

Switching Power Supply Type SPD 240W Compact DIN rail mounting

CARLO GAVAZZI



- Universal AC input full range
- Installation on DIN rail 7.5 or 15mm
- Short circuit protection
- Active PFC as standard
- High efficiency up to 93%
- Power ready output
- LED indicator for DC power ON
- LED indicator for DC low
- Parallel connection feature
- Compact dimensions
- UL, cUL listed and TUV/CE approved
- 150% peak load capability

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 24 240 1C X

Model _____
Mounting (D = Din rail) _____
Output voltage _____
Output power _____
Input type _____
Optional features _____

Input type: 1C = single phase Compact version

Approvals



Optional features

Description	Code
Screw terminal	Nil
Plug-in connectors	B

Output Performance

MODEL NO.	INPUT VOLTAGE	OUTPUT POWER	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)
Single Output Models						
SPD 12 240 1C X	88~264 VAC	192 WATTS	+12 VDC	16A	89%	91%
SPD 24 240 1C X	88~264 VAC	240 WATTS	+ 24 VDC	10A	91%	93%

Output Data (All specifications are at nominal values, full load, 25°C unless otherwise noticed)

Line regulation	± 1%	Rated continuous loading	12V Model	16A@12VDC/13A@14.5VDC
Load regulation	±1%		24V Model	10A@24VDC/8.4A@28.5VDC
Minimum load	0%	Reverse voltage	12V Model	18VDC
Turn on time			24V Model	35VDC
Vi nom, Io nom	1000ms (full resistive load) 1500ms with 7000µF CAP	Capacitor load		7000µF
Transient recovery time	2ms	Temperature coefficient		±0.03°C
Ripple and noise	100mVpp	DC ON indicator threshold at start up (Green LED)		VDC
Output voltage accuracy	0% ÷ +1%	Vi nom, Io nom	12V Model	Min. 10
Hold up time	Vi= 115VAC 25ms Vi= 230VAC 30ms		24V Model	Max. 11.2
Voltage fall time (Io nom, Vi nom)	150ms	DC LOW indicator threshold at start up (Red LED)		VDC
Voltage rise time		Vi nom, Io nom	12V Model	Min. 10
Vi nom, Io nom	150ms (full resistive load) 500ms with 7000µF CAP		24V Model	Max. 11.2
Voltage trim range		Parallel operation		0.1 Io min~0.9 Io max
12V Model	11.4-14.5 VDC			
24V Model	22.5-28.5 VDC			

Input Data (All specifications are at nominal values, full load, 25°C unless otherwise noticed)

Rated input voltage I_{nom}	100 - 240VAC	Power dissipation (V_i : 230VAC, I_o nom)	12V Model 24V Model	17W 16W
Voltage range		Frequency range		47- 63Hz
AC IN	88 - 264VAC	Leakage current	Input-Output	<0.25mA
DC IN	120 - 375VDC		Input-FG	<3.5mA
Rated input current		P.F.C. (Active)		0.97@ V_i :230VAC, I_o nom
V_i: 88VAC I_o nom	3.2A Max.			
V_i: 115VAC I_o nom	2.3A Typ.			
V_i: 230VAC I_o nom	1.15A Typ.			
Inrush current				
V_i= 115VAC	24A			
V_i= 230VAC	48A			

Controls and Protections (All specifications are at nominal values, full load, 25°C unless otherwise noticed)

Overload V_i nom (see typ current limited curve)	120% - 150%	Power RDY (for 24V model only)	Threshold voltage of contact closed (at start up)
Input fuse	T5A/250VAC internal ¹⁾		17.6 - 19.4VDC
Output short circuit	Shut-down protection, after 7s auto-restart	Electrical isolation	500VDC
Over voltage protection (Shut-Down Protection)	VDC	Over temperature Detect on heat sink, shut down O/P voltage, recovers automatically after temperature goes down	100 - 110°C
12V Model	Min. 14.5 Max. 17.5	Rated over load protection	
24V Model	30 33	V_i nom (see typ current limited curve)	120 - 150%
Internal surge voltage protection IEC 61000-4-5	Varistor		

¹⁾ Fuse not replaceable by user

General Data (All specifications are at nominal values, full load, 25°C unless otherwise noticed)

