

# Switching Power Supply

## Type SPD 5W

### DIN rail mounting



- 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
- 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 12 05 1 B**

Model \_\_\_\_\_  
 Mounting ( D = Din rail ) \_\_\_\_\_  
 Output voltage \_\_\_\_\_  
 Output power \_\_\_\_\_  
 Input Type \_\_\_\_\_  
 Optional features \_\_\_\_\_

## Approvals



## Output Performances

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)	EFF. (avg.)
<b>Single Output Models</b>							
SPD05	90~264 VAC	5 WATTS	+ 5 VDC	1000 mA	67%	83%	69%
SPD12	90~264 VAC	5 WATTS	+ 12 VDC	420 mA	70%	86%	72%
SPD24	90~264 VAC	5 WATTS	+ 15 VDC	340 mA	70%	87%	72%
SPD48	90~264 VAC	5 WATTS	+ 24 VDC	210 mA	70%	87%	72%

## Output Data

Line regulation	± 1%
Load regulation	±2%
Minimum load	0A
Turn on time (full resistive load)	1000ms max
Transient recovery time	2ms
Ripple and noise	50mVpp
Output voltage accuracy	±1%
Temperature coefficient	±0.03%/°C
Hold up time	
Vi= 115VAC	30ms
Vi=230VAC	130ms
Voltage fall time (I <sub>o</sub> nom Vi nom)	150ms max

<b>Rated continuous loading</b>	<b>5V Model</b>	1.0A @ 5VDC/0.85A @ 5.75VDC
	<b>12V Model</b>	0.42A @ 12VDC/0.36A @ 13.8VDC
	<b>15V Model</b>	0.34A @ 15VDC/0.28A @ 17.25VDC
	<b>24V Model</b>	0.21A @ 24VDC/0.17A @ 28.8VDC
<b>Reverse voltage</b>	<b>5V Model</b>	VDC 7.5
	<b>12V Model</b>	VDC 18
	<b>15V Model</b>	VDC 22
	<b>24V Model</b>	VDC 35
<b>Capacitor load</b>		7000µF
<b>Voltage rise time at full resistive load</b>		150ms max.

## Input Data

<b>Rated input voltage</b>	100 - 240VAC		<b>Power dissipation</b>		
<b>Voltage range</b>			<b>5V Model</b>	2.2W	
<b>AC</b>	90 - 265VAC		<b>12V Model</b>	1.9W	
<b>DC</b>	120 - 370VDC		<b>15V Model</b>	2.1W	
<b>Rated input current</b>			<b>24V Model</b>	1.8W	
(Vi:115VAC, Io nom)	<b>Typ.</b>	115mA	<b>Frequency range</b>	47-63Hz	
	<b>Max.</b>	200mA	<b>Leakage current</b>		
<b>Voltage range</b>			<b>Input-Output</b>	0.25mA	
<b>Vi=115VAC</b>	10A		<b>Input-FG</b>	3.5mA	
<b>Vi=230VAC</b>	18A				

## Controls and Protection

<b>Overload</b>	110%~135%	<b>Over voltage protection</b>	125 - 145%
<b>Input fuse</b>	T25A/250VAC internal <sup>1)</sup>	<b>Internal surge voltage protection</b>	Varistor
<b>Output short circuit</b>	Hiccup mode		

1) Fuse not replaceable by user

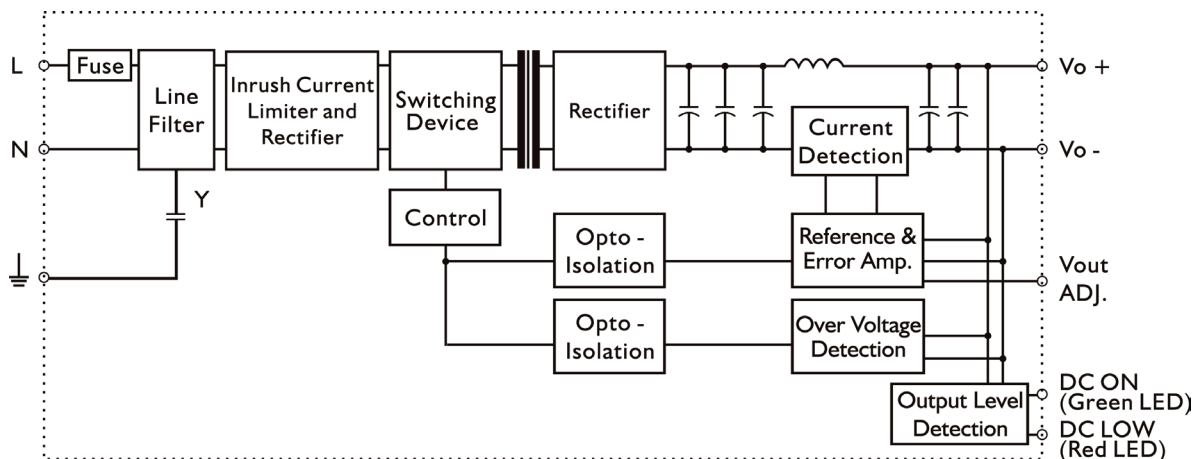
## General Data (@ nominal line, full load, 25°C)

