

Switching Power Supply Type SPD 60W DIN rail mounting

CARLO GAVAZZI



- Universal AC input full range
- Installation on DIN rail 7.5 or 15mm
- Short circuit protection
- Overload protection
- Class 2 output
- High efficiency
- LED indicator for DC power ON
- Power Ok output
- CE, TUV approved and cULus Listed

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 60 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 |
|-------------------|------|
| Spring connectors | B |

Output Performances

| Model | Rated output Voltage (VDC) | Output Power (W) | Output Current (A) | Voltage Trim Range | | DC ON green LED at start up DC LOW red LED after start up | | Typical Efficiency |
|-------|----------------------------|------------------|--------------------|--------------------|----------|--|----------|--------------------|
| | | | | Min. VDC | Max. VDC | Min. VDC | Max. VDC | |
| SPD05 | 5 | 50 | 10.0 | 5 | 5.5 | 3.5 | 4.5 | 79% |
| SPD12 | 12 | 60 | 5.0 | 12 | 14 | 9.0 | 10.8 | 86% |
| SPD24 | 24 | 60 | 2.5 | 24 | 28 | 18 | 21.6 | 89% |
| SPD48 | 48 | 60 | 1.25 | 48 | 55 | 37 | 43 | 89% |

Output Data

| | | | | | |
|--|------------------------------------|--------------------------|--|--------------------------|--|
| Line regulation | ± 0.5% | Rated continuous loading | 5V Model | 10A @ 5VDC/9.0A @ 5.5VDC | |
| Load regulation | ± 0.5% | | 12V Model | 5A @ 12VDC/4.25A @ 14VDC | |
| Minimum load (A) | 0 | 24V Model | 2.5A @ 24VDC/2.1A @ 28VDC | Reverse voltage | |
| Turn on time (full resistive load) | 1000ms max | 48V Model | 1.25A @ 48VDC/1.08A @ 55VDC | | |
| Transient recovery time | 2ms | Capacitor load | 7000µF | | |
| Ripple and noise | 50mVpp | | Voltage rise time at full resistive load | 150ms max | |
| Output voltage accuracy | ± 1% | | | | |
| Temperature coefficient | ± 0.03%/°C | | | | |
| Hold up time | Vi= 115VAC 20ms Vi= 230VAC 30ms | | | | |
| Voltage fall time (I _{0nom}) | 150ms max | | | | |

Input Data

| | | | | | |
|---|-------------------|-------------|---|------------------------|---------------------|
| Rated input voltage | 100 - 240VAC | | Power dissipation (Vi : 230VAC, Io nom) | 5V Model | 12.5W |
| Voltage range | AC | 85 - 264VAC | Frequency range | 12V Model | 9.0W |
| | DC | 90 - 375VDC | | 24V Model | 8.8W |
| Rated input current (Vi : 115VAC, Io nom) | Typ. | 1060mA | | 48V Model | 7.8W |
| | Max. | 1500mA | | Leakage current | Input-Output |
| Inrush current | | | Input-FG | 3.5mA | |
| | Vi= 115VAC | 20A | | | |
| | Vi= 230VAC | 40A | | | |

Controls and Protections

| | | | | |
|--|-----------------------------------|--|-------------|-------------|
| Overload | 110 - 150% | Over voltage protection | VDC | |
| Input fuse | T2A/250VAC internal ¹⁾ | | Min. | Max. |
| Output short circuit | Fold forward | 5V Model | 6.0 | 6.8 |
| Power ready output (Rdy) (only SPD 24) | On threshold | 12V Model | 15 | 16.5 |
| | Off threshold | 24V Model | 30 | 33 |
| | | 48V Model | 60 | 66 |
| | Vout > 19,2V ± 2% | Internal surge voltage protection | Varistor | |
| | Vout < 19,1V ± 2% | (IEC 61000-4-5) | | |

¹⁾ Fuse not replaceable by user

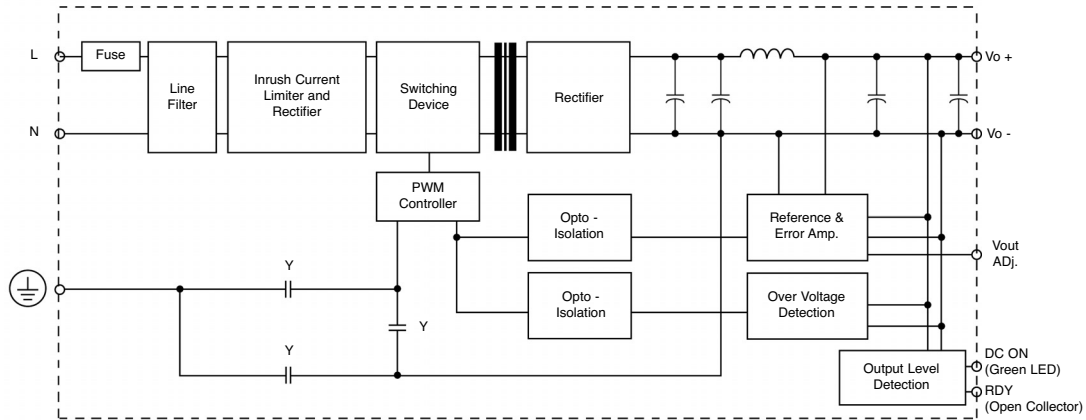
General Data (@ nominal line, full load, 25°C)

