

Switching Power Supply Type SPD 90W DIN rail mounting

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- Installation on DIN Rail 7.5 or 15mm
- Short circuit protection
- PFC standard
- Power ready output
- LED indicator for DC power ON
- LED indicator for DC low
- Very compact dimensions
- UL, cUL listed and TUV/CE approved
- UL 1310 Class 2
- Class I div2 certification (in progress)

Product Description

This SPD is the most compact 90W power supply on the market. Relay output for "power ready" function is included. Performances are unique with high efficiencies and the possibility of being used up to 70°C with a little derating.

Ordering Key

SP D 24 90 1 L

Model _____
 Mounting (D = Din rail) _____
 Output voltage _____
 Output power _____
 Input type _____
 Plastic enclosure _____

Input type: 1= single phase

Approvals



Output Performances

| Model | Rated output Voltage (VDC) | Output Power (W) | Output Current (A) | Voltage Trim Range | | DC ON LED (VDC) Threshold at startup | | DC LO LED (VDC) Threshold after startup | | Typical Efficiency |
|---------|----------------------------|------------------|--------------------|--------------------|----------|--------------------------------------|------|---|------|--------------------|
| | | | | Min. VDC | Max. VDC | Min. | Max. | Min. | Max. | |
| SPD2490 | 24 | 91.2 | 3.8 | 22.5 | 24.5 | 17.6 | 19.4 | 17.6 | 19.4 | 85% |

Output Data

| | | | |
|---|-------------------------------|---|--------|
| Output voltage accuracy | -0 +1% max (factory adjusted) | Turn On Time | |
| Line regulation | ± 1% | $V_{i\ nom}, I_{o\ nom}$ | 1.0s |
| Load regulation | | $V_{i\ nom}, I_{o\ nom}$ with Capacitor load | 1.5s |
| Non parallel model | ± 1% | Rise Time | |
| Parallel model | ± 5% | $V_{i\ nom}, I_{o\ nom}$ | 150ms |
| Temp. coefficient | ± 0.03% / °C | $V_{i\ nom}, I_{o\ nom}$ with Capacitor load | 500ms |
| Ripple and noise | 50mV | Capacitor Load | 7000µF |
| $V_{i\ nom}, I_{o\ nom}, BW=20MHz$ | | Reverse Voltage Immunity | 35V |
| Rated continuous Loading | 3.8A @ 24VDC / 3.7A @ 24.5VDC | Hold up Time $V_i = 115VAC$ $I_{o\ nom}$ | 15ms |
| Fall Time | 150ms | Hold up Time $V_i = 230VAC$ $I_{o\ nom}$ | 30ms |
| Transient recovery time | | Minimum load $V_{i\ nom}$ | 0% |
| $V_{i\ nom}, I_{o\ nom} = 0.5 \times I_{nom}$ | 2ms | Parallel Operation | No |

Input Data

| | | | |
|--|--------------|------------------------|--------|
| Rated input voltage | 110/240 | Leakage Current | |
| Voltage range | | Input / Output | 0.25mA |
| AC in | 90 - 264VAC | Input / FG | 3.5mA |
| DC in | 120 - 375VDC | Inrush current | |
| Rated input current | 1.65A / 1.4A | Vi= 115VAC | 30A |
| Power dissipation | 15W | Vi= 230VAC | 60A |
| Frequency range | 47- 63 Hz | P.F.C. | 0.7 |
| Internal Voltage Surge Protection (acc. to IEC61000-4-5) | Varistor | | |

Controls and Protections

| | | | |
|--|-------------------------------------|-------------------------|----------------------------|
| Input Fuse | T3.15/250VAC internal ¹⁾ | Power ready | |
| Output Short Circuit | fold forward | Threshold at start up | Min. 17.6VDC - Max.19.4VDC |
| Rated Overload Protection | 102 - 108% | (contact closed) | |
| Over voltage protection (auto recovery) | 24.5V to 25.5V | Contact rating at 60VDC | 0.3A |
| Input Voltage Surge Protection | Varistor | Insulation | 500VDC |

