

Switching Power Supply Type SPP1 20W Enclosed type

CARLO GAVAZZI



- Universal AC input full range
- Short circuit protection
- Internal input filter
- High efficiency
- High average efficiency (meet ErP)
- Low stand-by power consumption
- CE, TUV, and cURus approved

Product Description

Enclosed Switching Power Supply meet your needs for AC DC and DC DC power requirements. SPP provide the most flexible OEM system power solutions from 5V to 24V at 20W for industrial control and automation applications. Most carry full certifications and offer wide range universal input, screw terminal connections. Especially designed where compact dimensions and performance are a must.

Ordering Key

SP P1 24 20 1 X

Model _____
 Mounting (P1 = Panel) _____
 Output voltage _____
 Output power _____
 Input Type _____
 Optional features _____

Input type: 1= single phase

Approvals



Output Performances

MODEL NO.	INPUT VOLTAGE	OUTPUT POWER	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)	EFF. (avg.)
Single Output Models							
SPP1 05201	88~264 VAC	20 WATTS	+ 5 VDC	4000 mA	81%	83%	80%
SPP1 12201	88~264 VAC	20.4 WATTS	+ 12 VDC	1700 mA	84%	86%	83%
SPP1 15201	88~264 VAC	21 WATTS	+15 VDC	1400 mA	85%	87%	84%
SPP1 24201	88~264 VAC	21.6 WATTS	+24 VDC	900 mA	85%	87%	84%

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

Line regulation	± 0.5%
Load regulation	±1%
Minimum load	0%
Turn on time (full resistive load)	
Vi nom, Io nom	1000ms
Vi nom, Io nom with 3500µF	1500ms
Transient recovery time	2ms
Ripple and noise	100mVpp
Output voltage accuracy	+ 1%
Temperature coefficient	± 0.03%/°C
Hold up time	
Vi= 115VAC	15ms
Vi= 230VAC	80ms
Voltage fall time (I _o nom, Vi nom)	150ms
Voltage rise time	
Vi nom, Io nom (full resistive load)	150ms
Vi nom, Io nom with 3500µF CAP	500ms

Voltage trim range	
5V Model	4.5-5.5 VDC
12V Model	10.8-13.2 VDC
15V Model	13.5-16.5 VDC
24V Model	21.6-27.6 VDC
Rated continuous loading	
5V Model	4A @ 5VDC/3.6A @ 5.5VDC
12V Model	1.7A @ 12VDC/1.5A @ 13.2VDC
15V Model	1.4A @ 15VDC/1.25A @ 16.5VDC
24V Model	0.9A @ 24VDC/0.75A @ 27.6VDC
Reverse voltage	
5V Model	7.5VDC
12V Model	18VDC
15V Model	22VDC
24V Model	35VDC
Capacitor load	3500µF

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)	5V Model	4.5W
Voltage range			12V Model	4W
AC IN	88 - 264VAC	15V Model	4W	
DC IN	120 - 375VDC	24V Model	4W	
Rated input current		Frequency range	47- 63Hz	
V_i: 115/230 VAC I_o nom	390mA / 250 mA	Leakage current	Input-Output	0.25mA
V_i: 88 VAC I_o nom	250mA		Input-FG	3.5mA
Inrush current				
V_i= 115VAC	20A			
V_i= 230VAC	40A			

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

Overload	120 – 160%	Over voltage protection	VDC		
Input fuse	T2A/250VAC internal ¹⁾		Min.	Max.	
Output short circuit	Hiccup mode		5V Model	5.75	6.75
			12V Model	13.8	16.2
		15V Model	17.25	20.25	
		24V Model	28.8	32.4	

