



## 280ACMOP\_S4 Series

280W - Open Frame Type Switching Power Supply - Universal Input - Isolated & Regulated

### AC-DC Converter 280 Watt

- ⊕ Universal input: 90~264VAC
- ⊕ High efficiency: >91% typical
- ⊕ Short circuit protection (SCP)
- ⊕ Over load protection (OLP)
- ⊕ Over voltage protection (OVP)
- ⊕ High Power density, 280W in 5" x 3" footprint
- ⊕ ITE 60950-1, 62368-1 & Medical 60601-1 approvals
- ⊕ Medical applications Protection: Means of Patient Protection (MOPP)

The 280ACMOP\_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.



Approval	Model	Power [W]	Output voltage [V]	Load [A, max]		Ripple&Noise [mV, V1]	Standby supply [V/A, V2]	Fan output [V/A, V3]	Efficiency [230VAC, %, typ]
				convection	18CFM Forced Air				
UL/CE	280ACMOP_12S4	280	12	17.5	23.33	150	5/0.5	12/0.3	>91
UL/CE	280ACMOP_24S4	280	24	8.75	11.66	240	5/0.5	12/0.3	>91
UL/CE	280ACMOP_28S4	280	28	7.5	10	280	5/0.5	12/0.3	>91
UL/CE	280ACMOP_36S4	280	36	5.83	7.77	300	5/0.5	12/0.3	>91
UL/CE	280ACMOP_48S4	280	48	4.375	5.83	300	5/0.5	12/0.3	>91
UL/CE	280ACMOP_56S4	280	56	3.88	5.18	400	5/0.5	12/0.3	>91

#### Input specifications

Input voltage range	90-264 VAC	
Input frequency	47~63Hz	
Power factor	115VAC • 0.95(max)	230VAC • 0.90 (max)
Input current	115VAC • 3.5A (max)	230VAC • 2A (max)
Inrush current (cold start @25°C)	115VAC • 30A (typ)	230VAC • 60A (typ)
Leakage current	< 100µA/264VAC	
Recommended external fuse	• 2A	• High Breaking capacity

#### Protection specifications

Short circuit protection	Protection type: Auto-recovery
Over-voltage protection	Protection type: Latching type, AC recycle
Over-load protection	Protection type: 105% to 150% maximum rating, auto-recovery

#### Example:

**280ACMOP\_05S4**  
280= 280Watt; AC= AC-DC; MOP= series; 5Vout; S= Single Output;  
4= 4kVAC

#### Output specifications

Item	Test conditions	Min	Typ	Max	Units
Convection total power				210	W
18CFM Forced air total power				280	W
Output voltage accuracy	Full load		±2		%
Line regulation			1		%
Load regulation	1% to 100% load • 280ACMOP_05S4 • Others		5		%
			3		%
Hold-up time	@full load, 115VAC		10		ms

\* Measured at 20MHz of bandwidth with 0.1µF & 47µF parallel capacitor.

#### Note:

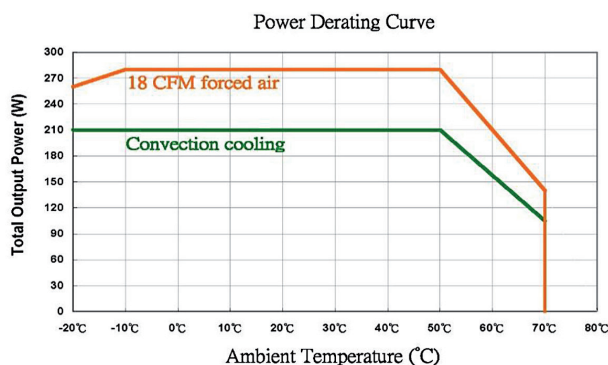
- This product is not designed for use in critical life support systems, equipment used in hazardous environment, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other the ones listed in this datasheet.**
- Output connector options: Z=T ( Terminal block type, pitch 8.25mm) or Z=M ( Mini-fit type, pitch 4.2mm) or Z=C ( Connector type, pitch=3.96mm ).
- All models are equipped with 5Vsb & 12V fan outputs.
- Ripple and noise are measured at oscilloscope 20MHz bandwidth by a 47µF electrolytic capacitor and a 0.1µF ceramic capacitor in parallel at output connector.

