

Switching Power Supply Type SPD 960W 3 phases DIN rail mounting

CARLO GAVAZZI



- Universal AC 3 phases input full range
- Can also be used as single phase 960VAC
- Installation on DIN rail 7.5 or 15mm
- PFC as standard
- High efficiency up to 93%
- Power ready output
- Parallel connection feature (except "L" version)
- Compact dimensions
- UL, cUL listed and TUV/CE

Product Description

The Switching power supplies SPD XX9603 series are suitable for those applications where high DC power is required. Besides

the PFC as standard, it also features the parallel connection with active current sharing on the high end versions.

Ordering Key

SP D 24 960 3 L

Model _____
 Mounting (D = Din rail) _____
 Output voltage _____
 Output power _____
 Input Type _____
 Option _____

Input type: 3= three phase (or single phase 400/500VAC³⁾)

Option: Nil= standard version

L= without active current sharing feature

Approvals



Output Performances

MODEL NO.	RATED INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)
Single Output Models						
SPD24	400 - 500VAC	960 WATTS	+ 24 VDC	40 A	90%	92%
SPD24...L	400 - 500VAC	960 WATTS	+ 24 VDC	40 A	90%	92%
SPD48	400 - 500VAC	960 WATTS	+ 48 VDC	20 A	91%	93%

Output Data

Line regulation	± 0.5%	Hold up time Vi nom, Io nom	15ms
Load regulation		Voltage fall time (Io nom Vi nom)	150ms max
Non parallel model	±1%	Rated continuous loading	
Parallel model	±5%		
Minimum load	0A	24V Model	40A @ 24VDC/33.8A @ 28.5VDC
Turn on time (full resistive load)		48V Model	20A @ 48VDC/17A @ 56VDC
Vi nom, Io nom	1000ms	Reverse voltage	
Vi nom, Io nom with 7000 µF CAP	1500ms		
Transient recovery time	2ms	24V Model	VDC 35
Ripple and noise	80mVpp	48V Model	VDC 63
Output voltage accuracy	±1%	Capacitor load	7000µF
Temperature coefficient	±0.03%/°C	Voltage rise time	
		Vi nom Io nom	150ms
		Vi nom, Io nom with 7000µF CAP	500ms

Input Data

Rated input voltage	400 - 500VAC	Power dissipation	
Voltage range		(Vi : 400VAC, Io nom)	
AC	3ø 340~575 VAC	24V Model	98W
DC	480 - 820VDC	48V Model	55W
Rated input current		Frequency range	47-63Hz
(Vi:340VAC, Io nom) Typ.	2.4A	Leakage current	
Inrush current		Input-Output	0.25mA
Vi nom, Io nom 24V/48V models	30 - 35A	Input-FG	3.5mA
Cold start 24L model	50 - 60A		

Controls and Protections

Overload	120 - 140%	Over voltage protection	125/140%
Input fuse	T5A/500VAC internal/phase	Over voltage protection	VDC
Output short circuit	Hiccup mode		Min. Max.
Power ready output		24V Model	30 33
(only 24V model) On threshold	≥17.6-19.4VDC	48V Model	60 68
Electrical isolation	500VDC	Internal surge voltage protection	Varistor
Contact rating at 60VDC	0.3A	(IEC 61000-4-5)	

