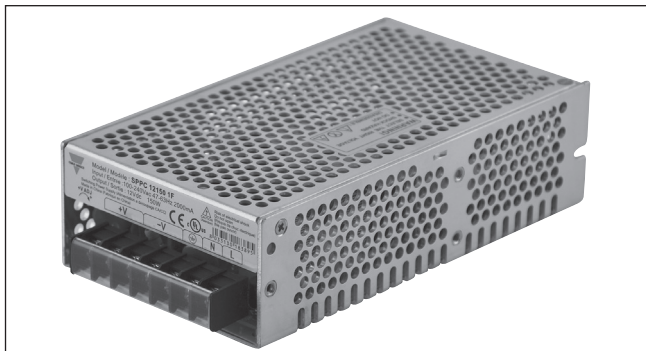


# Switching Power Supply Enclosed Type SPPC 150 1F Series Open Cage

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 |
| Single Output Models |               |              |                |                |                   |             |        |
| 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);<br><1.0s (230Vac input, Full load) |
| Transient recovery time                       | 3ms   |
| Output voltage accuracy                       | ±1.0%<br>±2.0% (on SPPC 5 150 1F)                                   |
| Temperature coefficient                       | ±0.03%/°C   |
| Hold up time                                  | >20ms<br>(115VAC/230VAC input, Full load);                          |
| Voltage fall time (I <sub>o</sub> nom Vi nom) | <80ms   |

|                                |                     |
|--------------------------------|---------------------|
| Voltage rise time              |                     |
| Vi nom, Io nom                 | 150ms               |
| Vi nom, Io nom with 3500µF CAP | 500ms               |
| 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<br>(115VAC input, Full load);<br>1.0s<br>(230VAC input, Full load) |                                 | <150mV (SPPC 24 150 1F)<br><240mV (SPPC 36 150 1F,<br>SPPC 48 150 1F) |
| <b>Operating distance</b> | 0.2... 19m  | <b>Overshoot and Undershoot</b> | <5.0%   |
| <b>Voltage accuracy</b>   | $\pm 1\%$<br>$\pm 2.0\%$ (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><br>(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;<br><60A@230VAC Cold start | <b>Input-Output</b>                              | <0.25mA |
| <b>Power factor (typical)</b>   | PF>0.98@115VAC<br>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       |
|                             |  |                                | 52.5  | 72.0       |
|                             |  | <b>Over voltage</b>            | 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><br>(>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;<br>10% ~ 95% RH<br>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.<br>G.W: 9.0kgs<br>0.04CBM |



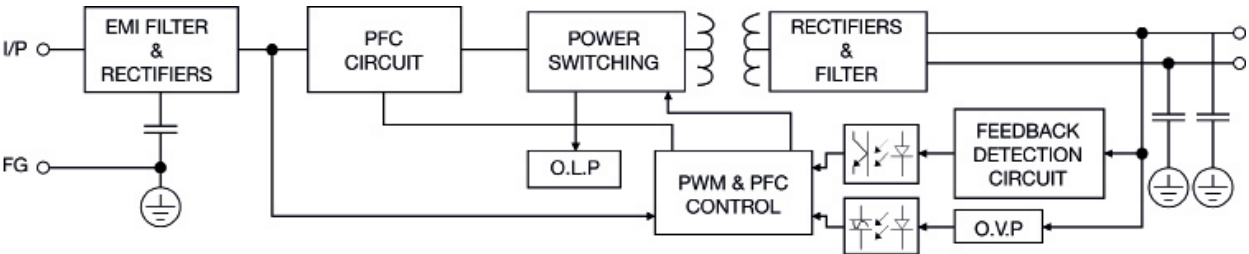
Norms and Standard

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

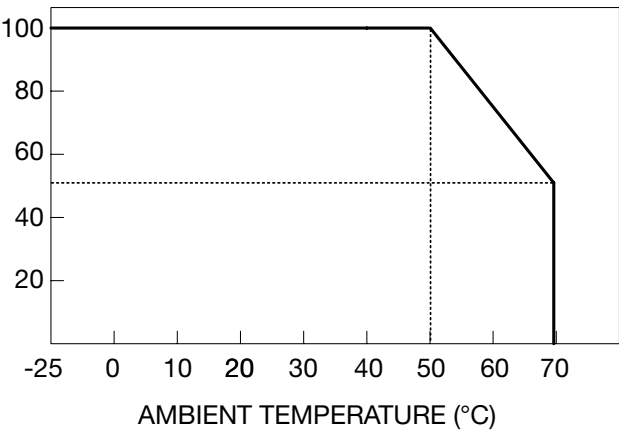
Installation

|                         |  |                              |             |
|-------------------------|--|------------------------------|-------------|
| Ventilation and cooling | Normal convection  | General tollerances mm (in.) |             |
| Connector size range    |  | 0.00 (0.00) ÷ 30.00 (1.18)   | ±0.5 (0.02) |
| Spring terminal         | AWG22-12 (0.2~2.5m²)<br>Flexible/solid cable,<br>Connector can withstand<br>torque at max 0.73Nm | 30.00 (1.18) ÷ 120.00 (4.72) | ±1.0 (0.04) |

Block Diagram



Derating Curve



The technical drawing illustrates the SMPS cover assembly in three views: top, front, and cross-sectional.

**Top View:** Shows the overall dimensions of the cover. The total width is 179 mm, with a central section of 162.5 mm. The total height is 99 mm, with a central section of 86 mm. The cover features a series of mounting holes along the top and bottom edges, labeled with dimensions such as 42.5, 83.5, 25.5, and 53 mm. A central section is marked with 2-M4 and 3-M3. The left side shows a series of mounting holes with dimensions 8.025, 9.525, and 10.5 mm. The right side shows a series of mounting holes with dimensions 42, 49.5, and 6.5 mm.

**Front View:** Shows the cover from the front. The total width is 18.5 mm, and the total height is 50 mm. The cover features a series of mounting holes along the top and bottom edges, labeled with dimensions such as 37.5, 22.5, 15, and 9.5 mm. A central section is marked with 3-M4. The left side shows a series of mounting holes with dimensions 5, 100, and 10 mm. The right side shows a series of mounting holes with dimensions 4.5, 22.5, and 10 mm.

**Cross-sectional View:** Shows the assembly of the cover. The cover is labeled "SMPS Cover" and the mounting plate is labeled "Customer Plate". The assembly is secured by an "Assemble Screw". The thickness of the cover is indicated as  $L \leq 4\text{mm}$ .

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Carlo Gavazzi:](#)

[SPPC241501F](#)