

Switching Power Supply Type SPD 90W DIN rail mounting



- Installation on DIN Rail 7.5 or 15mm
- Short circuit protection
- PFC standard
- Power ready output
- LED indicator for DC power ON
- LED indicator for DC low
- Very compact dimensions
- UL, cUL listed and TUV/CE approved
- UL 1310 Class 2
- Class I Div 2 certification for hazardous environments

Product Description

This SPD is the most compact 90W power supply on the market. Relay output for “power ready” function is included. Performances are unique with high efficiencies and the possibility of being used up to 70°C with a little derating.

Approvals



Ordering Key

SP D 24 90 1 L

Model _____
 Mounting (D = Din rail) _____
 Output voltage _____
 Output power _____
 Input type _____
 Plastic enclosure _____

Input type: 1= single phase

Output Performances

Model	Rated output Voltage (VDC)	Output Power (W)	Output Current (A)	Voltage Trim Range		DC ON LED (VDC) Threshold at startup		DC LO LED (VDC) Threshold after startup		Typical Efficiency
				Min. VDC	Max. VDC	Min.	Max.	Min.	Max.	
SPD2490	24	91.2	3.8	22.5	24.5	17.6	19.4	17.6	19.4	85%

Output Data

Output voltage accuracy	-0 +1% max (factory adjusted)
Line regulation	± 1%
Load regulation	
Non parallel model	± 1%
Parallel model	± 5%
Temp. coefficient	± 0.03% / °C
Ripple and noise	50mV
$V_{i \text{ nom}}, I_{o \text{ nom}}, BW=20\text{MHz}$	
Rated continuous Loading	3.8A @ 24VDC / 3.7A @ 24.5VDC
Fall Time	150ms
Transient recovery time	
$V_{i \text{ nom}}, I_{o} = 0.5 \times I_{\text{nom}}$	2ms

Turn On Time	
$V_{i \text{ nom}}, I_{o \text{ nom}}$	1.0s
$V_{i \text{ nom}}, I_{o \text{ nom}}$ with Capacitor load	1.5s
Rise Time	
$V_{i \text{ nom}}, I_{o \text{ nom}}$	150ms
$V_{i \text{ nom}}, I_{o \text{ nom}}$ with Capacitor load	500ms
Capacitor Load	7000µF
Reverse Voltage Immunity	35V
Hold up Time $V_i = 115\text{VAC } I_{o \text{ nom}}$	15ms
Hold up Time $V_i = 230\text{VAC } I_{o \text{ nom}}$	30ms
Minimum load $V_{i \text{ nom}}$	0%
Parallel Operation	No



Input Data

Rated input voltage	110/240	Leakage Current	
Voltage range		Input / Output	0.25mA
AC in	90 - 264VAC	Input / FG	3.5mA
DC in	120 - 375VDC	Inrush current	
Rated input current	1.65A / 1.4A	Vi= 115VAC	30A
Power dissipation	15W	Vi= 230VAC	60A
Frequency range	47- 63 Hz	P.F.C.	0.7
Internal Voltage Surge Protection (acc. to IEC61000-4-5)	Varistor		

Controls and Protections

Input Fuse	T3.15/250VAC internal ¹⁾	Power ready	
Output Short Circuit	fold forward	Threshold at start up	Min. 17.6VDC - Max.19.4VDC
Rated Overload Protection	102 - 108%	(contact closed)	
Over voltage protection (auto recovery)	24.5V to 25.5V	Contact rating at 60VDC	0.3A
Input Voltage Surge Protection	Varistor	Insulation	500VDC

