

# Switching Power Supply Type SPD 30W 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 12 30 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	85~264 VAC	30 WATTS	+ 5 VDC	6000 mA	77%	79%
SPD12	85~264 VAC	30 WATTS	+12 VDC	2500 mA	82%	84%
SPD24	85~264 VAC	30 WATTS	+24 VDC	1250 mA	83%	86%
SPD48	85~264 VAC	30 WATTS	+48 VDC	625 mA	83%	86%

## Output Data

Line regulation	± 0.5%	<b>Rated continuous loading</b>	<b>5V Model</b>	6A @ 5VDC/5.4A @ 5.5VDC
Load regulation	± 0.5%		<b>12V Model</b>	2.5A @ 12VDC/2.1A @ 14VDC
Minimum load	0	<b>24V Model</b>	1.25A @ 24VDC/1.05A @ 28VDC	<b>48V Model</b>
Turn on time (full resistive load)		<b>48V Model</b>	0.625A @ 48VDC/0.54A @ 55VDC	
Vi nom, lo nom	1000ms	<b>Reverse voltage</b>	<b>5V Model</b>	7.5VDC
Vi nom, lo nom with 3500µF CAP	2000ms		<b>12V Model</b>	18VDC
Transient recovery time	2ms	<b>24V Model</b>	35VDC	<b>48V Model</b>
Ripple and noise	50mVpp	<b>48V Model</b>	63VDC	
Output voltage accuracy	± 1%	<b>Capacitor load</b>	3500µF	
Temperature coefficient	± 0.03%/°C	<b>Voltage rise time</b>		
Hold up time Vi= 115VAC	20ms	Vi nom lo nom	150ms	
Vi= 230VAC	30ms	Vi nom, lo nom with 3500µF CAP	500ms	
Voltage fall time (I0nom)	150ms max			

## Input Data

<b>Rated input voltage</b>	100 - 240VAC		<b>Power dissipation</b> (Vi : 230VAC, Io nom)	<b>5V Model</b>	8.5W
<b>Voltage range</b>	<b>AC</b>	85 - 264VAC		<b>12V Model</b>	5.6W
	<b>DC</b>	90 - 375VDC		<b>24V Model</b>	5.5W
<b>Rated input current</b> (Vi : 115VAC, Io nom)	<b>Typ.</b>	560mA		<b>48V Model</b>	4.9W
	<b>Max.</b>	800mA		<b>Frequency range</b>	47 - 63Hz
<b>Inrush current</b>	<b>Vi= 115VAC</b>	20A		<b>Leakage current</b>	<b>Input-Output</b>
	<b>Vi= 230VAC</b>	40A			

## Controls and Protections

<b>Overload</b>	110 - 140%	<b>Over voltage protection</b>	<b>VDC</b>		
<b>Input fuse</b>	T2A/250VAC internal <sup>1)</sup>		<b>Min.</b>	<b>Max.</b>	
<b>Output short circuit</b>	Fold forward		<b>5V Model</b>	6	6.8
<b>Power ready output</b> (only SPD 24)	<b>On threshold</b>		<b>12V Model</b>	15	16.5
	<b>Off threshold</b>		<b>24V Model</b>	30	33
	$\geq 19.2-19.4VDC$	<b>48V Model</b>	60	66	
	$\leq 19.1-19.3VDC$	<b>Internal surge voltage protection</b> (IEC 61000-4-5)	Varistor		

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

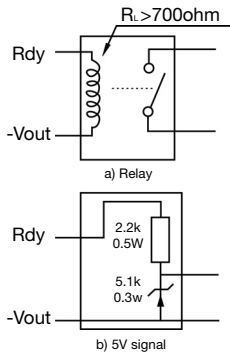
## General Data (@ nominal line, full load, 25°C )

