

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	Reverse voltage
Turn on time (full resistive load)	1000ms max	48V Model	1.25A @ 48VDC/1.08A @ 55VDC	
Transient recovery time	2ms	5V Model	7.5VDC	Capacitor load
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	20ms	Voltage rise time at full resistive load	150ms max	
Vi= 230VAC	30ms			
Voltage fall time (I_onom)	150ms max			

Input Data

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

¹⁾ Fuse not replaceable by user

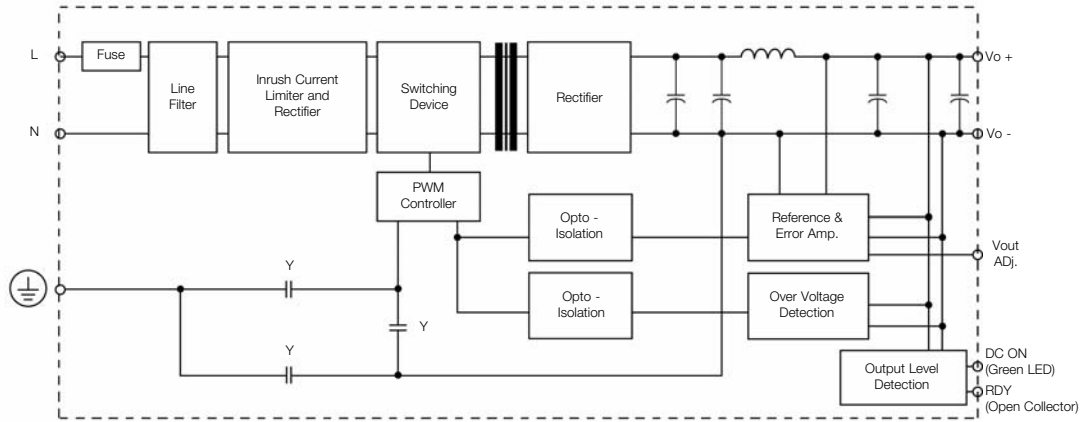
General Data (@ nominal line, full load, 25°C)

Ambient temperature	-40°C to 71°C	MTBF (Bellcore issue 6 @ 40°C, GB)	
Derating (>61°C to +71°C)	2.5%/°C	5V Model	498000 Hours
Ambient humidity	20 ~ 95%RH	12V Model	504000 Hours
Storage temperature	-40°C to +85°C	24V Model	520000 Hours
Protection degree	IP20	48V Model	531000 Hours
Cooling	Free air convection	Case material	Plastic: PC, UL94-V0
Insulation voltage		Pollution degree	2
Input-Output	3.000VAC/4242VDC min	Altitude	2000m
Input-FG	1.500VAC/2121VDC min	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 61558-2-16 (meet EN 60204)		
CCC	GB4943, GB9254, GB17625.1		