| | | | | |
|-------------------------------------|----------------------|---|-------------------------------|--------------|
| Ambient temperature | -40°C to 71°C | MTBF (Bellcore issue 6 @ 40°C, GB) | 5V Model | 498000 Hours |
| Derating (>61°C to +71°C) | 2.5%/°C | | 12V Model | 504000 Hours |
| Ambient humidity | 20 ~ 95%RH | | 24V Model | 520000 Hours |
| Storage | -40°C to +85°C | | 48V Model | 531000 Hours |
| Protection degree | IP20 | Case material | Plastic: PC, UL94-V0 | |
| Cooling | Free air convection | Pollution degree | 2 | |
| Insulation voltage | Input-Output | Altitude | 2000m | |
| | Input-FG | Dimensions LxWxD mm(inch) | 90(3.60)x40.5(1.59)x114(4.49) | |
| Insulation resistance I/O | 100MΩ min (@ 500VDC) | Weight | 340g | |

Norms and Standards

| | | | |
|-----------------------------|--|-----------|--|
| Vibration resistance | meet IEC 60068-2-6 (Mounting by rail: 10-500Hz, 2G, along X, Y, Z each Axis, 60 min for each Axis) | 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-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 |
| Shock resistance | meet IEC 60068-2-27 (15G, 11ms, 3 Axis, 6 faces, 3 times for each face) | | |
| UL / cUL | UL508 listed, UL60950-1, UL1310 Class 2 Power (only 5V, 12V w/o Class 2) Recognized, ISA 12.12.01 (Class 1, Division 2, Groups A, B, C and D) | | |
| TUV | EN 60950-1, CB scheme EN 61558-1, EN 61558-2-17 (meet EN 60204) | | |
| CCC | GB4943, GB9254, GB17625.1 | | |

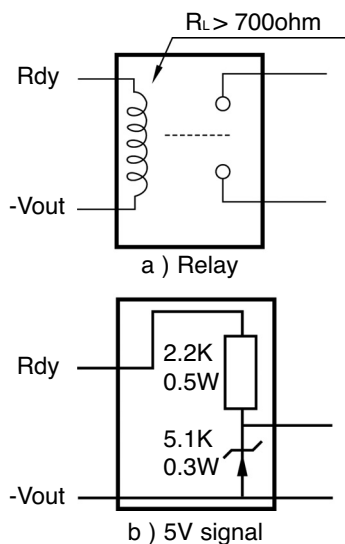
Block Diagrams



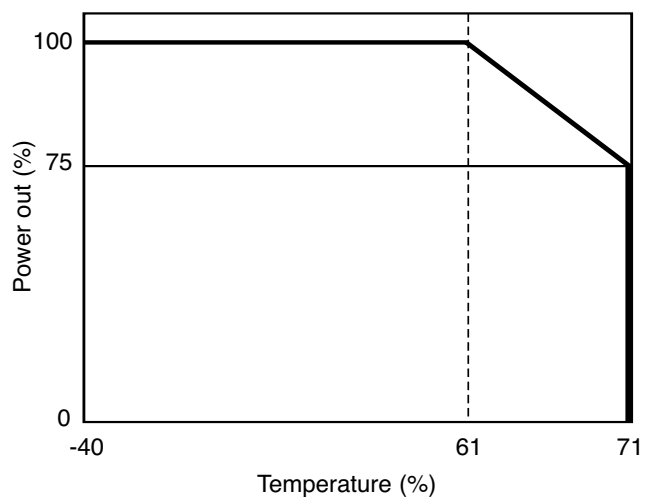
Pin Assignment and Front Controls

| Pin No. | Designation | Description |
|---------|-------------|--|
| 1 | RDY | DC OK, output for relay (only on SPD 24) |
| 2 | + | Positive output terminal |
| 3 | + | Positive output terminal |
| 4 | - | Negative output terminal |
| 5 | - | Negative output terminal |
| 6 | GND | Ground terminal to minimise High frequency emissions |
| 7 | L | Phase input (no polarity with DC input) |
| 8 | N | Neutral input (no polarity with DC input) |
| Pot1 | Vout ADJ. | Trimmer for fine output voltage adjustment |
| L1 | DC ON | DC output ready LED |

