                                                                                                           |                                           |
| –Input                            |                                                                                                                                                                                                                                                            |                                           |
| –Output                           | Outputs are capable of providing high currents for short periods of time for inductive load startup or switching. Fusing may be required if 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. Unit should handle normal shock and vibration of industrial use and transportation without falling off the rail.                                                                                    |                                           |
| Connections                       | <b>Input:</b> Screw terminals, connector size range: 16-10 AWG (1.5-6 mm <sup>2</sup> ) for solid conductors.<br><b>Output:</b> Two terminals per output, connector size range: 16-10 AWG (1.5-6 mm <sup>2</sup> ) for solid conductors.                   |                                           |
| Case                              | Fully enclosed metal housing with fine ventilation grid to keep out small parts.                                                                                                                                                                           |                                           |
| –Free Space                       | 70 mm above and below, 25 mm left and right, 15 mm in front                                                                                                                                                                                                |                                           |
| Dimensions – WxDxH in (mm)        | 4.88 × 2.56 × 4.55 (124.0 x 65.0 × 116.0)                                                                                                                                                                                                                  | 4.88 × 3.23 × 4.55 (124.0 × 83.0 × 116.0) |
| Weight – lbs (kg)                 | 2.4 (1.10)                                                                                                                                                                                                                                                 | 3.3 (1.50)                                |

1. Not UL listed for DC input.

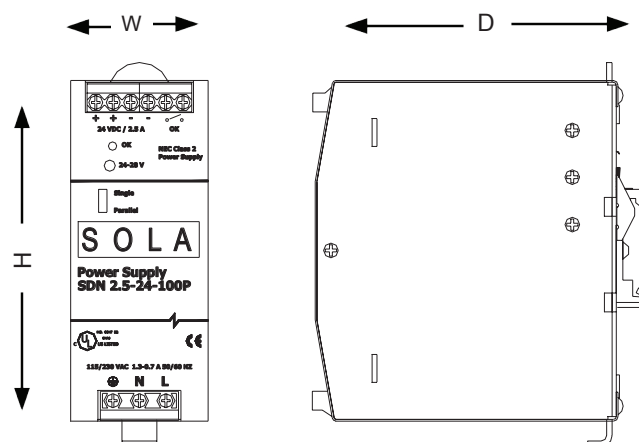
2. Input current ratings are conservatively specified with low input, worst case efficiency and power factor.

3. Losses are heat dissipation in watts at full load, nominal input line.

4. Ripple/noise is stated as typical values when measured with a 20 MHz, bandwidth scope and 50 Ohm resistor.

5. Full load, 100 Vac Input @  $T_{amb} = +25^{\circ}\text{C}$

## SDN-P Series Dimensions



| Catalog Number         | Dimensions – inches (mm) |             |              |
|------------------------|--------------------------|-------------|--------------|
|                        | H                        | W           | D            |
| <b>12 Vdc</b>          |                          |             |              |
| <b>SDN 9–12–100P</b>   | 4.88 (124.0)             | 2.56 (65.0) | 4.55 (116.0) |
| <b>SDN 16–12–100P</b>  | 4.88 (124.0)             | 3.23 (83.0) | 4.55 (116.0) |
| <b>24 Vdc</b>          |                          |             |              |
| <b>SDN 2.5–24–100P</b> | 4.88 (124.0)             | 1.97 (50.0) | 4.55 (116.0) |
| <b>SDN 4–24–100LP</b>  | 4.88 (124.0)             | 2.56 (65.0) | 4.55 (116.0) |
| <b>SDN 5–24–100P</b>   | 4.88 (124.0)             | 2.56 (65.0) | 4.55 (116.0) |
| <b>SDN 10–24–100P</b>  | 4.88 (124.0)             | 3.26 (83.0) | 4.55 (116.0) |
| <b>48 Vdc</b>          |                          |             |              |
| <b>SDN 5–48–100P</b>   | 4.88 (124.0)             | 3.23 (83.0) | 4.55 (116.0) |