<b>Ambient temperature</b>	-20°C to +71°C	<b>MTB</b>		
<b>Derating (&gt;61°C to +71°C)</b>	2.5%/C	<b>5V Model</b>	802000 Hours	
<b>Ambient humidity</b>	20 - 95% RH	<b>12V Model</b>	805000 Hours	
<b>Storage</b>	-25°C to +85°C	<b>15V Model</b>	808000 Hours	
<b>Protection degree</b>	IP20	<b>24V Model</b>	812000 Hours	
<b>Cooling</b>	Free air convection	<b>Case material</b>	Plastic: PC, UL94-V0	
<b>Insulation voltage</b>				
<b>Input-Output</b>	3.000VAC/4242VDC min		<b>Pollution degree</b>	2
<b>Input-FG</b>	1.500VAC/2121VDC min		<b>Altitude</b>	4850 m
<b>Insulation resistance I/O</b>	100MΩ min (@ 500VDC)		<b>Dimensions LxWxD mm(inch)</b>	90(3.60)x22.5(0.89)x114(4.49)
			<b>Weight</b>	120 g


## Norms and Standard

<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		
<b>CCC</b>	Available upon request		

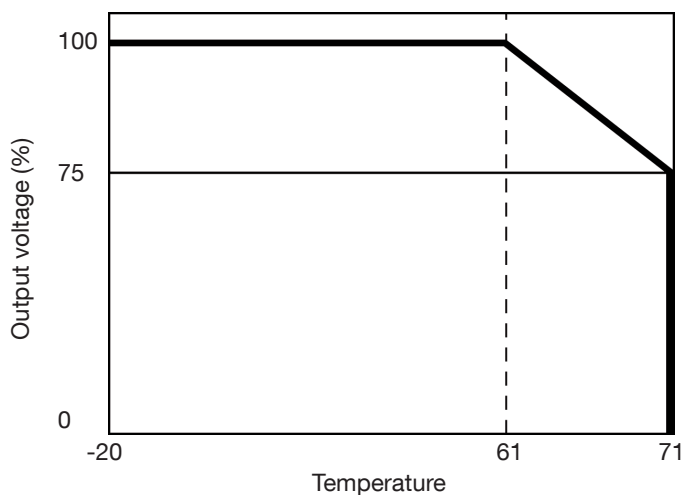
## Block Diagram



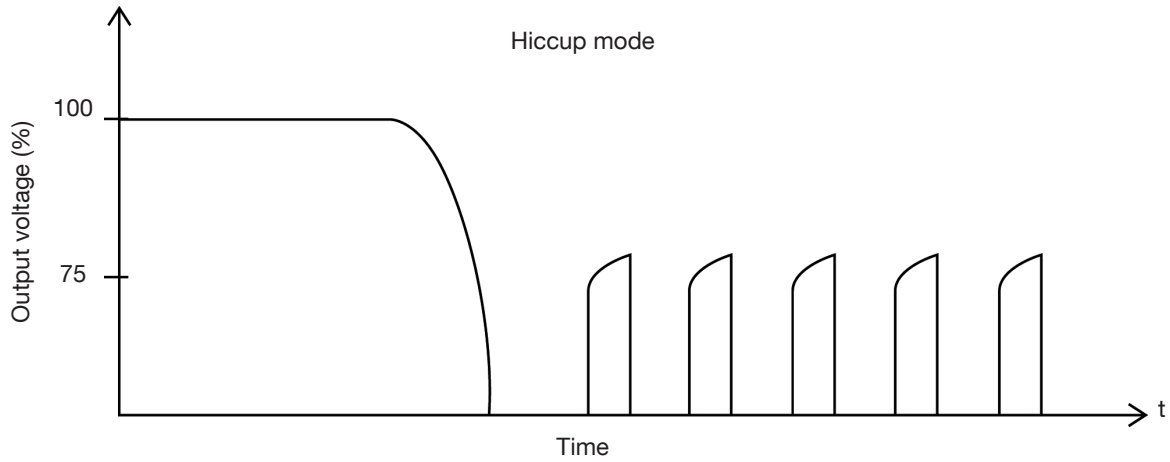
## Pin Assignment and Front Controls

Pin No.	Designation	Description