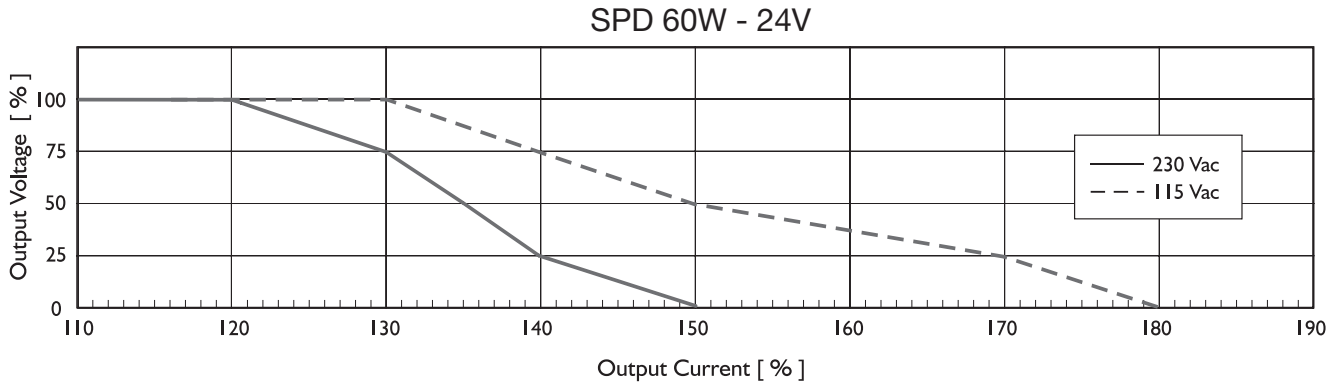
Output Rdy Wiring Diagram



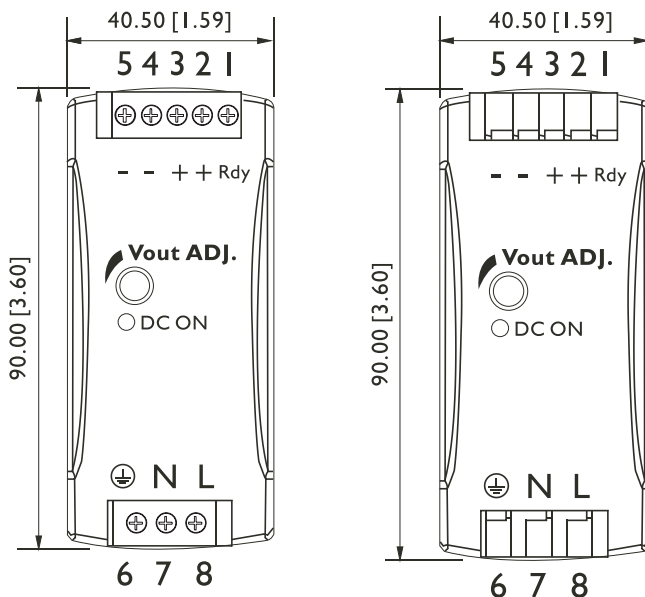
Derating Diagram



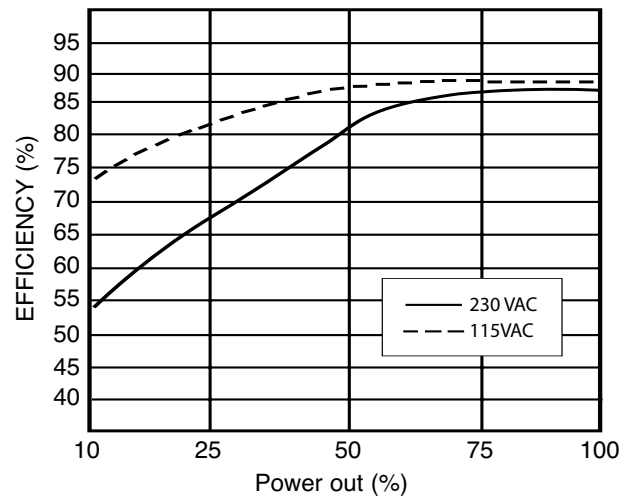
Typ. Current Limited Curve



Mechanical Drawings mm (inches)



Typ. Efficiency Curve



Installation

| | |
|-----------------------------------|--|
| Ventilation and cooling | Normal convection All sides 25mm free space for cooling is recommended |
| Connector size range | AWG24-14 (0.2~2mm ²) flexible/solid cable, 10mm stripping at cable and recommends use copper conductors only, 60/75°C |
| Spring terminal | |
| Screw terminal | AWG26-12 (0.2~2.5mm ²) flexible/solid cable, connector can withstand torque at max 0,56Nm (5 lbs-in). 4~5 mm stripping at cable and recommends use copper conductors only, 60/75°C |
| Max. torque for terminal | |
| Input terminals | 0.56Nm (5.0lb-in) |
| Output terminals | 0.56Nm (5.0lb-in) |
| General tolerances mm(in.) | |
| 0.00 (0.00) ÷ 30.00 (1.18) | ±0.30 (0.01) |
| 30.00 (1.18) ÷ 120.00 (4.72) | ±0.50 (0.02) |

