

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 SPD series are specially designed to be used in all automation application where the installation is on a DIN rail and compact dimensions and performance are a must.

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
Turn on time (full resistive load)	1000ms max		48V Model	1.25A @ 48VDC/1.08A @ 55VDC
Transient recovery time	2ms	Reverse voltage	5V Model	7.5VDC
Ripple and noise BW = 20MHz	50mVpp		12V Model	18VDC
Output voltage accuracy	± 1% max.		24V Model	35VDC
Temperature coefficient	± 0.03%/°C		48V Model	63VDC
Hold up time	Vi= 115VAC Vi= 230VAC	Capacitor load		7000µF
	20ms 30ms			
Voltage fall time (I ₀ nom)	150ms max	Voltage rise time at full resistive load		150ms max

Input Data

Rated input voltage	100 - 240VAC	Power dissipation (Vi : 230VAC, Io nom)	5V Model 12.5W 12V Model 9.0W 24V Model 8.8W 48V Model 7.8W
Voltage range	AC 85 - 264VAC DC 90 - 375VDC	Frequency range	47- 63Hz
Rated input current (Vi : 115VAC) (Vi : 230VAC)	1060mA 590mA	Leakage current	Input-Output 0.25mA Input-FG 3.5mA
Input current (Vi : 85VAC)	1500mA		
Inrush current	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 12V Model 15 24V Model 30 48V Model 60	6.8 16.5 33 66
Power ready output (Rdy) (only SPD 24)	On threshold Vout > 19,2V ± 2% Off threshold Vout < 19,1V ± 2%	Internal surge voltage protection (IEC 61000-4-5)	Varistor

¹⁾ Fuse not replaceable by user

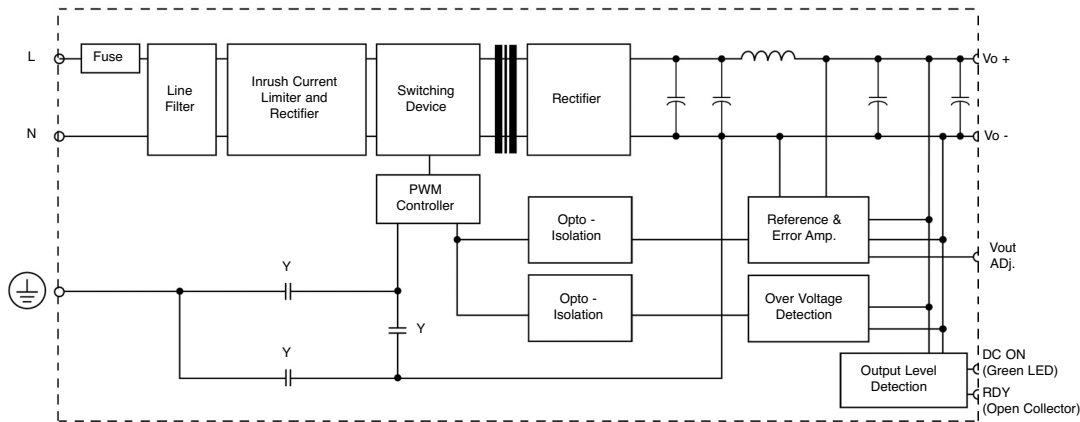
General Data (@ nominal line, full load, 25°C)

Ambient temperature	-40°C to 71°C	MTBF (Bellcore issue 6 @ 40°C, GB)	5V Model 498000 Hours 12V Model 504000 Hours 24V Model 520000 Hours 48V Model 531000 Hours
Derating (>61°C to +71°C)	2.5%/°C	Case material	Plastic: PC, UL94-V0
Ambient humidity	20 ~ 95%RH	Pollution degree	2
Storage temperature	-40°C to +85°C	Altitude	2000m
Protection degree	IP20	Dimensions LxWxD mm(inch)	90(3.60)x40.5(1.59)x114(4.49)
Cooling	Free air convection	Weight	340g
Insulation voltage	Input-Output 3.000VAC/4242VDC min Input-FG 1.500VAC/2121VDC min		
Insulation resistance I/O	100MΩ min (@ 500VDC)		