1	V+	Positive output terminal
2	V-	Negative output terminal
3		Ground this terminal to minimize high-frequency emission
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

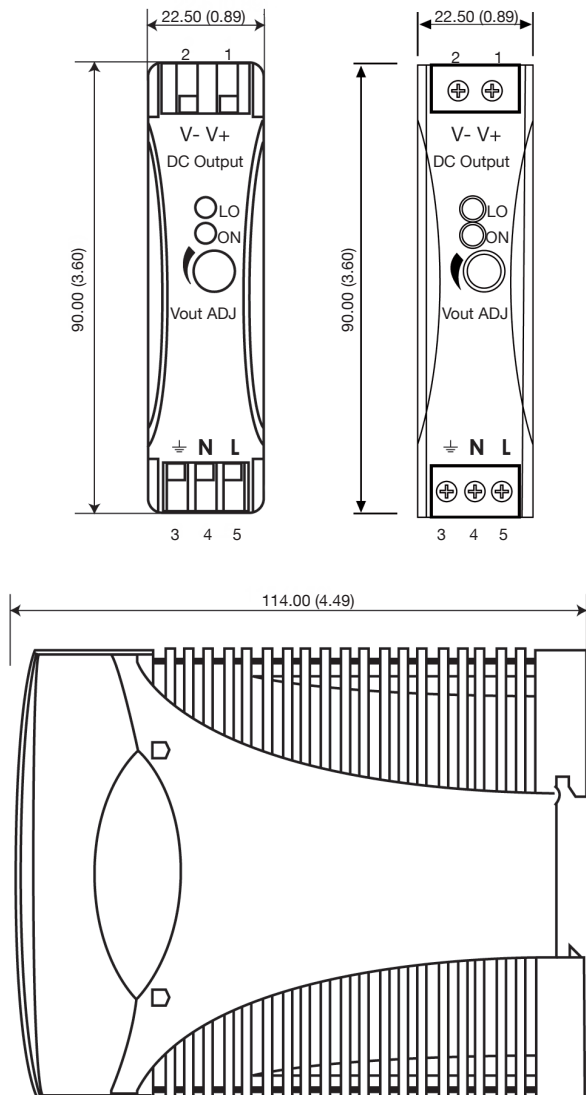
## Derating Diagram



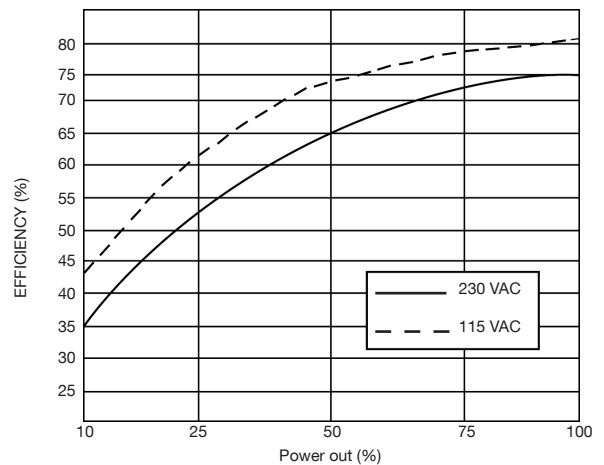
## Typ. Current Limited Curve



## Mechanical Drawings mm (inches)



## Typ. Efficiency Curve



## Installation

### Ventilation and cooling

Normal convection  
 All sides 25mm free space  
 for cooling is recommended

### Connector size range

#### Spring terminal

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

#### Screw terminal

flexible/solid cable, con nector  
 can withstand torque at max  
 0,56Nm (5 lbs-in). 4~5 mm  
 stripping at cable and recom  
 mends use copper conductors  
 monly, 60/75°C

### Max. torque for terminal

#### Input terminal

0.56Nm (5.0lb-in)

#### Output terminal

0.56Nm (5.0lb-in)

### General tolerance 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)