¹⁾ Fuse not replaceable by user

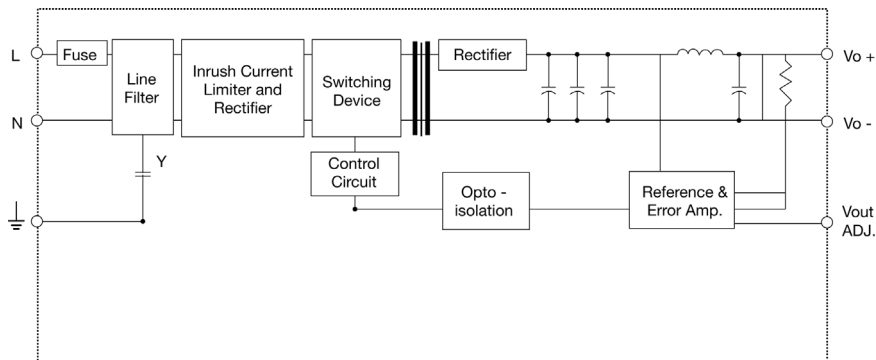
General Data All specifications are at nominal values, full load, 25°C unless otherwise noticed

Ambient temperature	-40°C to +71°C	MTBF (Bellcore issue 6 @ 40°C, GB)	5V Model	729000 Hours
Derating (>60°C to +71°C)	2.5%/°C (see curve)		12V Model	740000 Hours
Relative humidity	20 ~ 95%RH		15V Model	746000 Hours
Storage	-40°C to +85°C		24V Model	772000 Hours
Protection degree	IP20		Case material	Plastic: PC, UL94-V0
Cooling	Free air convection	Altitude IEC 60068-2-13	4850m	
Insulation voltage		Stand-by power consumption	0.3W	
Input-Output	3.000VAC/4242VDC min	Dimensions LxWxD mm(inch)	92(3.62)x54(2.13)x30(1.18)	
Input-FG	1.500VAC/2121VDC min	Weight	140g	
Insulation resistance I/O	100MΩ min (@ 500VDC)			
Switching Frequency	65 Khz			

Norms and Standards

Vibration resistance	meet IEC 60068-2-6 (10-500Hz, 2G, along X, Y, Z each Axis, 60 min for each Axis)	CE	EN 61000-6-3, EN 55022
Shock resistance	meet IEC 60068-2-27 (15G, 11ms, 3 Axis, 6 faces, 3 times for each face)		Class B, EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 55024, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11, ENV 50204, EN 61204-3
UL / cUL	UL60950-1, Recognized		
TUV	EN 60950 -1 CB scheme		

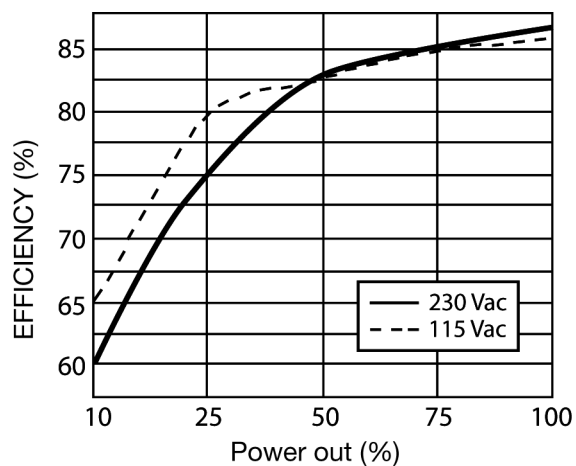
Block Diagrams



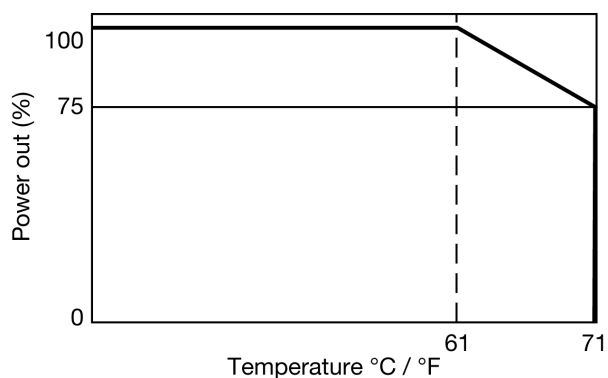
Pin Assignment and Front Controls

Pin No.	Designation	Description
1	L	Input terminals (phase conductor, no polarity at DC input)
2	N	Input terminals (neutral conductor, no polarity at DC input)
3	⊕	Ground this terminal to minimize high-frequency emissions
4	-	Negative output terminal
5	+	Positive output terminal
	Vout ADJ	Trimmer-potentiometer for Vout adjustment
	DC ON	Operation indicator LED

