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# Switching Power Supply Type SPD 10W DIN rail mounting

CARLO GAVAZZI



- Universal AC input full range
- Installation on DIN rail 7.5 or 15mm
- Short circuit protection
- Overload protection
- High efficiency
- LED indicator for DC power ON
- LED indication for DC low
- Power Ok output
- Internal input filter
- 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 10 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 NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)
<b>Single Output Models</b>						
SPD05	90~264 VAC	10 WATTS	+ 5 VDC	2000 mA	71%	73%
SPD12	90~264 VAC	10 WATTS	+12 VDC	840 mA	73%	75%
SPD15	90~264 VAC	10 WATTS	+15 VDC	670 mA	74%	76%
SPD24	90~264 VAC	10 WATTS	+24 VDC	420 mA	74%	76%

## Output Data

Line regulation	± 1%	Rated continuous loading	5V Model	2A @ 5VDC/1.7A @ 5.75VDC
Load regulation	± 2%		12V Model	0.84A@12VDC/0.72A@13.8VDC
Minimum load	0	15V Model	0.67A @ 15VDC/0.58A @ 17.25VDC	Reverse voltage
Turn on time (full resistive load)	1000ms	24V Model	0.42A @ 24VDC/0.34A @ 28.8VDC	
Vi nom, Io nom with 3500µF	1500ms	5V Model	7.5VDC	
Transient recovery time	2ms	12V Model	18VDC	
Ripple and noise	50mVpp	15V Model	22VDC	Capacitor load
Output voltage accuracy	+ 1%	24V Model	35VDC	
Temperature coefficient	± 0.03%/°C	Capacitor load	3500µF	Voltage rise time at (full resistive load)
Hold up time Vi= 115VAC	25ms	Vi nom, Io nom with 3500µF	150ms	
Hold up time Vi= 230VAC	100ms			
Voltage fall time (I <sub>o</sub> nom)	150ms max			

## Input Data

<b>Rated input voltage</b>	100 - 240VAC	<b>Power dissipation</b> (Vi : 230VAC, Io nom)	<b>5V Model</b> 4.0W <b>12V Model</b> 3.4W <b>15V Model</b> 3.3W <b>24V Model</b> 2.8W
<b>Voltage range</b>	<b>AC</b> 90 - 264VAC <b>DC</b> 120 - 375VDC	<b>Frequency range</b>	47- 63Hz
<b>Rated input current</b> (Vi : 115VAC, Io nom)	<b>Typ.</b> 200mA <b>Max.</b> 300mA	<b>Leakage current</b>	<b>Input-Output</b> 0.25mA <b>Input-FG</b> 3.5mA
<b>Inrush current</b>	<b>Vi= 115VAC</b> 10A <b>Vi= 230VAC</b> 18A		

## Controls and Protections

<b>Overload</b>	110 – 145%	<b>Over voltage protection</b>	125-145%
<b>Input fuse</b>	T2A/250VAC internal <sup>1)</sup>	<b>Internal surge voltage protection</b> (IEC 61000-4-5)	Varistor
<b>Output short circuit</b>	Hiccup mode		

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

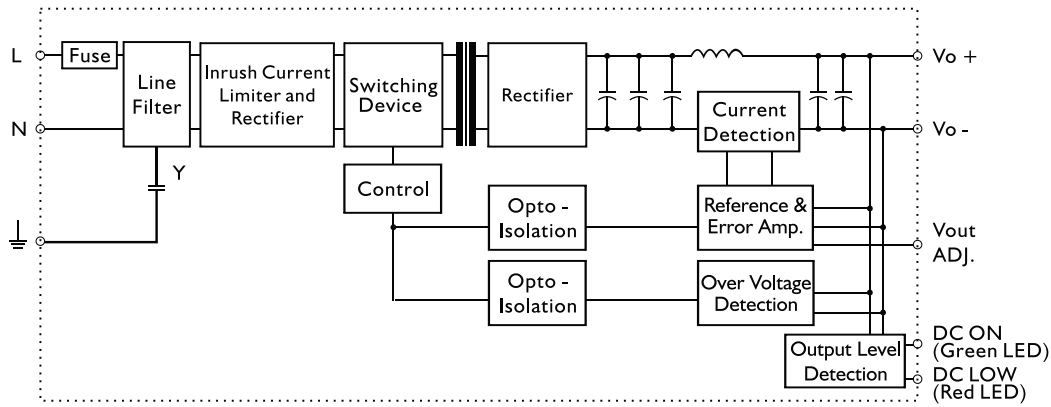
## General Data (@ nominal line, full load, 25°C )