¹⁾ Fuse not replaceable by user

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

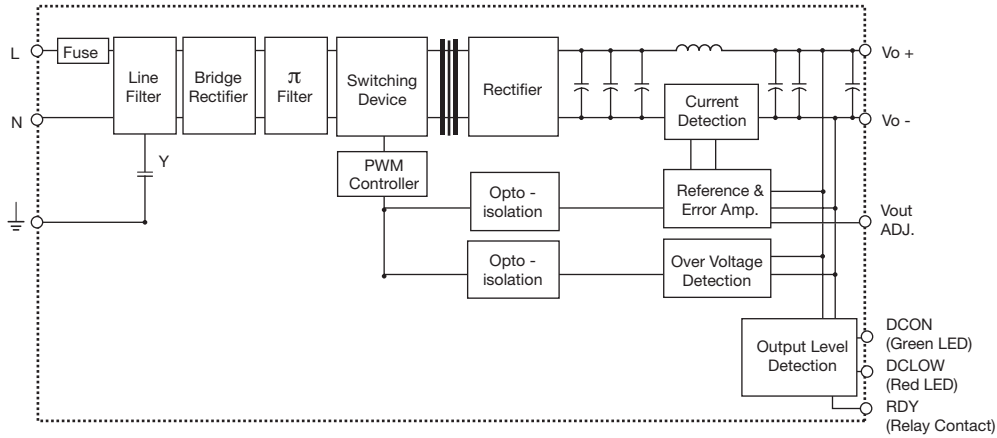
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|-------------------------------------|---------------------|---|-----------------|
| Ambient temperature | -25°C to 71°C | Switching frequency | |
| Derating (>61°C to +71°C) | 2.5% / °C | Min. | 45kHz |
| Ambient humidity | 20 to 95%RH | Max. | 60kHz |
| Storage | -25°C to +85°C | MTBF (Bellcore Issue 6@40°C), GB | 493,000h |
| Pollution degree | 2 | Altitude during operation | 3.000m |
| Protection degree | IP20 | Case material | Plastic |
| Cooling | Free air convection | Dimensions L x W x D | 90 x 54 x 114mm |
| | | Weight | 430g |

Approvals and EMC

| | | | |
|------------------------------|--|-----------|---|
| Insulation voltage | Input / Output 3.000VAC / 4242VDC Input / FG 1500VAC / 2121VDC | CE | EN 61000-6-3, EN 55022 Class B, EN 61000-3-2, EN 61000-3-3 EN 61000-6-2, EN 55024, EN 61000-4-2 Level 4, EN 61000-4-3 Level 3 EN 61000-4-4 Level 4, EN 61000-4-5 L-N Level 3, L / N-FG Level 4 EN 61000-4-6 Level 3, EN 61000-4-8 Level 4, EN 61000-4-11 ENV 50204 Level 2, EN 61204-3 |
| Insulation resistance | 100MΩ min | | |
| Shock resistance | acc. to IEC 60068-2-27 (15G, 11ms, 3 Axis, 6 Faces, 3 times for each Face) | | |
| Vibration resistance | acc. to IEC 60068-2-6 (Mounting by rail: 10-500 Hz, 2G, along X, Y, Z each Axis, 60 min for each Axis) | | |
| UL / cUL | UL 508 Listed UL 60950-1, UL 1310 Class 2 Power Recognized ISA 12.12.01 (Class I, Division 2, Groups A, B, C and D in progress) | | |
| TUV | EN 60950-1, CB scheme EN 61558-1, EN 61558-2-17 (acc.to EN 60204) | | |



Block Diagrams

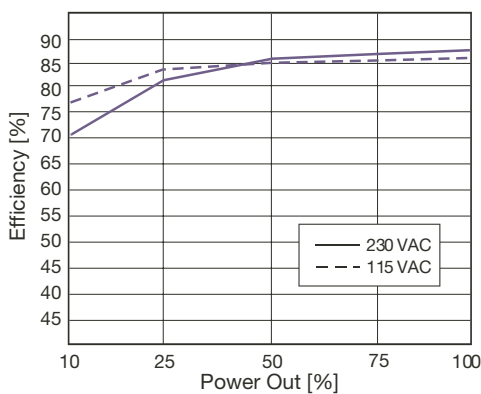


Pin Assignment and Front Controls

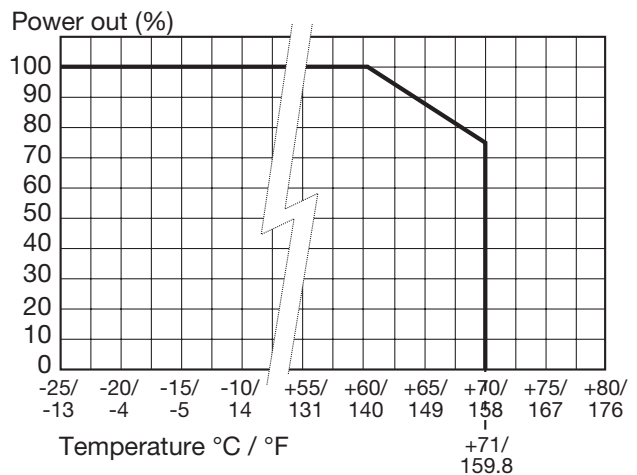
| Terminal Nr. | Designation | Description |
|--------------|-------------|--|
| 1 | RDY | N.O. relay contact for DC OK (only SPD241001) |
| 2 | RDY | N.O. relay contact for DC OK (only SPD241001) |
| 3 | V+ | Positive output terminal |
| 4 | V+ | Positive output terminal |
| 5 | V- | Negative output terminal |
| 6 | V- | Negative output terminal |
| 7 | GND | Ground terminal to minimise High frequency emissions |
| 8 | N | Neutral input (no polarity with DC input) |
| 9 | L | Phase input (no polarity with DC input) |

| Device | Designation | Description |
|--------|-------------|--|
| L1 | DC ON | DC output ready LED |
| L2 | DC LO | DC low indicator LED |
| POT1 | Vout Adj. | Trimmer for fine output voltage adjustment |

