

# Switching Power Supply Type SPD 240W DIN rail mounting



- Universal AC input full range
- Installation on DIN rail 7.5 or 15mm
- Short circuit protection
- PFC as standard
- High efficiency
- Power ready output
- LED indicator for DC power ON
- LED indicator for DC low
- Parallel connection feature
- Compact dimensions
- UL, cUL listed and TUV/CE approved

## Product Description

The Switching power supplies and compact dimensions and performance are a must. designed to be used in all automation application where the installation is on a DIN rail

## Ordering Key

**SP D 24 240 1 B**

Model \_\_\_\_\_  
 Mounting ( D = Din rail ) \_\_\_\_\_  
 Output voltage \_\_\_\_\_  
 Output power \_\_\_\_\_  
 Input Type \_\_\_\_\_  
 Optional features \_\_\_\_\_

Input type: 1= single phase

## Approvals



## Optional Features

| Description        | Code |
|--------------------|------|
| Plug-in connectors | B    |

## Output performances

| MODEL NO.                   | INPUT VOLTAGE | OUTPUT WATTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | EFF. (min.) | EFF. (typ.) |
|-----------------------------|---------------|----------------|----------------|----------------|-------------|-------------|
| <b>Single Output Models</b> |               |                |                |                |             |             |
| SPD24                       | 115~230 VAC   | 240 WATTS      | + 24 VDC       | 10 A           | 87%         | 89%         |
| SPD48                       | 115~230 VAC   | 240 WATTS      | +48 VDC        | 5 A            | 88%         | 90%         |

## Output data

|                                      |            |                                               |                            |
|--------------------------------------|------------|-----------------------------------------------|----------------------------|
| Line regulation                      | ± 0.5%     | Hold up time $V_i = 115VAC$<br>$V_i = 230VAC$ | 25ms<br>30ms               |
| Load regulation                      |            | Voltage fall time ( $I_{O\text{nom}}$ )       | 150ms max                  |
| $V_i$ nom, Single mode               | ± 1        | Rated continuous loading                      |                            |
| $I_o$ min, $I_o$ nom parallel mode   | ± 5        | 24V Model                                     | 10A @ 24VDC/8.4A @ 28.5VDC |
| Minimum load                         | 0          | 48V Model                                     | 5A @ 48VDC/4.2A @ 56VDC    |
| Turn on time (full resistive load)   |            | Reverse voltage                               |                            |
| $V_i$ nom, $I_o$ nom                 | 1000ms     | 24V Model                                     | 35VDC                      |
| $V_i$ nom, $I_o$ nom with 7000µF CAP | 1500ms     | 48V Model                                     | 63VDC                      |
| Transient recovery time              | 2ms        | Capacitor load                                | 7000µF                     |
| Ripple and noise                     | 100mVpp    | Voltage rise time                             |                            |
| Output voltage accuracy              | ± 1%       | $V_i$ nom $I_o$ nom                           | 150ms                      |
| Temperature coefficient              | ± 0.03%/°C | $V_i$ nom, $I_o$ nom with 7000µF CAP          | 500ms                      |

## Input data

|                            |                   |              |                          |                  |     |
|----------------------------|-------------------|--------------|--------------------------|------------------|-----|
| <b>Rated input voltage</b> | 115 - 230         |              | <b>Power dissipation</b> |                  |     |
| <b>Voltage range</b>       |                   |              | (Vi : 230VAC, Io nom)    | <b>24V Model</b> | 35W |
|                            | <b>AC in 115V</b> | 90 - 132VAC  |                          | <b>48V Model</b> | 32W |
|                            | <b>AC in 230V</b> | 180 - 264VDC | <b>Frequency range</b>   | 47- 63Hz         |     |
|                            | <b>DC in</b>      | 210 - 375VDC | <b>Leakage current</b>   |                  |     |
| <b>Rated input current</b> |                   |              | <b>Input-Output</b>      | 0.25mA           |     |
| (Vi : 115VAC, Io nom)      | <b>Typ.</b>       | 4.4/1.6mA    | <b>Input-FG</b>          | 3.5mA            |     |
|                            | <b>Max.</b>       | 5.4/2.2mA    |                          |                  |     |
| <b>Inrush current</b>      |                   |              |                          |                  |     |
|                            | <b>Vi= 115VAC</b> | 30A          |                          |                  |     |
|                            | <b>Vi= 230VAC</b> | 60A          |                          |                  |     |

