

# Switching Power Supply Type SPD 60W DIN rail mounting

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- 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	Capacitor load	7000µF	
Ripple and noise BW = 20MHz	50mVpp		Voltage rise time at full resistive load	150ms max
Output voltage accuracy	± 1% max.			
Temperature coefficient	± 0.03%/°C			
Hold up time	Vi= 115VAC			
	Vi= 230VAC	20ms		
Voltage fall time (I <sub>o</sub> nom)		30ms		
		150ms max		

## Input Data

<b>Rated input voltage</b>	100 - 240VAC	<b>Power dissipation</b> (Vi : 230VAC, Io nom)	<b>5V Model</b> 12.5W <b>12V Model</b> 9.0W <b>24V Model</b> 8.8W <b>48V Model</b> 7.8W
<b>Voltage range</b>	<b>AC</b> 85 - 264VAC <b>DC</b> 90 - 375VDC	<b>Frequency range</b>	47- 63Hz
<b>Rated input current</b> (Vi : 115VAC) (Vi : 230VAC)	1060mA 590mA	<b>Leakage current</b>	<b>Input-Output</b> 0.25mA <b>Input-FG</b> 3.5mA
<b>Input current</b> (Vi : 85VAC)	1500mA		
<b>Inrush current</b>	<b>Vi= 115VAC</b> 20A <b>Vi= 230VAC</b> 40A		

## Controls and Protections

<b>Overload</b>	110 – 150%	<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>	6.0	6.8
<b>Power ready output (Rdy)</b> (only SPD 24)	<b>On threshold</b> Vout > 19,2V ± 2% <b>Off threshold</b> Vout < 19,1V ± 2%	<b>12V Model</b>	15	16.5
		<b>24V Model</b>	30	33
		<b>48V Model</b>	60	66
		<b>Internal surge voltage protection</b> (IEC 61000-4-5)	Varistor	

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

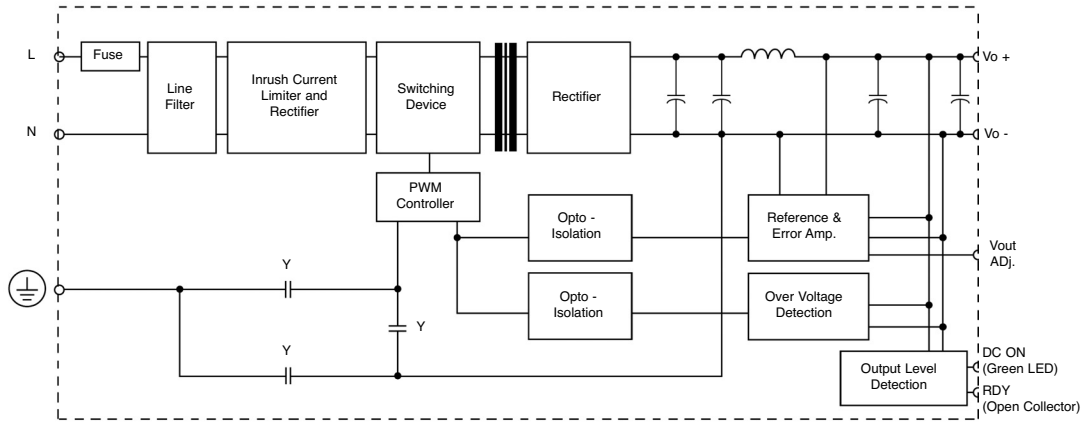
## General Data (@ nominal line, full load, 25°C )

<b>Ambient temperature</b>	-40°C to 71°C	<b>MTBF</b> (Bellcore issue 6 @ 40°C, GB)	<b>5V Model</b> 498000 Hours <b>12V Model</b> 504000 Hours <b>24V Model</b> 520000 Hours <b>48V Model</b> 531000 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 temperature</b>	-40°C to +85°C	<b>Altitude</b>	2000m
<b>Protection degree</b>	IP20	<b>Dimensions LxWxD mm(inch)</b>	90(3.60)x40.5(1.59)x114(4.49)
<b>Cooling</b>	Free air convection	<b>Weight</b>	340g
<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 (only 5V, 12V 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		