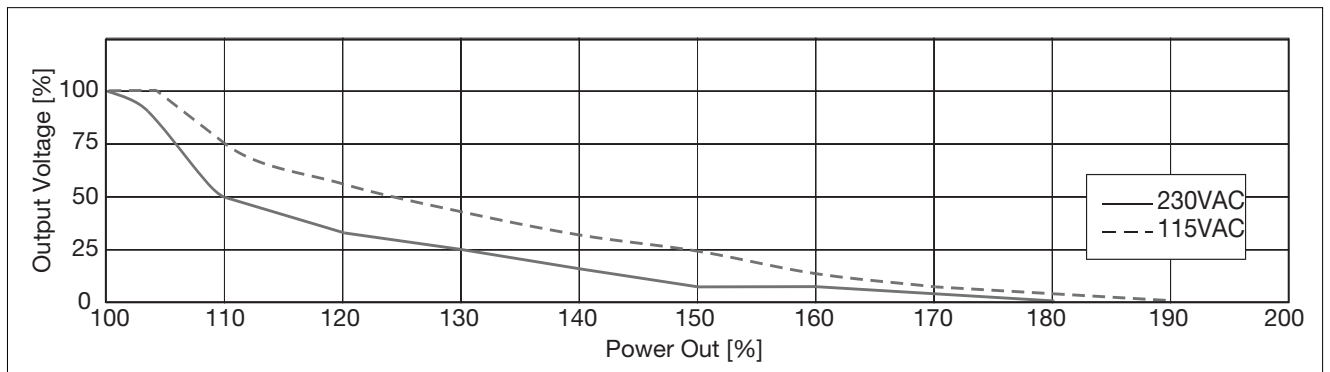
Typ. Efficiency Curve



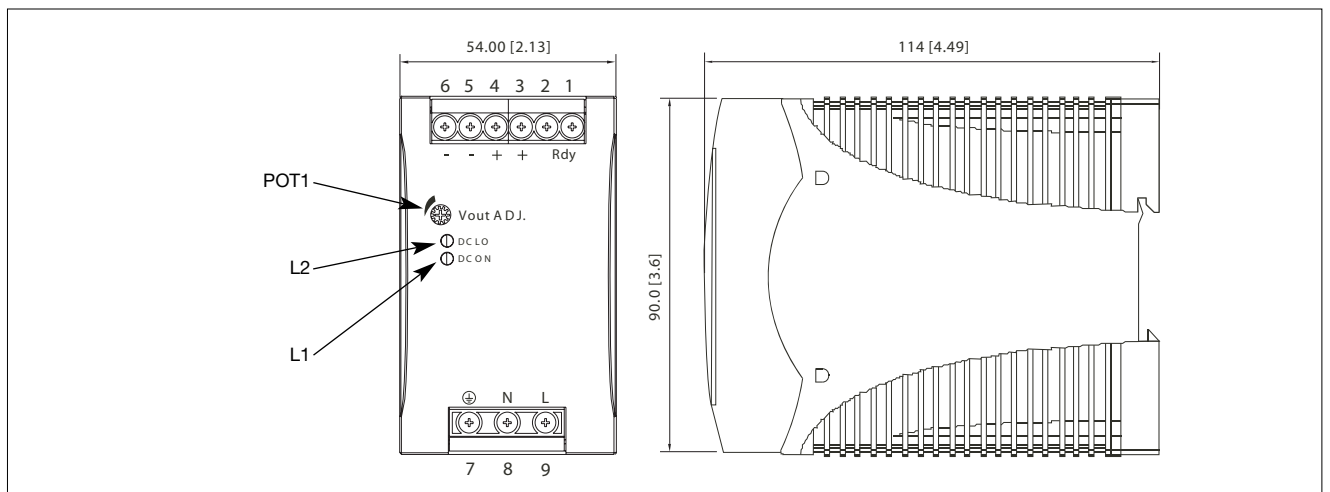
Derating Diagram



Typ. Current Limited Curve



Mechanical Drawings mm (inches)



Installation

| | |
|--|---|
| Ventilation and cooling | Normal convection All sides 25mm free space for cooling is recommended |
| Screw terminals | 10-24AWG flexible or solid cable 8mm stripping recommend |
| Max. torque for screws terminals | |
| Input terminals | 1.008Nm (9.0lb-in) |
| Output terminals | 0.616Nm (5.5lb-in) |
| Plug-in connectors | 10-24AWG flexible or solid cable 7mm stripping recommend |
| Max. torque for plug-in terminals | |
| Input terminals | 0.784Nm (7.0lb-in) |
| Output terminals | 0.784Nm (7.0lb-in) |
| Reccomended circuit breaker | 5A / 6A / 10A B, D characteristics |