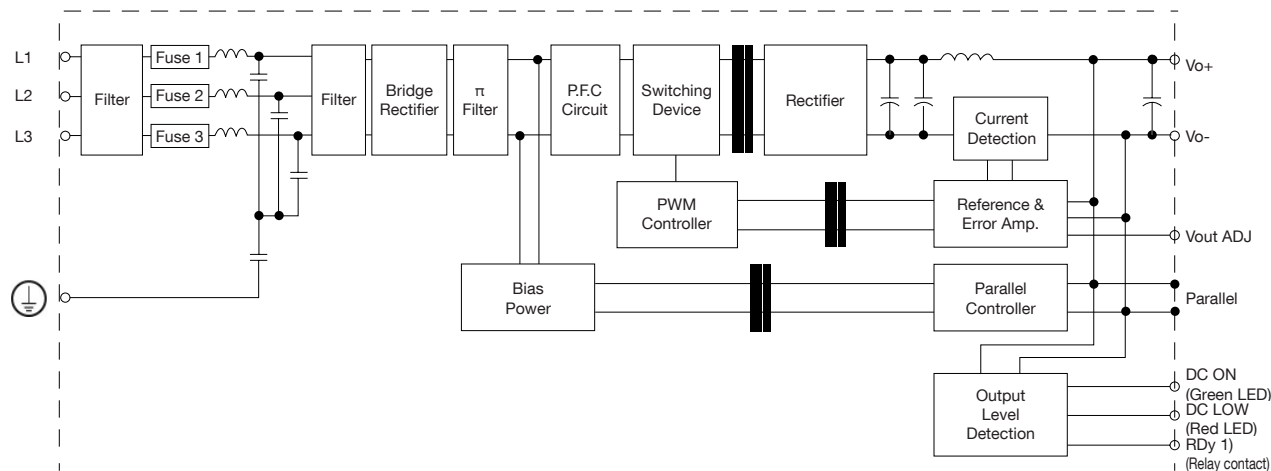
General Data (@ nominal line, full load, 25°C)

Ambient temperature	-40°C to +71°C	MTB (Bellcore issue 6 @ 40°C, GB)	
Derating (>61°C to +71°C)	3.5%/C	24V Model	352000 Hours
Ambient humidity	20 ~ 90%RH	24L Model	381000 Hours
Storage	-40°C to +85°C	48V Model	390000 Hours
Protection degree	IP20	Case material	Metal
Cooling	Free air convection	Dimensions LxWxD mm (inch)	126.2(4.97)x275.(10.86)x118.8 (4.68)
Pollution degree	2	Weight	3400 g

Norms and Standards

Vibration resistance	meet IEC 60068-2-6 (Mounting by rail: 10-500Hz, 2G, along X, Y, Z each Axis, 60 min for each Axis)	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
Shock resistance	meet IEC 60068-2-27 (15G, 11ms, 3 Axis, 6 faces, 3 times for each face)		
UL/cUL	UL508 listed, UL60950-1, Recognized, ISA 12.12.01 (Class 1, Division 2, Groups A, B, C and D)		
TUV	EN 60950-1, CB scheme EN 61558-1, EN 61558-2-17 (meet EN 60204)		
CCC	Available upon request		