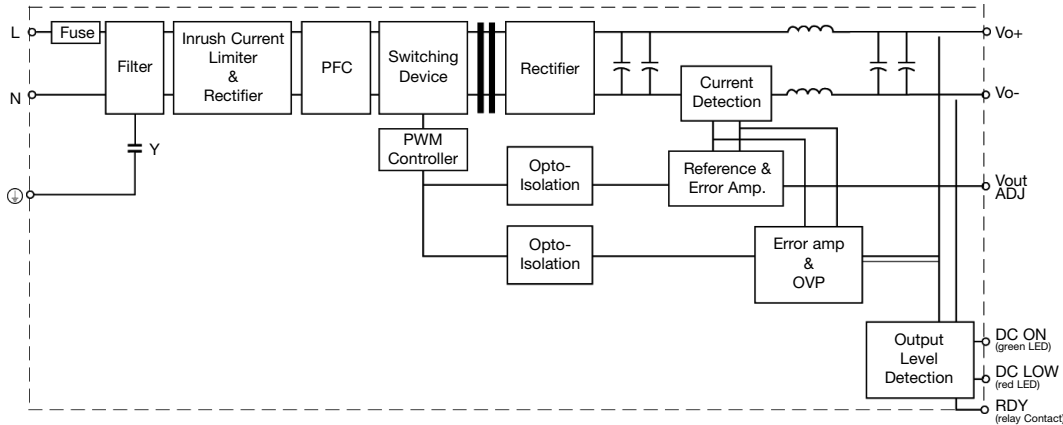
Ambient temperature	-40°C to + 71°C	Pollution degree	2
Derating (+61°C to + 71°C)	2.5%/°C (see curve)	MTBF (Bellcore issue 6 @ 40°C, GB)	
Relative humidity	20 ~ 95%RH	12V Model	374000 Hours
Storage temperature	-40°C to +85°C	24V Model	384000 Hours
Protection degree	IP20	Case material	Metal
Cooling	Free air convection	Altitude	4850m
Insulation voltage		Dimensions LxWxD mm(inch)	
Input-Output	3000VAC/4242VDC min	Screw terminal type	124.5(4.9)x64(2.52)x123.6(4.87)
Input-Fg	1500VAC/2121VDC min	Detachable connector type	143.5(5.65)x64(2.52)x123.6(4.87)
Insulation resistance I/O	100MΩ min (@ 500VDC)	Weight	860g
Switching Frequency	90 Khz Typ	Packing	960g

Norms and Standards

Vibration resistance	meet IEC 60068-2-6 (Mounting by rail: Random wave, 10-500 Hz, 2G each long Z, Y, Z axes 10 min/cycle, 60min.)	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 EN 61000-4-6 level 3 EN 61000-4-8 level 4 EN 61000-4-11, ENV 50204 Level 2 EN 61204-3
Shock resistance	meet IEC 60068-2-27 (4G, 22ms, 3 Axis, 6 faces, 3 times for each face)		
UL/cUL	UL 508 Listed UL 60950-1 Recognized		
TUV	EN 60950-1. CB scheme		



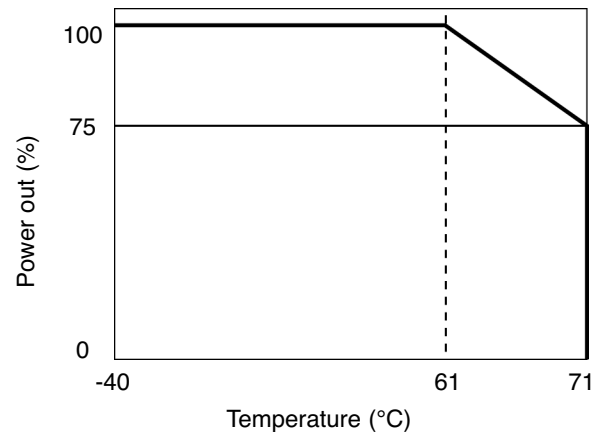
Block Diagram



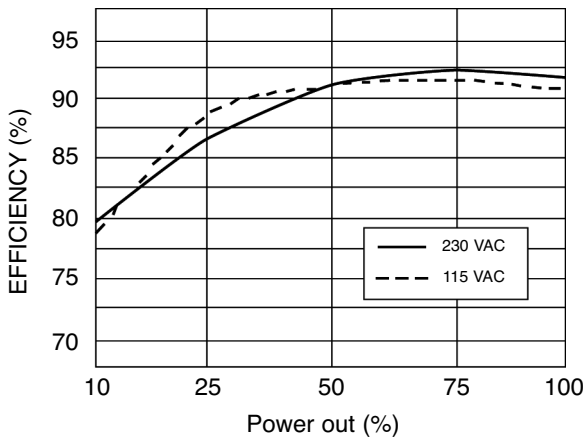
Pin Assignment and Front Controls

Pin No.	Designation	Description
1	RDY	A normal open relay contact for DC ON level control Never connect except 24V model
2		
3. 4	V+	Positive output terminal
5. 6	V-	Negative output terminal
7	⏏	Ground this terminal to minimize high-frequency emissions
8	N	Input terminals (neutral conductor, no polarity at DC input)
9	L	Input terminal (phase conductor, no polarity at DC input)
LED	DC ON	Operation indicator LED
LED	DC LO	DC LOW voltage indicator LED
Trimmer	Vout ADJ.	Trimmer-potentiometer for Vout adjustment
Switch	S/P	Single / Parallel select switch

