GAPTEC®
GREEN TECHNOLOGY

# 180ACMOP_S4 Series

180W - Open Frame Type Switching Power Supply - Universal Input - Isolated & Regulated



## AC-DC Converter 180 Watt

- Universal input: 90~264VAC
- High efficiency: >87% typical
- Short circuit protection (SCP)
- Over load protection (OLP)
- Over voltage protection (OVP)
- No load power consumption
- Compact, high power density
- Medical 60601-1 3rd Edition MOPP and ITE approved
- Meet DOE level VI & ErP Tier 1 requirements
- UL 60950-1

The 180ACMOP_S4 series is a compact size power converter offered by Gaptec. It features universal input voltage, taking AC input voltage, low power consumption, high efficiency, high reliability, safer isolation. It offers good EMC performance, meets IEC/EN61000-4, CISPR22/EN55022, UL60950 and EN60950 standards, and is widely used in medical instrumentation and critical applications in commercial and industrial electronic equipment.

(pending)

| Approval | Model | Power [W] | Output voltage[V] | Load convection [A, max] | 15CFM forced air [A, max] | Ripple&Noise [mV, Vp-p] | Output Regulation [%] | Efficiency [@115VAC, %, typ] |
|---|---|---|---|---|---|---|---|---|
| UL/CE | 180ACMOP_12S4 | 180 | 12 | 10 | 15 | 240 | ±3 | >87 |
| UL/CE | 180ACMOP_15S4 | 180 | 15 | 8 | 12 | 240 | ±3 | >87 |
| UL/CE | 180ACMOP_19S4 | 180 | 19 | 6.32 | 9.48 | 240 | ±2 | >87 |
| UL/CE | 180ACMOP_24S4 | 180 | 24 | 5 | 7.5 | 240 | ±2 | >87 |
| UL/CE | 180ACMOP_28S4 | 180 | 28 | 4.29 | 6.43 | 240 | ±2 | >87 |
| UL/CE | 180ACMOP_48S4 | 180 | 48 | 2.5 | 3.75 | 240 | ±2 | >87 |

### Input specifications

| | | |
|---|---|---|
| Input voltage range | 90-264 VAC | |
| Input frequency | 47~63Hz | |
| Power factor | 115VAC<br>• 0.95A (max) | 230VAC<br>• 0.9A (max) |
| Input current | 115VAC<br>• 3A (max) | 230VAC<br>• 1.5A (max) |
| Inrush current (cold start @25°C) | 115VAC<br>• 50A (typ) | 230VAC<br>• 100A (typ) |
| Leakage current | < 100µA/264VAC | |
| Recommended external fuse | • 2A | • High Breaking capacity |

### Output specifications

| Item | Test conditions | Min | Typ | Max | Units |
|---|---|---|---|---|---|
| Output power | with 15CFM forced air cooling | | | 180 | W |
| Output voltage accuracy | Full load | | ±2 | | % |
| Hold-up time | @load 75%, 115VAC | | 20 | | ms |

**Example:**
**180ACMOP_05S4**
**180= 180Watt; AC= AC-DC; MOP= series; 5Vout; S= Single Output; 4= 4kVAC**

### Protection specifications

| | |
|---|---|
| Short circuit protection | Protection type: Auto-recovery |
| Over-voltage protection | Protection type: Latching type. AC Recycle |
| Over-load protection | Protection type: 110% to 150% maximum rating, Auto-recovery |

**Note:**

1. **This product is not designed for use in critical life support systems, equipment used in hazardous environment, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet.**
2. At 25°C including initial tolerance, line voltage, load currents and output voltages adjusted to factory settings.
3. Ripple and noise are measured at oscilloscope 20MHz bandwidth by a 10uF electrolytic capacitor and a 0.1uF ceramic capacitor in parallel at output connector.