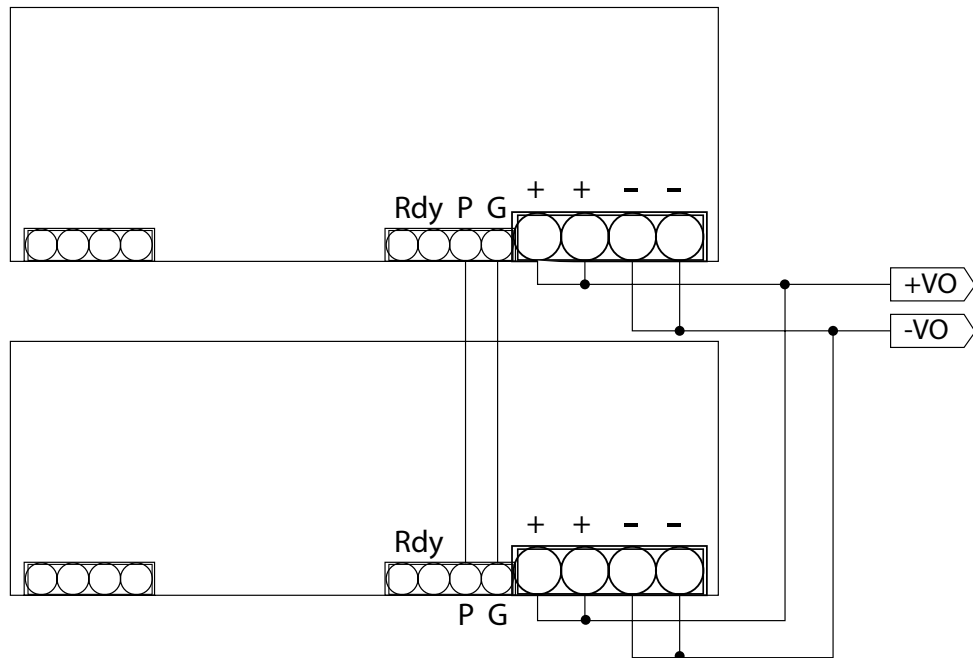
Block Diagrams



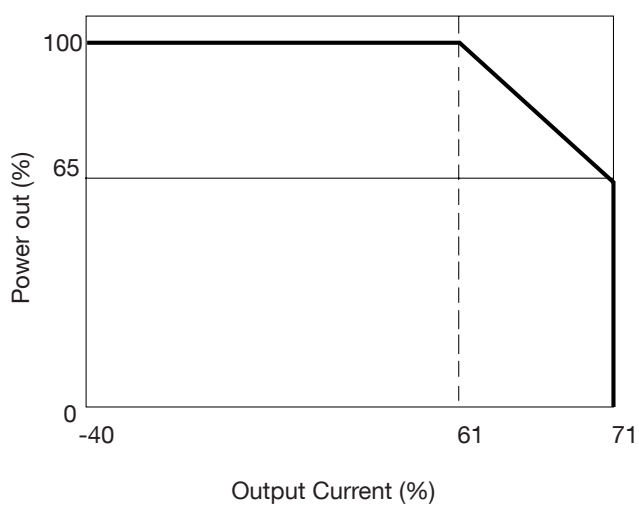
Pin Assignment and Front Controls

Pin No.	Designation	Description
1, 2	V-	Negative output terminal
3, 4	V+	Positive output terminal
5	G	Parallel GND PIN for current share
6	P	Parallel PIN for current share
7	RDY	A normal open relay contact for DC ON level control
8		(Never connect except 24V model)
9	L3	Input terminals
10	L2	Input terminals
11	L1	Input terminals
12		Ground this terminal to minimize high-frequency emission
	DC ON	Operation indicator LED
	DC LOW	DC LOW voltage indicator LED
	Vout ADJ	Trimmer-potentiometer for Vout adjustment