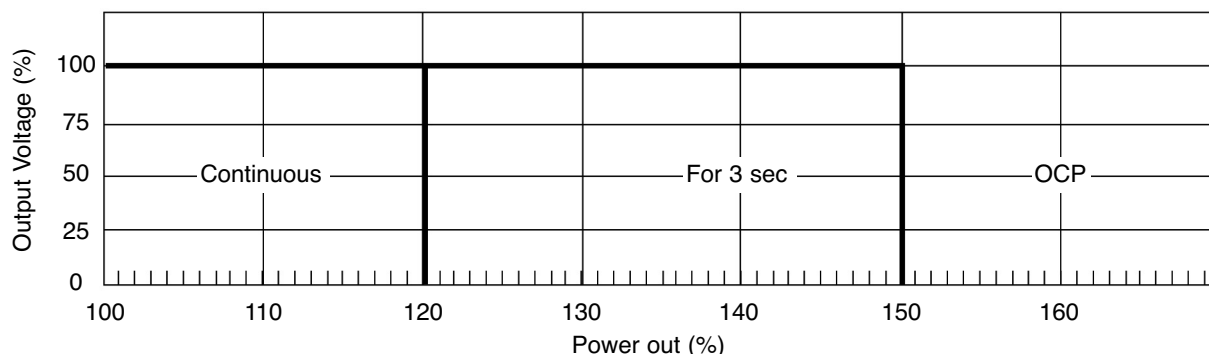
Derating Curve



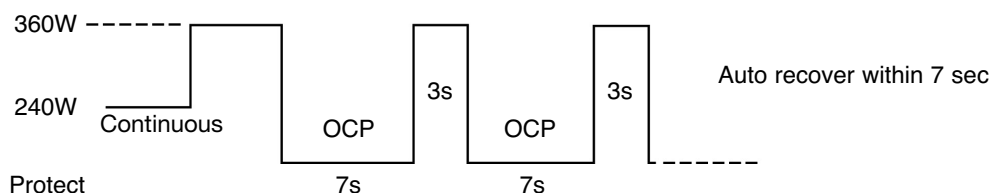
Typ. Efficiency curve



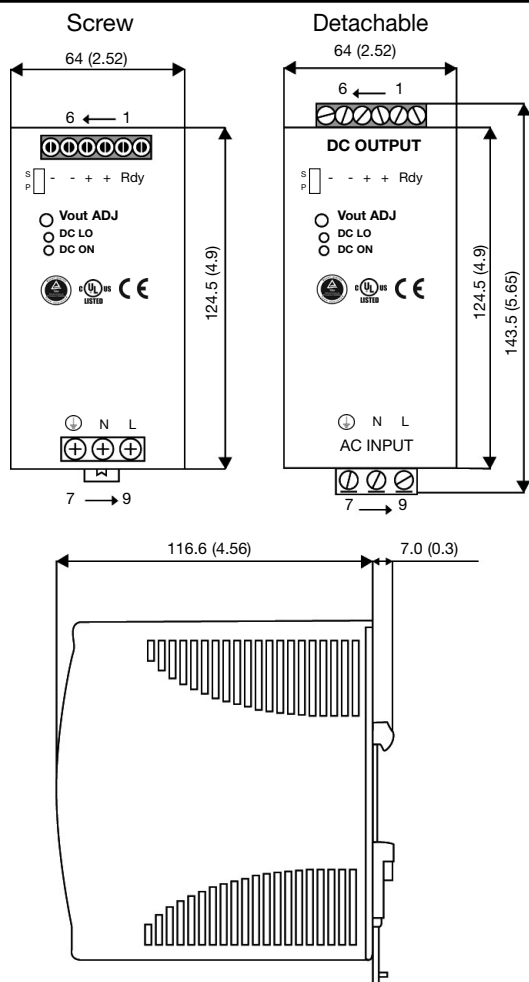
Typ. Current Limited Curve



Peak Loading



Mechanical Drawings mm (inches)



Installation

Ventilation and cooling

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

Connector size range Screw terminals:

- Input Terminals
- Output Terminals

Detachable connectors:

- Input Terminals
- Output Terminals

AWG24-10 (0.2~4mm²)
flexible / solid cable,
max. torque at 1.16Nm
(9 pound-inches).
max. torque at 0.616Nm
(5.5 pound-inches).
8mm stripping at cable end
recommends.

AWG24-12 (0.2~2.5 mm²)
flexible / solid cable,
max. torque at 0.51 Nm
(4.5 pound-inches).
max. torque at 0.79 Nm
(7 pound-inches).
4~5mm stripping at cable
end recommends.

Use copper conductors
only, 60/75°C.