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		

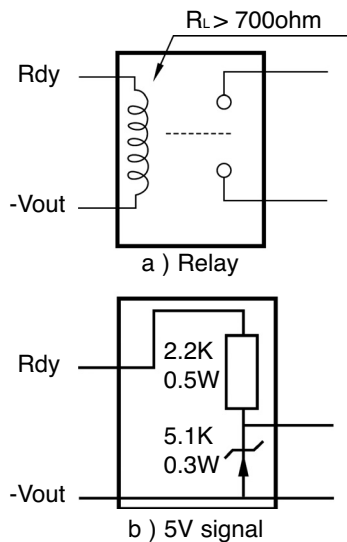
Block Diagrams



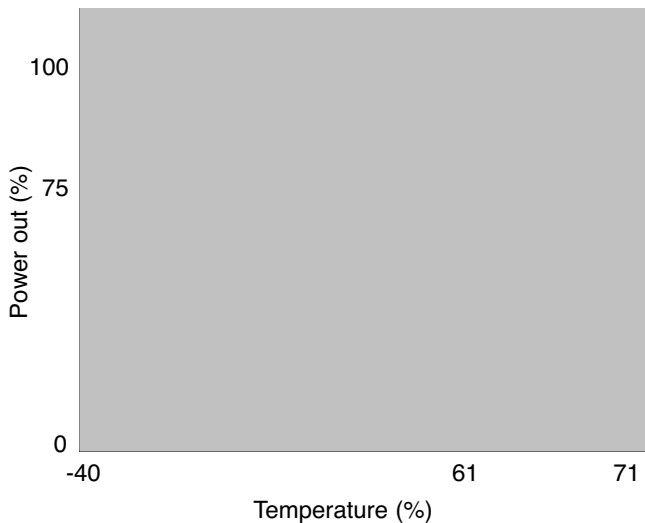
Pin Assignment and Front Controls

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

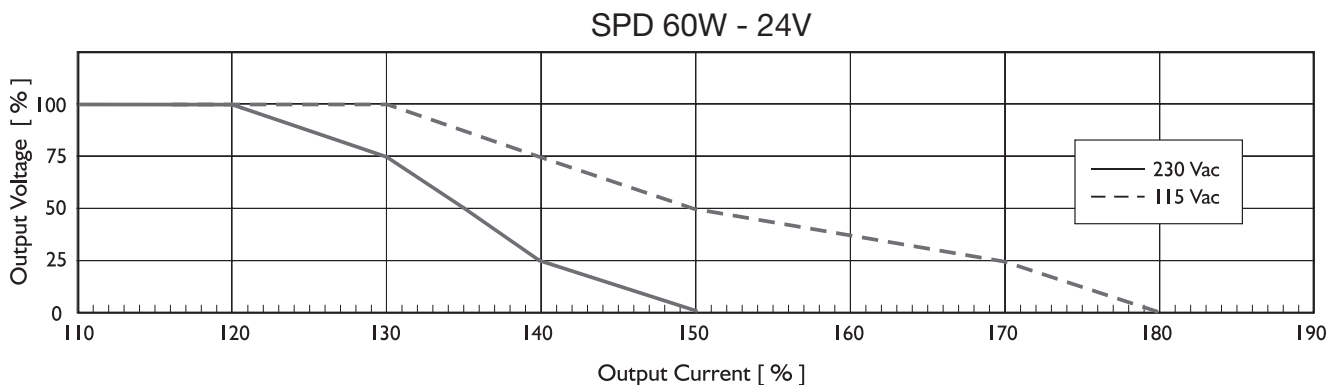
Output Rdy Wiring Diagram



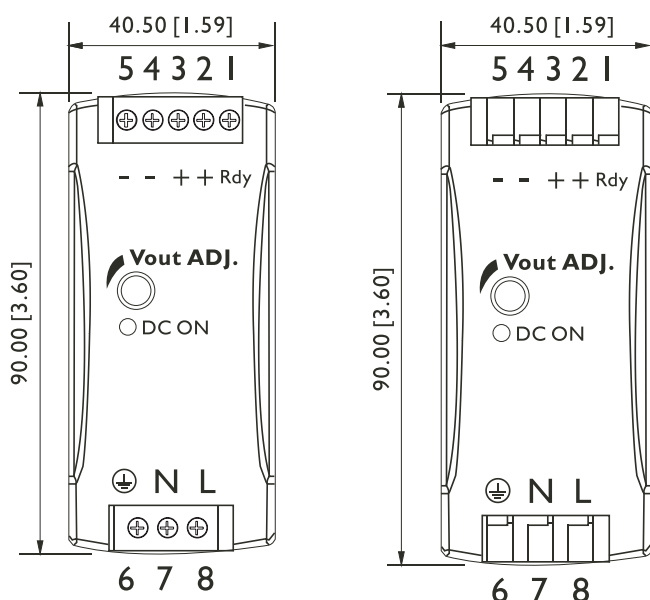
Derating Diagram



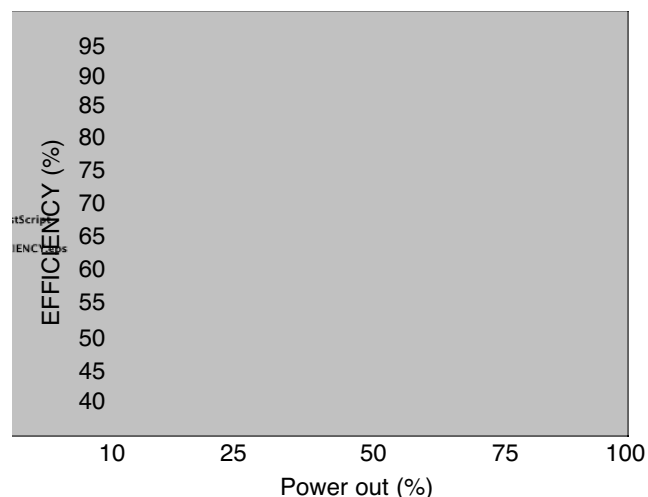
Typ. Current Limited Curve



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	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
Screw terminal	
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)