<b>Ambient temperature</b>	-40°C to 71°C	<b>MTBF</b> (Bellcore issue 6 @ 40°C, GB)	<b>5V Model</b>	551000 Hours
<b>Derating (&gt;61°C to +71°C)</b>	2.5%/°C		<b>12V Model</b>	582000 Hours
<b>Ambient humidity</b>	20 ~ 90%RH		<b>24V Model</b>	588000 Hours
<b>Storage</b>	-40°C to +85°C		<b>48V Model</b>	609000 Hours
<b>Protection degree</b>	IP20		<b>Case material</b>	Plastic: PC, UL94-V0
<b>Cooling</b>	Free air convection	<b>Dimensions LxWxD mm(inch)</b>	90(3.6) x 40.5(1.59) x 114(4.49)	
<b>Pollution degree</b>	2	<b>Weight</b>	270g	

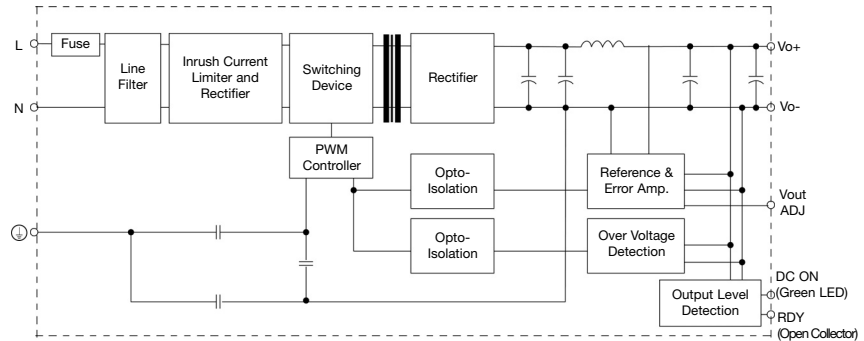
## Norms and Standards

<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 (only 5V, w/o Class 2) Recognized, ISA 12.12.01 (Class 1, Division 2, Groups A, B, C and D)		
<b>TUV</b>	EN 60950-1, CB scheme EN 61558-1, EN 61558-2-17 (meet EN 60204)		
<b>CCC</b>	GB4943, GB9254, GB17625.1		


## Rdy connection



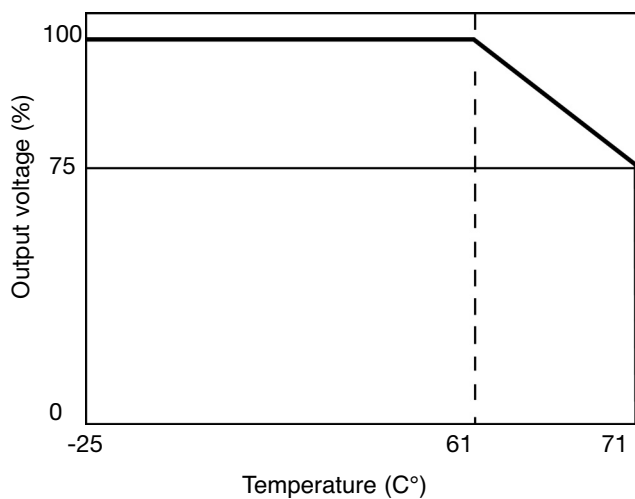
## Block Diagrams



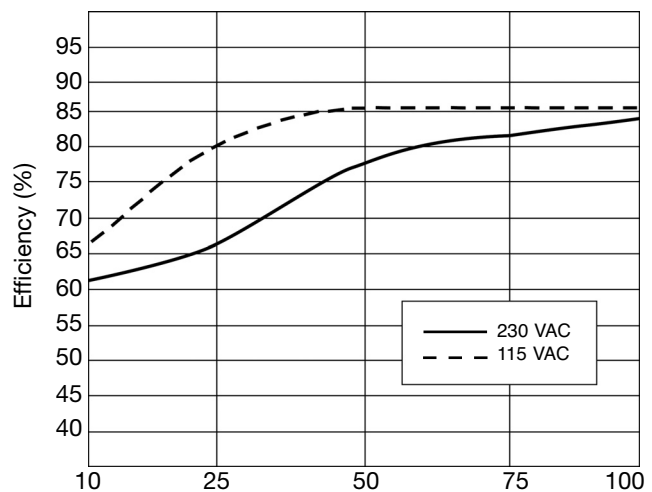
## Pin Assignment and Front Controls

Pin No.	Designation	Description
1	<b>RDY</b>	DC OK output for relay (not connect except 24V model)
2	+	Positive output terminal
3	+	Positive output terminal
4	-	Negative output terminal
5	-	Negative output terminal
		Ground this terminal to minimize high-frequency emissions
	<b>N</b>	Input terminals (neutral conductor, no polarity at DC input)
	<b>L</b>	Input terminals (phase conductor, no polarity at DC input)
	<b>Vout ADJ</b>	Trimmer-potentiometer for Vout adjustment
	<b>DC ON</b>	Operation indicator LED