## Controls and Protections

|                                         |                                    |                                          |          |
|-----------------------------------------|------------------------------------|------------------------------------------|----------|
| <b>Overload</b>                         | 120 – 140%                         | <b>Over voltage protection</b>           | 125-140% |
| <b>Input fuse</b>                       | T6.3/250VAC internal <sup>1)</sup> | <b>Internal surge voltage protection</b> | Varistor |
| <b>Output short circuit</b>             | Fold forward                       | (IEC 61000-4-5)                          |          |
| <b>Power ready output</b> (only SPD 24) |                                    |                                          |          |
| <b>Threshold voltages</b>               | 17.6 - 19.4VDC                     |                                          |          |

<sup>1)</sup> Fuse not replaceable by user

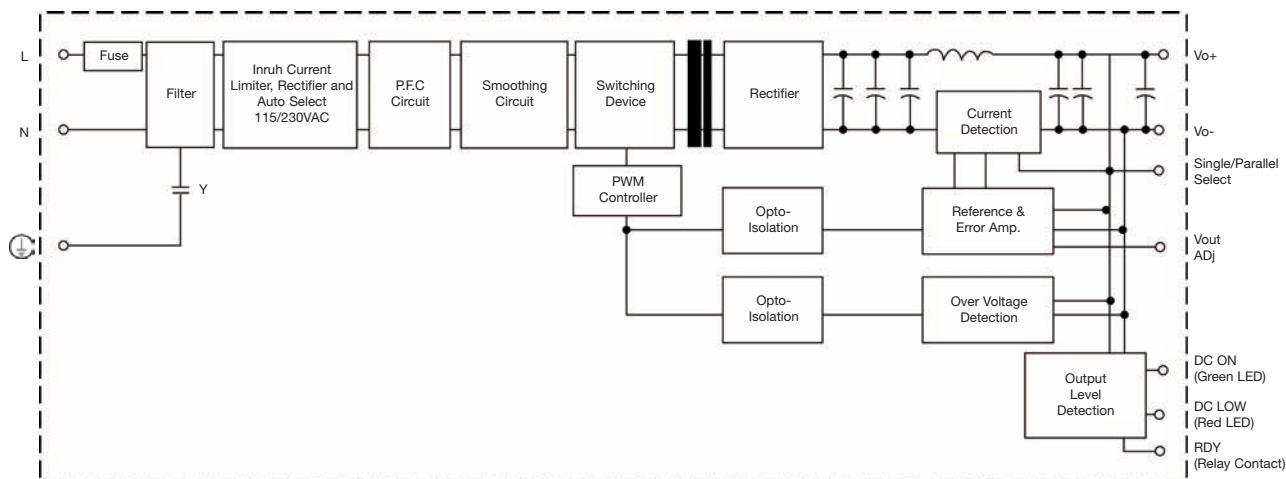
## General Data (@ nominal line, full load, 25°C )

|                                     |                     |                                           |                                        |
|-------------------------------------|---------------------|-------------------------------------------|----------------------------------------|
| <b>Ambient temperature</b>          | -40°C to 71°C       | <b>MTBF</b> (Bellcore issue 6 @ 40°C, GB) |                                        |
| <b>Derating (&gt;61°C to +71°C)</b> | 2.5%/°C             | <b>24V Model</b>                          | 423000 Hours                           |
| <b>Ambient humidity</b>             | 20 ~ 90%RH          | <b>48V Model</b>                          | 437000 Hours                           |
| <b>Storage</b>                      | -40°C to +85°C      | <b>Case material</b>                      | Metal                                  |
| <b>Protection degree</b>            | IP20                | <b>Dimensions LxWxD mm(inch)</b>          |                                        |
| <b>Cooling</b>                      | Free air convection | <b>Screw terminal type</b>                | 124.5(4.9) x 83.5(3.29) x 123.6(4.87)  |
| <b>Pollution degree</b>             | 2                   | <b>Detachable connector type</b>          | 143.5(5.65) x 83.5(3.29) x 123.6(4.87) |
|                                     |                     | <b>Weight</b>                             | 1380g                                  |