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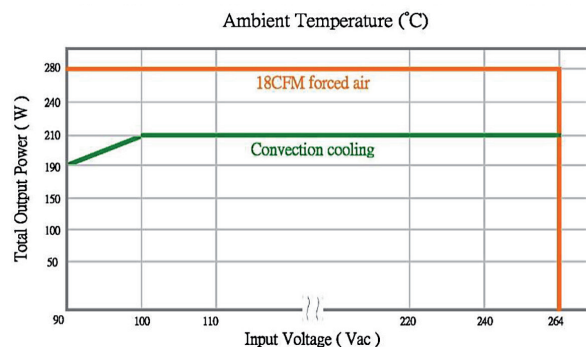
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Common specifications			
Operating temperature range	-20°C ~ +70°C (with derating)		
Power derating temperature range	41°C ~ 70°C: 2.5%/°C		
Storage temperature range	-20°C ~ +85°C		
Humidity (non-condensing)	90% MAX		
Cooling	Free air convection		
Temperature coefficient	±0.05%/°C		
I/O-isolation voltage	4000VAC		
5Vsb meet ErP	0.5W @No load		
Remote control	(Inhibit) function		
EMC / EMI / Conducted and radiated EMI	EN55011 class B (Radiation Class A for 280ACMOP_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	IEC60601-1-2 Ed4:2014 EN60601-1-2 Ed4:2015 EN55024 EN55011 Class B EN55032 Class B FCC Part 15 Class B FCC Part 18 Class B CE		
Safety standards	60601-1 3 <sup>rd</sup> Edition UL/c-UL UL60950-1 UL/c-UL UL62368-1 EN60601-1 3.1rd Edition TUV EN60950-1 TUV EN62368-1 IEC EN60601-1 3.1rd Edition CB IEC 60950-1 CB IEC 62368-1		
MTBF	100,000 h @25°C		
Package	L127 ×W76.2 ×H30mm		
Weight	350g		

## Typical characteristics



convection cooling and 18CFM forced air cooling  
Derate linearly 2.5% per °C from 51 to 70°C

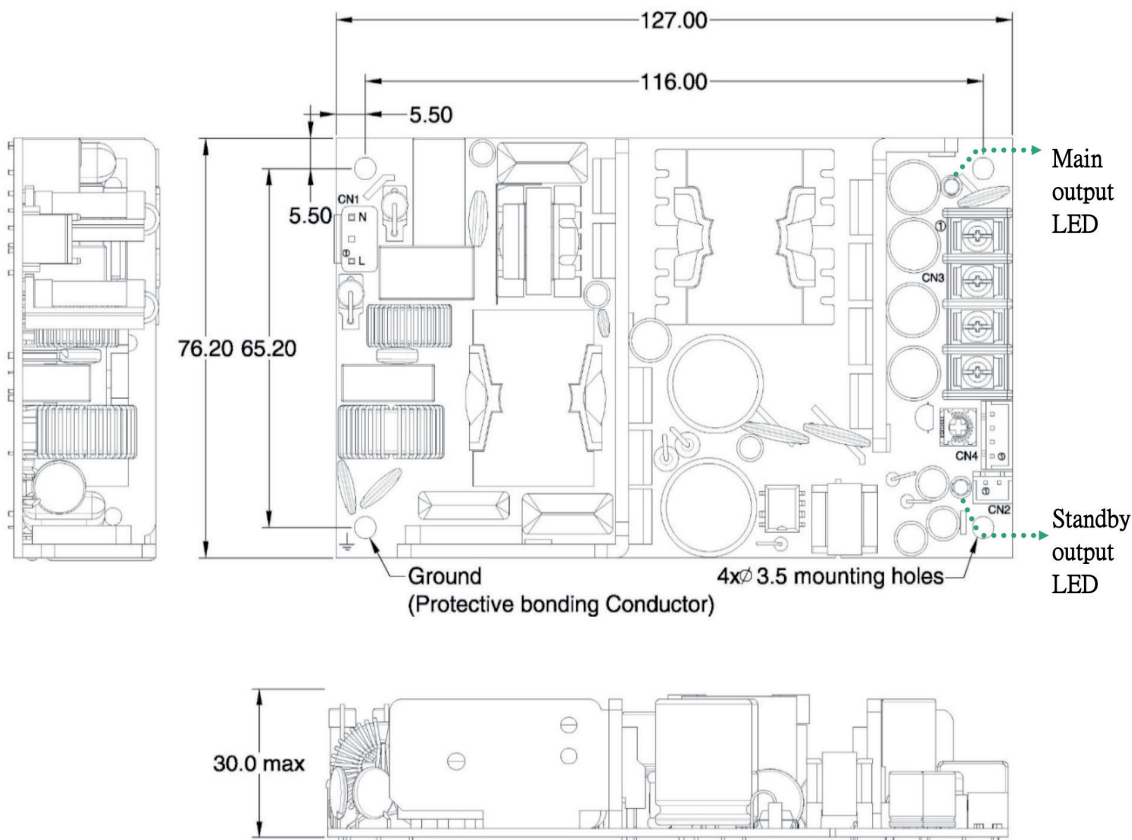


Convection cooling total output 210W  
Derate linearly 1% per Vac from 100 to 90Vac