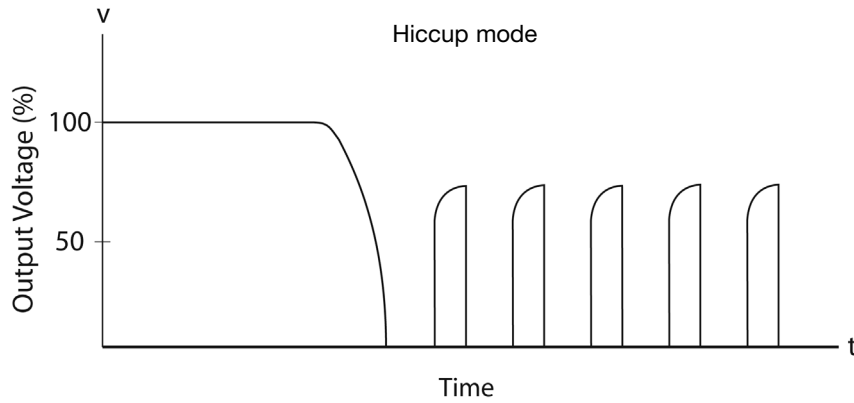
Typ. Efficiency Curve



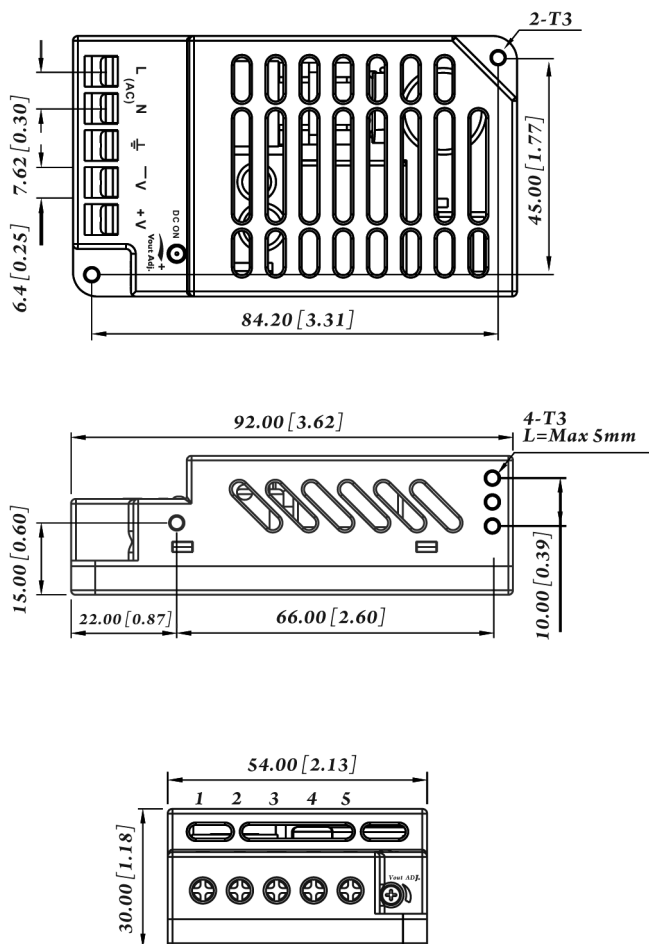
Derating Diagram



Typ. Current Limited Curve



Mechanical Drawings mm (inches)



Installation

Ventilation and cooling	Ventilation/Cooling Normal convection
Connector size range Spring terminal	AWG22-12 (0.2~2.5mm ²) flexible/solid cable, 10mm stripping at cable connector can withstand torque at maximum 0.90 Nm (8 pound-inches)
General tolerances mm(in.)	
0.00 (0.00) ÷ 30.00 (1.18)	±0.30 (0.01)
30.00 (1.18) ÷ 120.00 (4.72)	±0.50 (0.02)

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