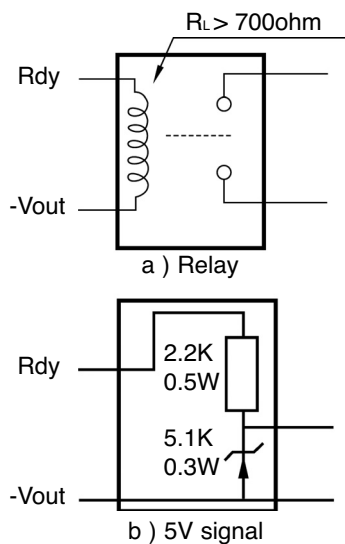
## Block Diagrams



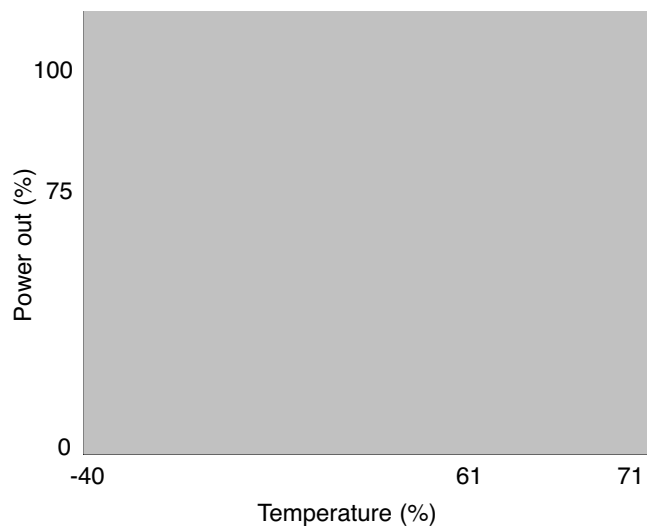
## Pin Assignment and Front Controls

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

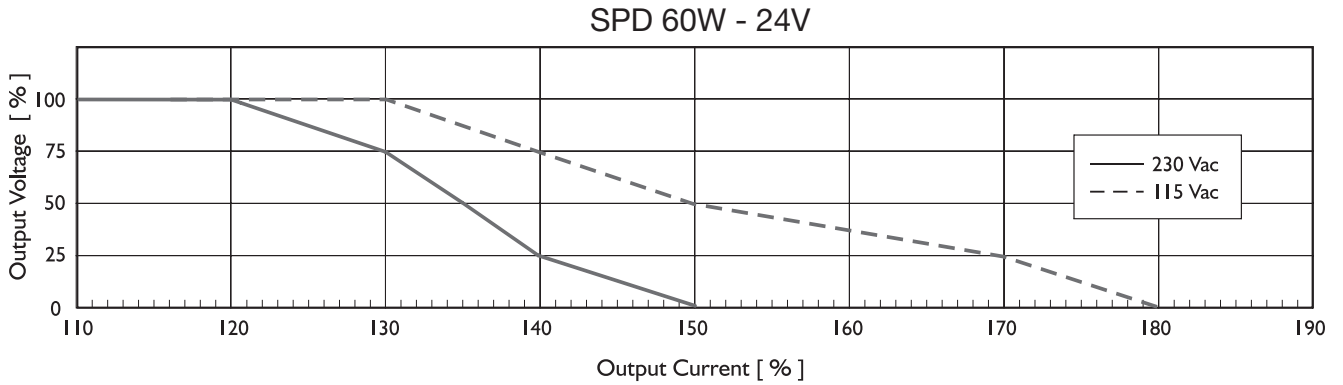
## Output Rdy Wiring Diagram



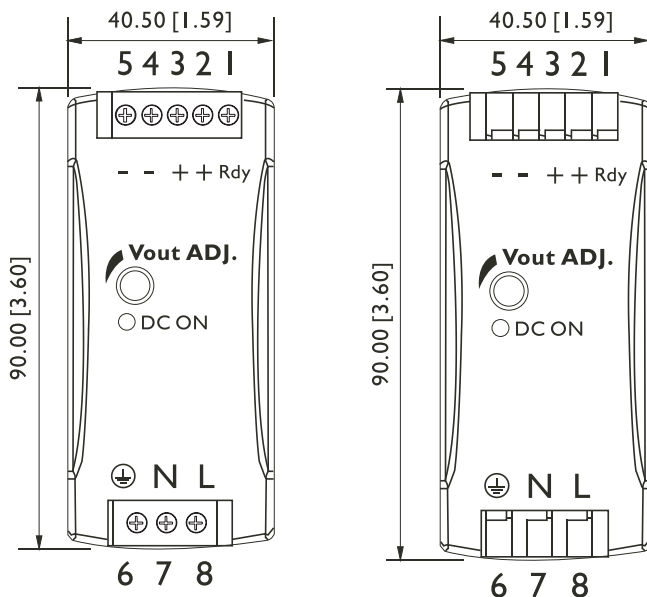
## Derating Diagram



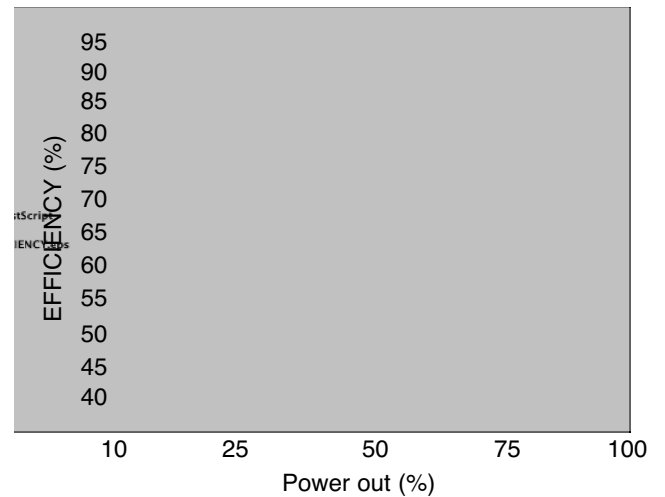
## Typ. Current Limited Curve



## Mechanical Drawings mm (inches)



## Typ. Efficiency Curve



## Installation

<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>	
0.00 (0.00) ÷ 30.00 (1.18)	±0.30 (0.01)
30.00 (1.18) ÷ 120.00 (4.72)	±0.50 (0.02)