## Norms and Standards

|                             |                                                                                                             |           |                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------|-------------------------------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Vibration resistance</b> | meet IEC 60068-2-6<br>(Mounting by rail: 10-500Hz,<br>2G, along X, Y, Z each Axis,<br>60 min for each Axis) | <b>CE</b> | EN 61000-6-3, EN 55022<br>Class B, EN 61000-3-2<br>ClassD, EN 61000-3-3,<br>EN 61000-6-2,<br>EN 55024, EN 61000-4-2<br>Level 4, EN 61000-4-3<br>Level 3, EN 61000-4-4<br>Level 4, EN 61000-4-5 L-<br>Level 3, L/N-FG Level 4,<br>EN 61000-4-6 Level 3,<br>EN 61000-4-8 Level 4,<br>EN 61000-4-11,<br>ENV 50204 Level 2,<br>EN 61204-3 |
| <b>Shock resistance</b>     | meet IEC 60068-2-27<br>(15G, 11ms, 3 Axis, 6 faces,<br>3 times for each face)                               |           |                                                                                                                                                                                                                                                                                                                                       |
| <b>UL / cUL</b>             | UL508 listed, UL60950-1,<br>recognized, ISA 12.12.01<br>(Class1, Division 2, Groups<br>A, B, C and D)       |           |                                                                                                                                                                                                                                                                                                                                       |
| <b>TUV</b>                  | EN 60950-1, CB scheme<br>EN 61558-1, EN 61558-2-17<br>(meet EN 60204)                                       |           |                                                                                                                                                                                                                                                                                                                                       |
| <b>CCC</b>                  | GB4943, GB9254, GB17625.1                                                                                   |           |                                                                                                                                                                                                                                                                                                                                       |

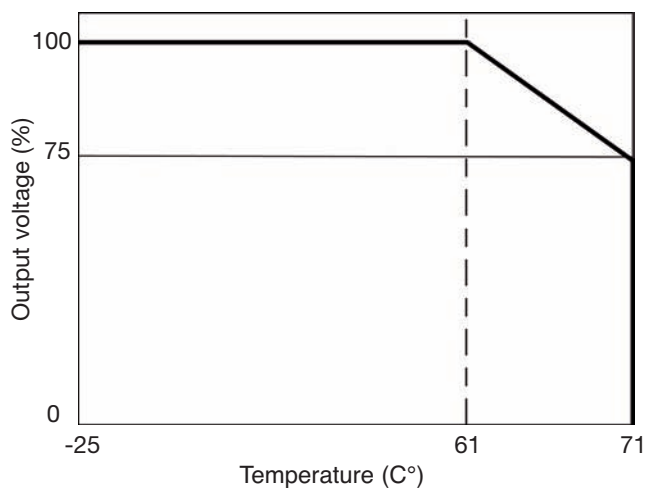
## Block diagrams



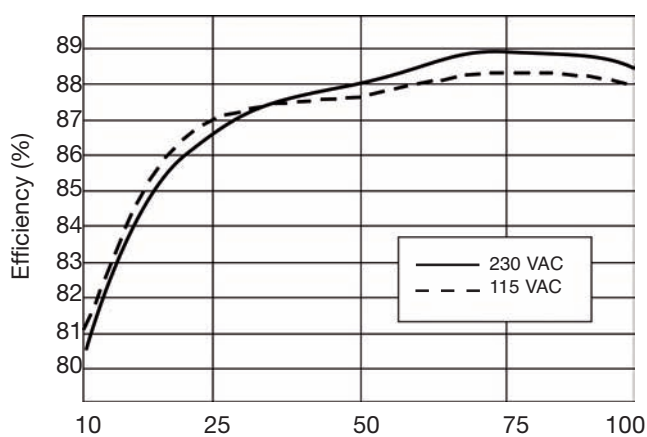
## Pin Assignment and Front Controls

| Pin No. | Designation                                                                         | Description                                                  |
|---------|-------------------------------------------------------------------------------------|--------------------------------------------------------------|
| 1       | RDY                                                                                 | A Normal open reelay contact for DC ON level control         |
| 2       |                                                                                     | (Never connect except 24V model)                             |
| 3, 4    | V+                                                                                  | Positive output terminal                                     |
| 5, 6    | V-                                                                                  | Negative output terminal                                     |
| 7       |  | Ground this terminal to minimize high-frquency emission      |
| 8       | L                                                                                   | Input terminals (phase conductor, no polarity at DC input)   |
| 9       | N                                                                                   | Input terminals (neutral conductor, no polarity at DC input) |
|         | DC ON                                                                               | Operation indicator LED                                      |
|         | Vout ADJ                                                                            | Trimmer-potentiometer for Vout adjustment                    |
|         | S/P                                                                                 | Single/Parallel select switch                                |