¹⁾ Fuse not replaceable by user

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

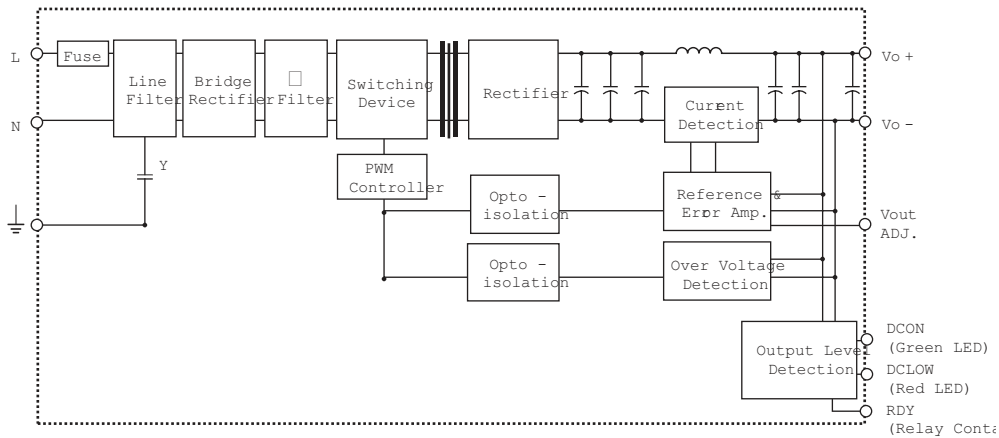
Ambient temperature	-25°C to 71°C	Switching frequency	
Derating (>61°C to +71°C)	2.5% / °C	Min.	45kHz
Ambient humidity	20 to 95%RH	Max.	60kHz
Storage	-25°C to +85°C	MTBF (Bellcore Issue 6@40°C), GB	493,000h
Pollution degree	2	Altitude during operation	3.000m
Protection degree	IP20	Case material	Plastic
Cooling	Free air convection	Dimensions L x W x D	90 x 54 x 114mm
		Weight	430g

Approvals and EMC

Insulation voltage	3.000VAC / 4242VDC	60204) 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-N 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
Input / Output	1500VAC / 2121VDC		
Input / FG			
Insulation resistance	100MΩ min		
Shock resistance	acc. to IEC 60068-2-27 (15G, 11ms, 3 Axis, 6 Faces, 3 times for each Face)		
Vibration resistance	acc. to IEC 60068-2-6 (Mounting by rail: 10-500 Hz, 2G, along X, Y, Z each Axis, 60 min for each Axis)		
UL / cUL	UL 508 Listed UL 60950-1, UL 1310 Class 2 Power Recognized ISA 12.12.01 (Class I, Division 2, Groups A, B, C and D)		
TUV	EN 60950-1, CB scheme EN 61558-1, EN 61558-2-17 (acc.to EN		



Block Diagrams

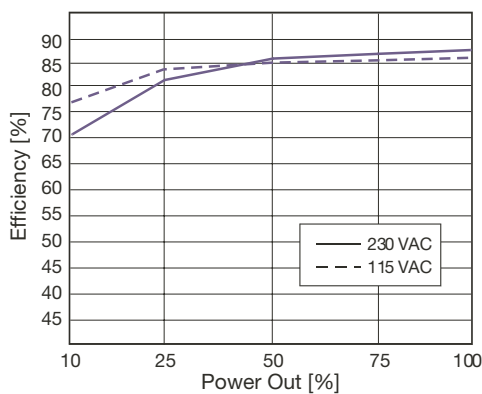


Pin Assignment and Front Controls

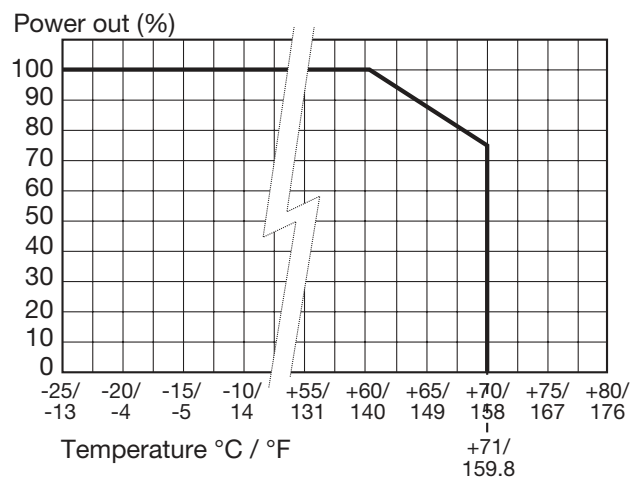
Terminal Nr.	Designation	Description
1	RDY	N.O. relay contact for DC OK (only SPD241001)
2	RDY	N.O. relay contact for DC OK (only SPD241001)
3	V+	Positive output terminal
4	V+	Positive output terminal
5	V-	Negative output terminal
6	V-	Negative output terminal
7	GND	Ground terminal to minimise High frequency emissions
8	N	Neutral input (no polarity with DC input)
9	L	Phase input (no polarity with DC input)

Device	Designation	Description
L1	DC ON	DC output ready LED
L2	DC LO	DC low indicator LED
POT1	Vout Adj.	Trimmer for fine output voltage adjustment