<b>Ambient temperature</b>	-20°C to 71°C	<b>MTBF</b> (Bellcore issue 6 @ 40°C, GB)	<b>5V Model</b> 801000 Hours <b>12V Model</b> 803000 Hours <b>15V Model</b> 805000 Hours <b>24V Model</b> 808000 Hours
<b>Derating (&gt;61°C to +71°C)</b>	2.5%/°C	<b>Case material</b>	Plastic: PC, UL94-V0
<b>Ambient humidity</b>	20 ~ 95%RH	<b>Pollution degree</b>	2
<b>Storage</b>	-25°C to +85°C	<b>Altitude</b>	2000m
<b>Protection degree</b>	IP20	<b>Dimensions LxWxD mm(inch)</b>	90(3.60)x22.5(0.89)x114(4.49)
<b>Cooling</b>	Free air convection	<b>Weight</b>	120g
<b>Insulation voltage</b>	<b>Input-Output</b> 3.000VAC/4242VDC min <b>Input-FG</b> 1.500VAC/2121VDC min		
<b>Insulation resistance I/O</b>	100MΩ min (@ 500VDC)		


## Norms and Standards

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

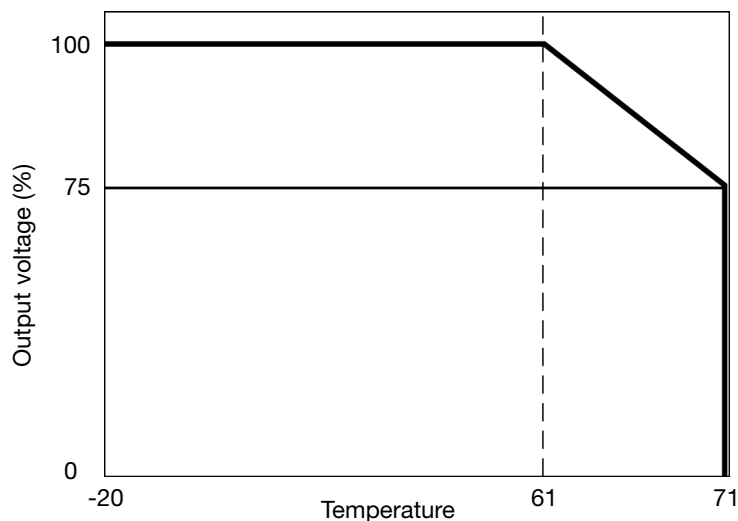
## Block Diagrams



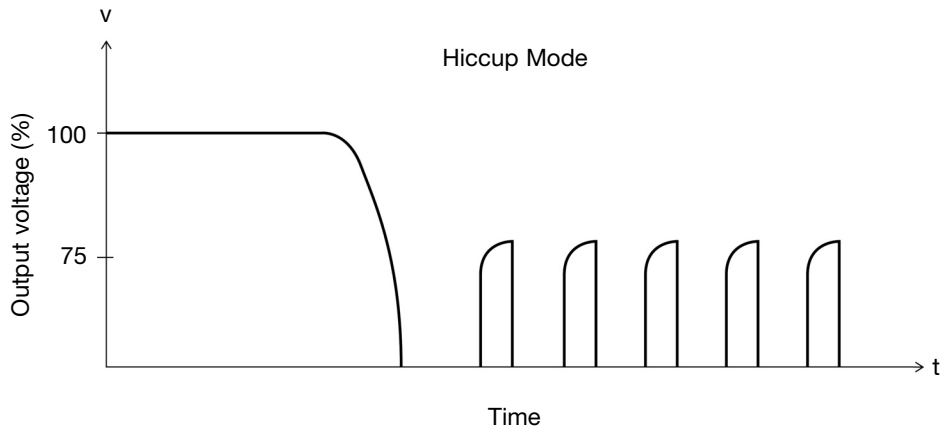
## Pin Assignment and Front Controls

Pin No.	Designation	Description
1	V+	Positive output terminal
2	V-	Negative output terminal
3		Ground terminal to minimise High frequency emissions
4	N	Input terminals (neutral conductor, no polarity at DC input)
5	L	Input terminals (phase conductor, no polarity at DC input)
	ON	Operation indicator LED
	LO	DC LOW indicator LED
	Vout ADJ.	Trimmer-potentiometer for Vout adjustment

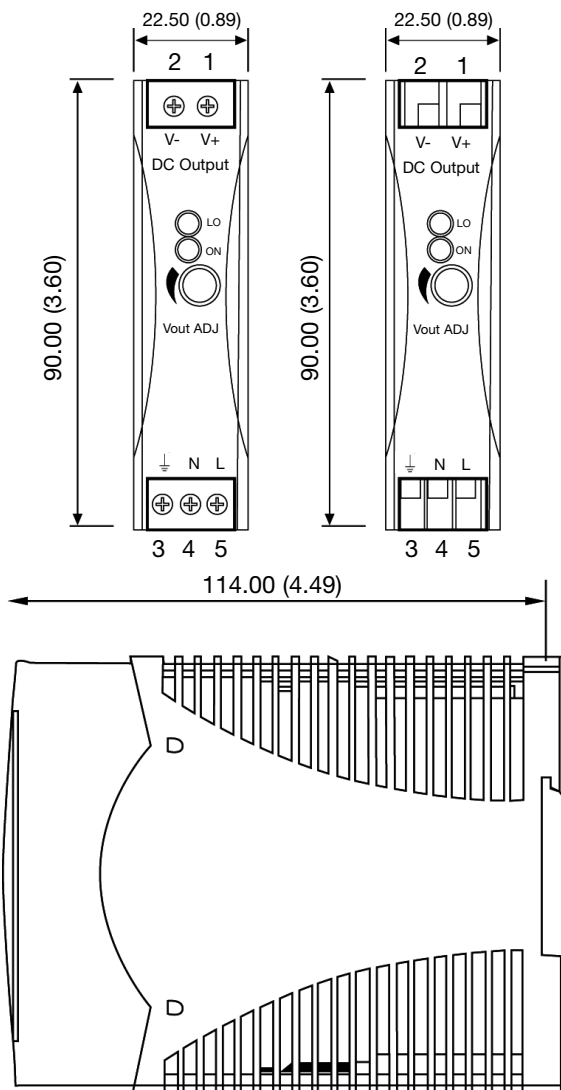
## Derating Diagram



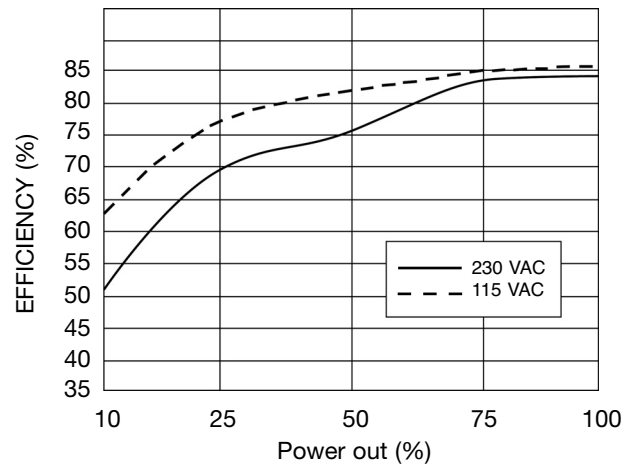
## Typ. Current Limited Curve



## Mechanical Drawings mm (inches)



## Typ. Efficiency Curve



## Installation

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