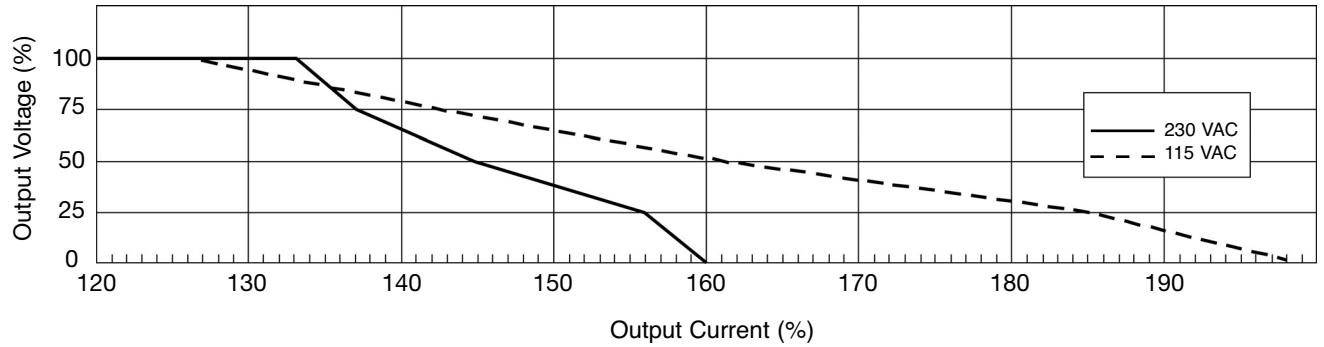
## Derating Diagram



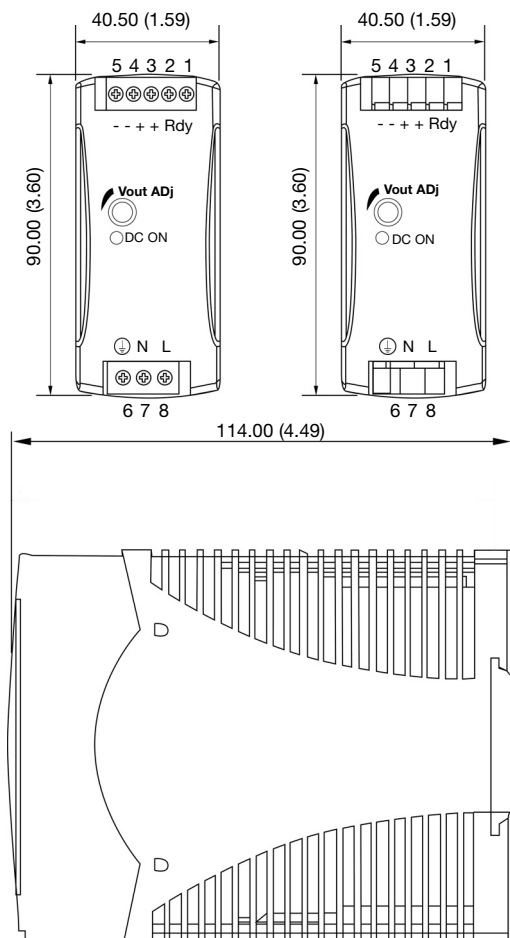
## Typ. Efficiency Curve



## Typ. Current Limited Curve



## Mechanical Drawings mm (inches)



## Installation

<b>Ventilation and cooling</b>	Normal convection All sides 25mm free space for cooling is recommended
<b>Connector size range</b>	
<b>Spring terminal</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>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>	
0.00 (0.00) ÷ 30.00 (1.18)	±0.30 (0.01)
30.00 (1.18) ÷ 120.00 (4.72)	±0.50 (0.02)

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