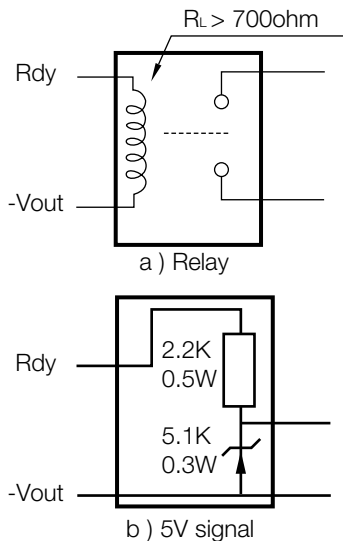
Block Diagrams



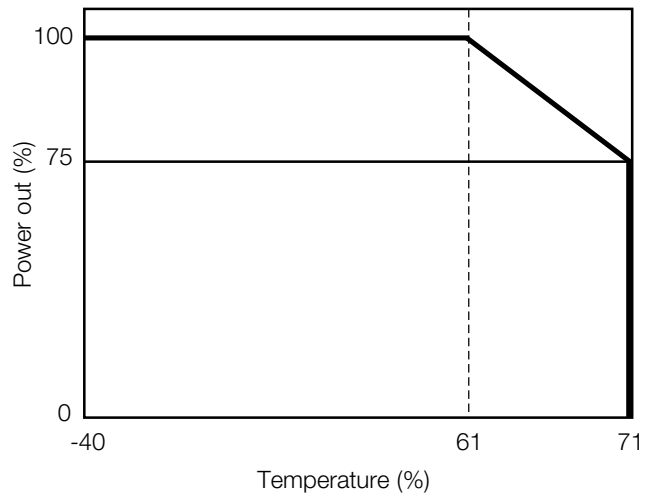
Pin Assignement and Front Controls

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

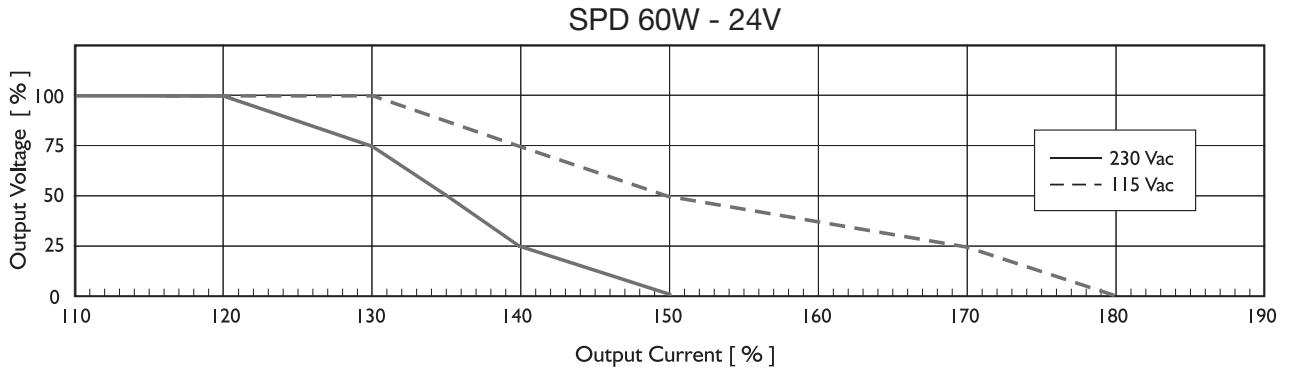
Output Rdy Wiring Diagram



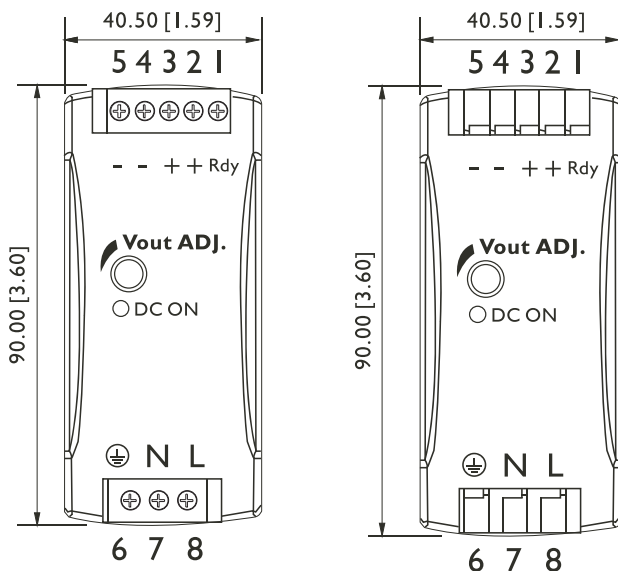
Derating Diagram



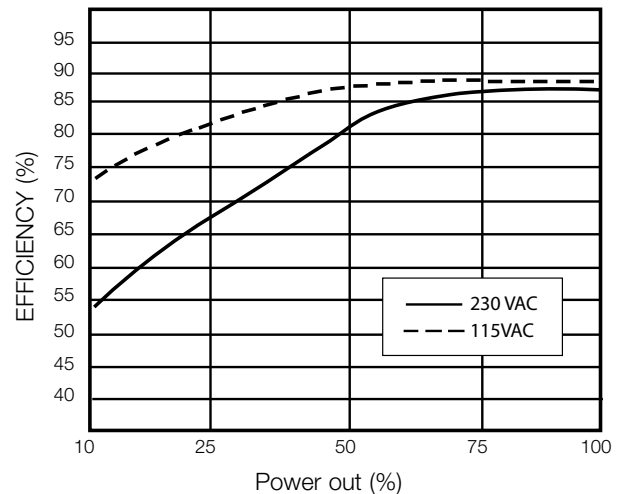
Typ. Current Limited Curve



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 Spring terminal

AWG24-14 (0.2~2mm²)
 flexible/solid cable, 10mm stripping at cable and recommends use copper conductors only, 60/75°C

Screw terminal

AWG26-12 (0.2~2.5mm²)
 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 Output terminals

0.56Nm (5.0lb-in)
 0.56Nm (5.0lb-in)

General tolerances mm(in.) 0.00 (0.00) ÷ 30.00 (1.18) 30.00 (1.18) ÷ 120.00 (4.72)

±0.30 (0.01)
 ±0.50 (0.02)