

# Switching Power Supply Enclosed Type SPPC 150 1F Series Open Cage

CARLO GAVAZZI



- Universal AC input full range
- Built-in active PFC function, PF > 0.95
- High Efficiency, and High reliability
- All using 105°C long life electrolytic capacitors
- 100% full load burn-in test
- High efficiency

## Product Description

Enclosed Switching Power Supply meets your needs for AC DC and DC DC power requirements. SPPC provides the most flexible OEM system power solutions from 5V to 48V at 150W for industrial control and automation applications.

All the range carries full certification and offers a wide range of universal input and screw terminal connections. It has been designed for its performance and compact dimensions.

## Ordering Key

**SP PC XX 150 1 F**

Power supply model \_\_\_\_\_  
 Panel mounted \_\_\_\_\_  
 Output voltage \_\_\_\_\_  
 Output power \_\_\_\_\_  
 Input type (single phase) \_\_\_\_\_  
 Optional features (Power Factor Correction) \_\_\_\_\_

## Approvals



## Output Performances

MODEL NO.	INPUT VOLTAGE	OUTPUT POWER	OUTPUT VOLTAGE	OUTPUT CURRENT	VOLTAGE OUT ADJ	EFF. (typ.)	
						115VAC	115VAC
<b>Single Output Models</b>							
SPPC 5 150 1F	85~264 VAC	150 WATTS	5 VDC	30.0 A	4.3VDC ~ 5.6VDC	80%	82%
SPPC 12 150 1F	85~264 VAC	150 WATTS	12 VDC	12.5 A	10.6VDC ~ 13.5VDC	83%	86%
SPPC 15 150 1F	85~264 VAC	150 WATTS	15 VDC	10.0 A	12.7VDC ~ 17.0VDC	83%	86%
SPPC 24 150 1F	85~264 VAC	150 WATTS	24 VDC	6.3 A	22.1VDC ~ 26.7VDC	84%	86%
SPPC 48 150 1F	85~264 VAC	150 WATTS	48 VDC	3.2 A	44.0VDC ~ 52.0VDC	84%	87%

## Output Data

Line regulation	± 0.5%
Load regulation	±1.0%
Minimum load	0A
Turn on time (full resistive load)	<2.0s (115Vac input, Full load); <1.0s (230Vac input, Full load)
Transient recovery time	3ms
Output voltage accuracy	±1.0% ±2.0% (on SPPC 5 150 1F)
Temperature coefficient	±0.03%/°C
Hold up time	>20ms (115VAC/230VAC input, Full load);
Voltage fall time (I <sub>o</sub> nom Vi nom)	<80ms

Voltage rise time	150ms
Vi nom, Io nom	500ms
Vi nom, Io nom with 3500µF CAP	
Voltage trim range	
5V Model	4.3 VDC ~ 5.6 VDC
12V Model	10.6 VDC ~ 13.5 VDC
15V Model	12.7 VDC ~ 17.0 VDC
24V Model	22.1 VDC ~ 26.7 VDC
48V Model	44.0 VDC ~ 52.0 VDC
Rated continuous loading	
5V Model	30.0A
12V Model	12.5A
15V Model	10.0A
24V Model	6.3A
48V Model	3.2A

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

<b>Capacitor load</b>	3500 $\mu$ F	<b>Ripple and noise</b>	<100mV
<b>Set up time</b>	2.0s (115VAC input, Full load); 1.0s (230VAC input, Full load)		<150mV (SPPC 24 150 1F) <240mV (SPPC 36 150 1F, SPPC 48 150 1F)
<b>Operating distance</b>	0.2... 19m	<b>Overshoot and Undershoot</b>	<5.0%
<b>Voltage accuracy</b>	$\pm$ 1% $\pm$ 2.0% (on SPPC 5 150 1F)		

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

<b>Rated input voltage Inom</b>	115~264VAC	<b>Power dissipation</b> (VI: 230VAC, Io nom)	
<b>Voltage range</b>		<b>5V Model</b>	30.00W
<b>AC IN</b>	85 - 264VAC	<b>12V Model</b>	21.36W
<b>DC IN</b>	120 - 370VDC	<b>15V Model</b>	21.75W
<b>Rated input current</b>		<b>24V Model</b>	22.84W
<b>88VAC</b>	<2.0A	<b>48V Model</b>	21.58W
<b>115VAC</b>	<1.7A	<b>Frequency range</b>	47-63Hz
<b>230VAC</b>	<0.8A	<b>Leakage current</b>	
<b>Inrush current</b>	<30A@115VAC; <60A@230VAC Cold start	<b>Input-Output</b>	<0.25mA
<b>Power factor (typical)</b>	PF>0.98@115VAC PF>0.95@230VAC	<b>Input-PG</b>	<0.35mA
		<b>AC current (max.)</b>	2.0A

		Model				
		SPPC 5 150 1F	SPPC 12 150 1F	SPPC 15 150 1F	SPPC 24 150 1F	SPPC 48 150 1F
<b>Efficiency (typical)</b>	115VAC input	80%	83%	83%	84%	84%
	230VAC input	82%	86%	86%	86%	87%

## Controls and Protection

<b>Overload</b>	105%~150% of rated output current, hiccup mode, auto recovery.	<b>Over voltage protection</b>	<b>VDC</b>	
<b>Input fuse</b>	4A/250VAC	<b>5V Model</b>	<b>MIN</b>	<b>MAX</b>
<b>Output short circuit</b>	Long-term mode, auto recovery.	<b>12V Model</b>	5.75	7.5
		<b>15V Model</b>	13.9	18.0
		<b>24V Model</b>	17.4	22.5
		<b>48V Model</b>	27.4	36.0
		<b>Over voltage</b>	52.5	72.0
			110%~150% of rated output voltage, shut down.	