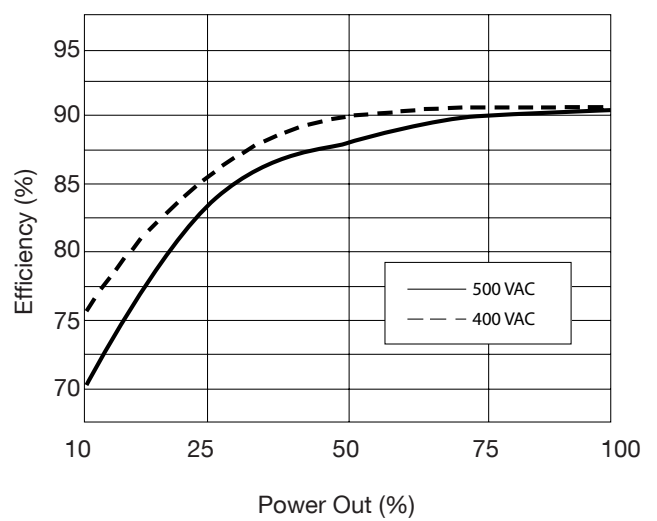
Parallel Connection



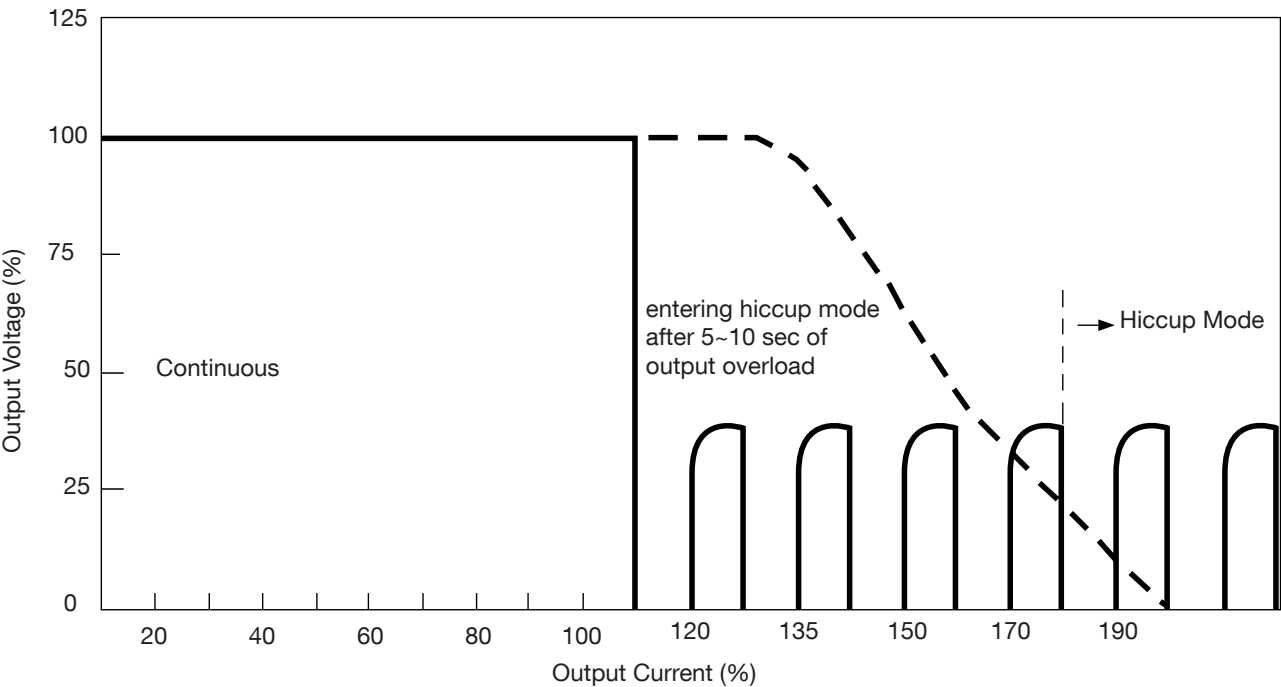
Derating Diagram



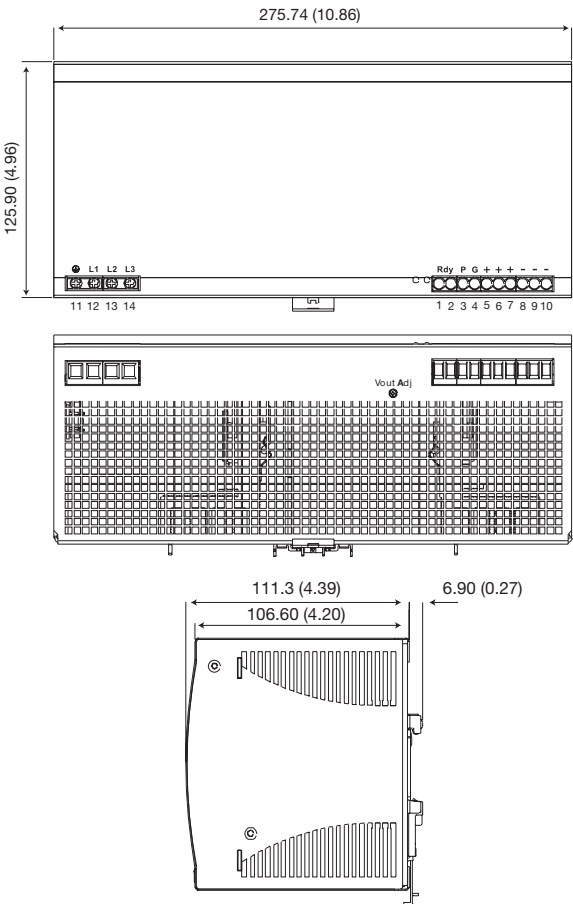
Typ. Efficiency Curve



Typ. Current Limited Curve



Mechanical Drawings mm/inches



Installation

Ventilation and cooling	Normal convection All sides 25mm free space for cooling is recommended.
Conductors sections From PIN1 to PIN4	AWG20-6 (0.5 - 10mm ²) flexible or solid cable 8mm stripping recommend
From PIN5 to PIN8	AWG24-10 (0.2 - 4mm ²) flexible or solid cable 8mm stripping recommend
From PIN9 to PIN12	AWG24-10 (0.2 - 4mm ²) flexible or solid cable 8mm stripping recommend
Max. torque for screws terminals From PIN1 to PIN4	1.008Nm (9.0lb-in)
From PIN5 to PIN8	1.763Nm (15.6lb-in)
From PIN9 to PIN12	0.616Nm (5.5lb-in)

Mouser Electronics

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