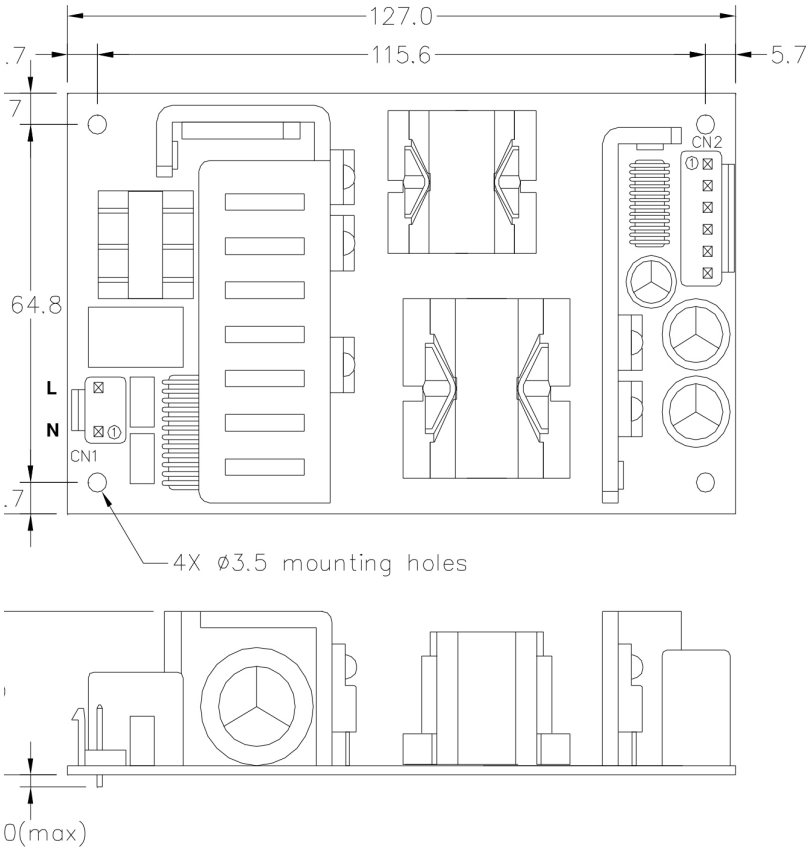

GAPTEC-Electronic GmbH & Co. KG
sales@gaptec-electronic.com – www.gaptec-electronic.com
Specifications subject to change without notice.

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| Common specifications | | | |
|---|---|---|---|
| Operating temperature range | Convection cooling : 0 to +60°C (Derate linearly 2.5% per °C from 41 to 60°C)<br>15 CFM Forced air : 0 to +60°C (Derate linearly 2.5% per °C from 51 to 60°C) | | |
| Storage temperature range | -40°C ~ +85°C | | |
| Humidity (non-condensing) | 95% MAX | | |
| Cooling | Free air convection | | |
| I/O-isolation voltage | 4000VAC | | |
| EMC / EMI / Conducted and radiated EMI | EN55011 class B (Radiation Class A for 180ACMOP_S4 series) | | |
| EMC / EMS / ESD | IEC/EN 61000-4-2 | Contact ±8KV / Air ±15KV | perf. Criteria B |
| EMC / EMS / Radiated Immunity | IEC/EN 61000-4-3 | 3V/m | perf. Criteria A |
| EMC / EMS / Fast Transient | IEC/EN 61000-4-4 | ±2kV | perf. Criteria B |
| EMC / EMS / Surge | IEC/EN 61000-4-5 | Line to Line: ±2KV  Line to PE: ±4KV | perf. Criteria B |
| EMC / EMS / Conducted immunity | IEC/EN 61000-4-6 | 10Vr.m.s | perf. Criteria A |
| EMC / EMS / PFMF | IEC/EN 61000-4-8 | 30A/m | perf. Criteria A |
| EMC / EMS / Dips | IEC/EN 61000-4-11 | 30% / 500ms | perf. Criteria B |
| EMC / EMS / Interruption | EN61000-4-11 | >95% 5000ms | |
| EMC standards | EN60601-1-2<br>FCC Part 18 Class B<br>EN 55011 Class B<br>CE | | |
| Safety standards | 60601-1 3rd Edition<br>CSA-C22.2 No.60601-1 3rd Edition<br>EN60601-1 3rd Edition<br>IEC 60601-1 3rd Edition | | |
| MTBF | 100,000 h @25°C | | |
| Package | 27 × W76.2 × H30.0 mm | | |
| Weight | 350g | | |

## Mechanical dimensions




**Matching connectors:**

CN1: Input connector
JST B3P-VH-B pitch: 7.92mm or equivalent, mates with JST VHR-3N or equivalent

| PIN | Single |
|---|---|
| 1 | AC Line |
| 2 | AC Neutral |

CN2: Output Connector
JST B4P-VH-B pitch: 3.96mm or equivalent, mates with JST VHR-4N or equivalent

| PIN | Single |
|---|---|
| 1 | -Vo |
| 2 | -Vo |
| 3 | +Vo |
| 4 | +Vo |