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

<b>Ambient temperature</b>	-25°C ~ +70°C	<b>Insulation resistance I/O</b>	$\geq$ 100M ohms
<b>Derating</b> (>50C to +70C)	2.5%/C	<b>Switching Frequency</b>	65kHz
<b>Relative humidity</b>	20 - 90% RH	<b>MTBF</b>	More than 200.000 hrs
<b>Storage</b>	-30°C ~ +85°C; 10% ~ 95% RH no condensing.	<b>Case material</b>	Metal
<b>Cooling</b>	Free air convection	<b>Altitude IEC 60068-2-13</b>	3000 m
<b>Insulation voltage</b>		<b>Dimensions LxWxD</b>	194 x 99 x 50 mm
<b>Input-Output</b>	3.0kVAC; $\leq$ 10mA,	<b>Weight</b>	900 g
<b>Input-PG</b>	1.5kVAC; $\leq$ 10mA	<b>Packing</b>	10 PCS/CTN. G.W: 9.0kgs 0.04CBM

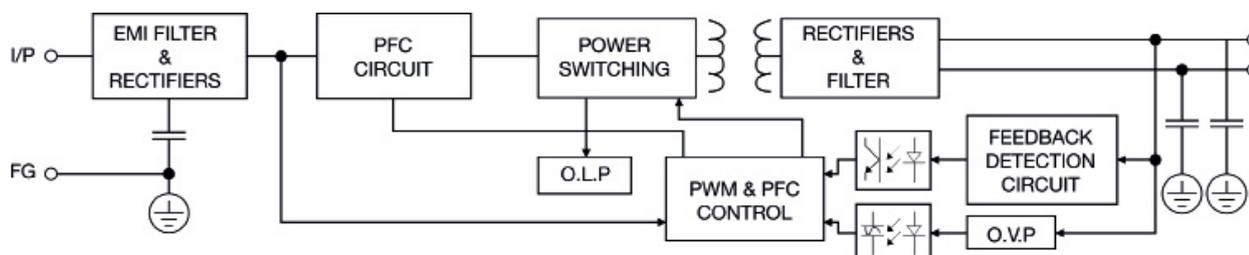
## Norms and Standard

<b>Safety standard</b>	UL60950-1: EN60950-1: 2006	<b>Vibration resistance</b>	10~500Hz,2G 10min/cycle, 60min,each along X,Y,Z axes
<b>Withstand voltage</b>	Primary-Secondary: 30kVAC; ≤10mA. Primary-PG: 0.5kVDC; ≤10mA.	<b>Shock resistance</b>	20G,11ms, 3 times along X, Y, Z axes
<b>Isolation resistance</b>	≥10M ohms	<b>UL</b>	cRUUs (E258396)
<b>EMI Conduction &amp; Radiation</b>	Compliance to EN55022 Class B	<b>CE</b>	EN55022,EN55024 Class B EN61000-3-2,-3 Class D EN61000-4-2,3,4,5,6,8,11 EN55024,EN61000-6-2, heavy industry level.
<b>Harmonic Current</b>	Compliance to EN61000-3- 2, 17625-1-2003		
<b>EMS Immunity</b>	Compliance to EN61000 -4- 2, 3, 4, 5, 6, 8, 11; ENV50204 heavy industry level, criteria A.		

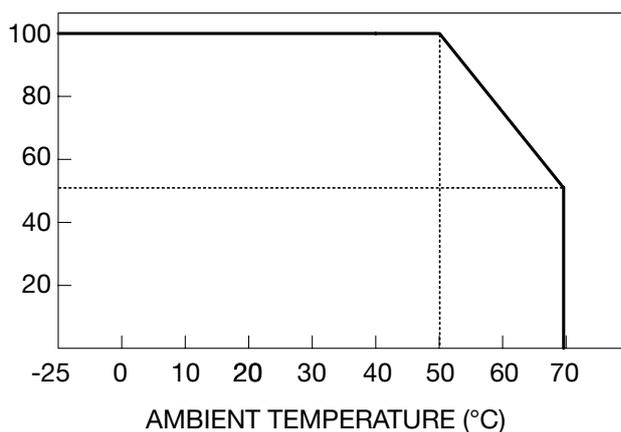
## Installation

<b>Ventilation and cooling</b>	Normal convection	<b>General tolerances mm (in.)</b>	
<b>Connector size range</b>		<b>0.00 (0.00) ÷ 30.00 (1.18)</b>	±0.5 (0.02)
<b>Spring terminal</b>	AWG22-12 (0.2~2.5mm <sup>2</sup> ) Flexible/solid cable, Connector can withstand torque at max 0.73Nm	<b>30.00 (1.18) ÷ 120.00 (4.72)</b>	±1.0 (0.04)

## Block Diagram



## Derating Curve



## Mechanical Drawing