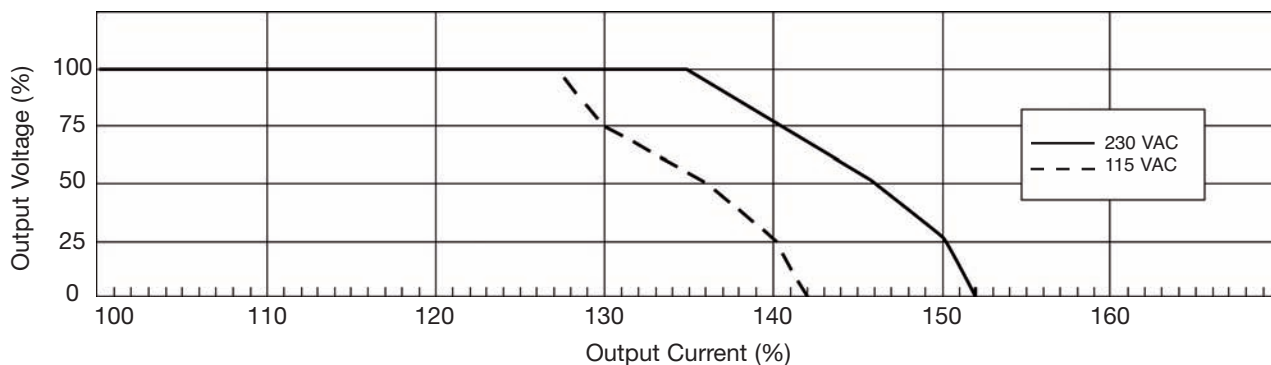
## Derating Diagram



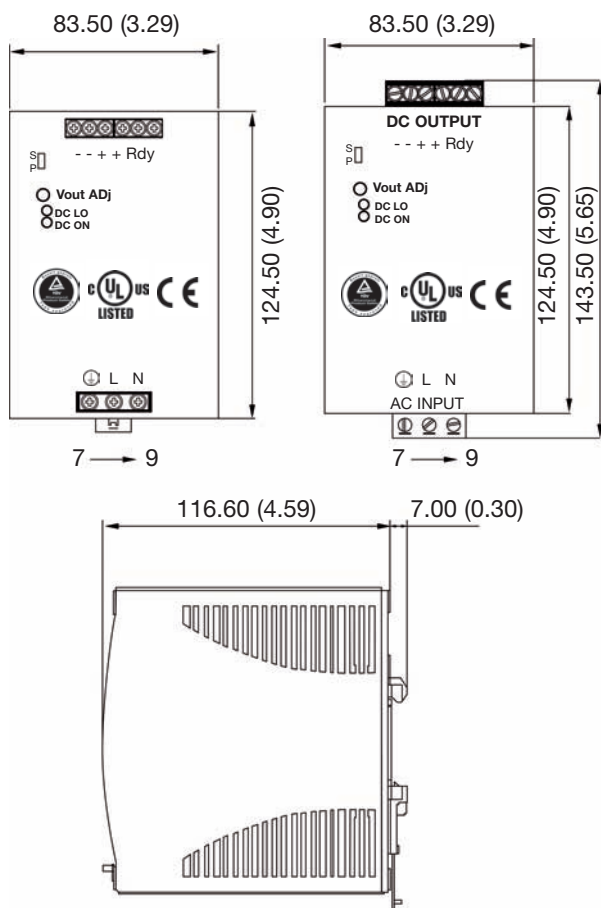
## Typ. Efficiency Curve



## Typ. Current Limited Curve



## Mechanical Drawings mm (inches)



## Installation

|                                          |                                                                           |
|------------------------------------------|---------------------------------------------------------------------------|
| <b>Ventilation and cooling</b>           | Normal convection<br>All sides 25mm free space for cooling is recommended |
| <b>Screw connections</b>                 | 10-24AWG flexible or solid cable<br>8mm stripping recommend               |
| <b>Max. torque for screws terminals</b>  |                                                                           |
| Input terminals                          | 1.008Nm (9.0lb-in)                                                        |
| Output terminals                         | 0.616Nm (5.5lb-in)                                                        |
| <b>Plug-in connectors</b>                | 10-24AWG flexible or solid cable<br>7mm stripping recommend               |
| <b>Max. torque for plug-in terminals</b> |                                                                           |
| Input terminals                          | 0.784Nm (7.0lb-in)                                                        |
| Output terminals                         | 0.784Nm (7.0lb-in)                                                        |