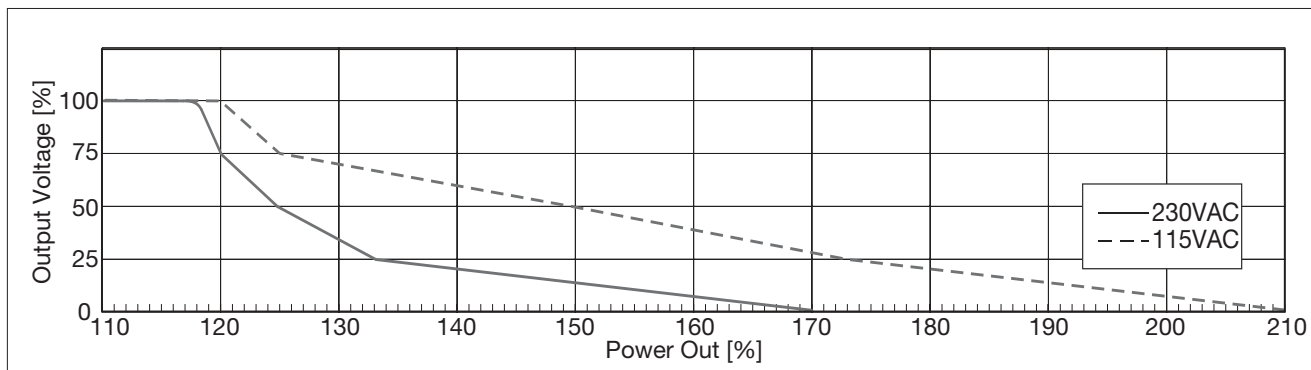
Typ. Efficiency Curve



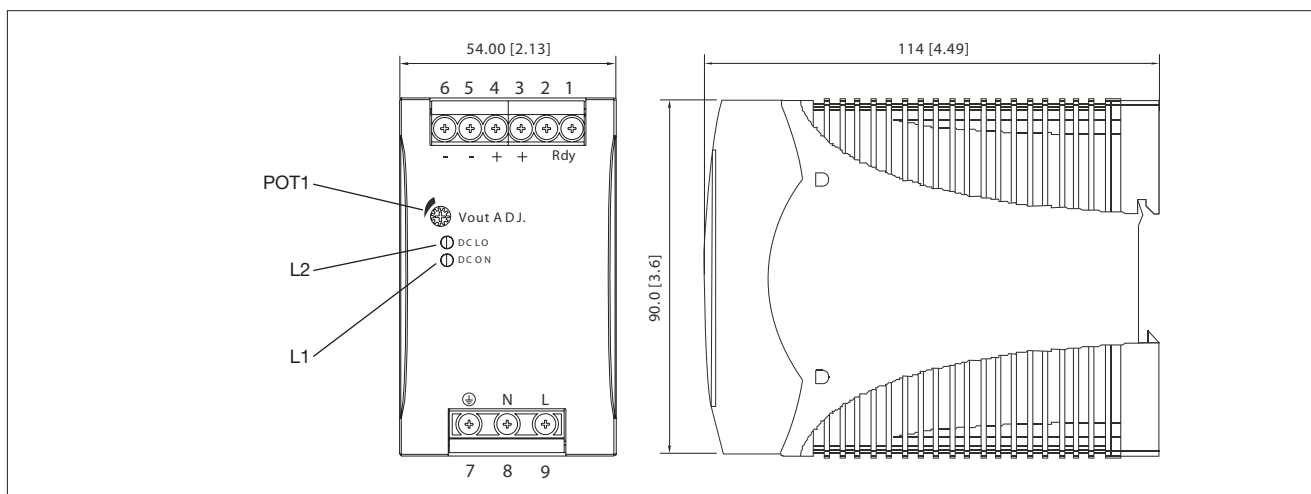
Derating Diagram



Typ. Current Limited Curve



Mechanical Drawings mm (inches)



Installation

Ventilation and cooling	Normal convection All sides 25mm free space for cooling is recommended
Screw terminals cable 8mm stripping recommend	10-24AWG flexible or solid
Max. torque for screws terminals Input terminals Output terminals	1.008Nm (9.0lb-in) 0.616Nm (5.5lb-in)
Plug-in connectors cable 7mm stripping recommend	10-24AWG flexible or solid
Max. torque for plug-in terminals Input terminals Output terminals	0.784Nm (7.0lb-in) 0.784Nm (7.0lb-in)
Recommened circuit breaker	5A / 6A / 10A B, D characteristics