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### Mechanical dimensions

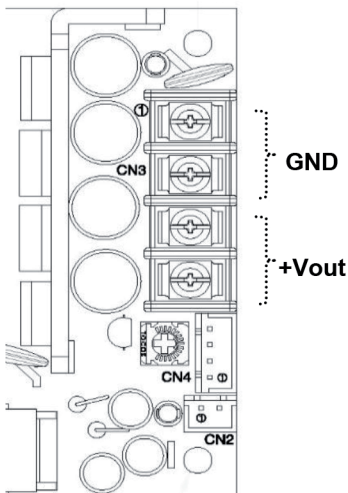


Dimension : L127 ×W76.2 ×H30mm ( 5" x 3" x 1.18")

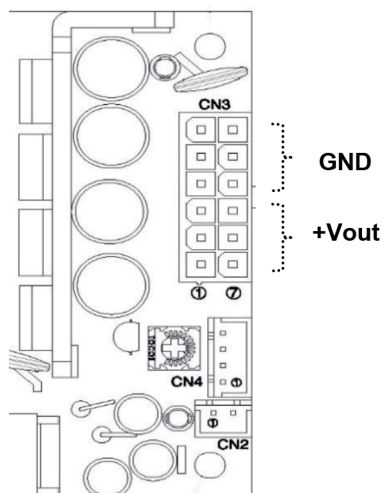
NOTE:TOLERANCE:±0.5mm(0.02")

Main output optional type (CN3)

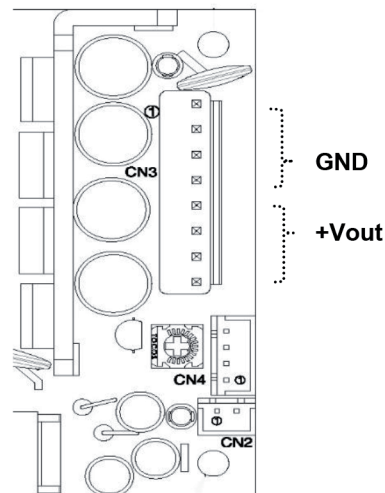
Terminal Block Type



Mini Fit Type



Connector Type



## Mechanical specifications

### MATCHING CONNECTORS

#### CN1: Input Connector

JST B2P3-VH pitch: 3.96mm or equivalent, mates with JST VAR-2 or equivalent

Pin #	Signal
1	AC Line
2	AC Neutral

#### CN2: FAN Output Connector

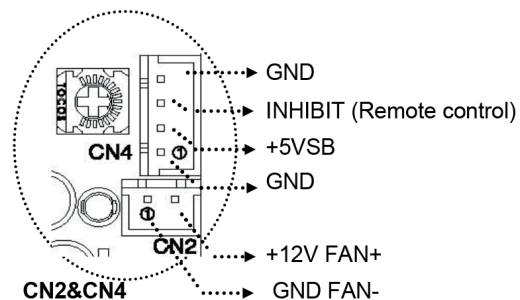
JST B2B-XH-A pitch: 2.5mm or equivalent, mates with JST XHP-2 or equivalent

Pin #	Signal
1	GND FAN-
2	+12V FAN+

#### CN4: Remote control & Standby supply

JST B4B-XH-A pitch: 2.5mm or equivalent, mates with JST XHP-4 or equivalent

Pin #	Signal
1	GND
2	+5VSB
3	INHIBIT (Remote control)
4	GND



INHIBIT→ Logic level HIGH (5V) or Floating : Enable, Logic level LOW : Disable

#### CN3: Main Output Connector

##### Terminal Block Type

4-Pole Terminal block pitch: 8.25mm , rate 20A/300V or equivalent

Pin #	Signal
1	GND
2	GND
3	+Vout
4	+Vout

##### Connector Type

JST B8P-VH-B pitch: 3.96mm or equivalent, mates with JST VHR-8N or equivalent

Pin #	Signal	Pin #	Signal
1	GND	5	+Vout
2	GND	6	+Vout
3	GND	7	+Vout
4	GND	8	+Vout

#### Mini Fit type

12 PIN Min Fit Pitch:4.2mm .

Molex P/N 39-28-1123 or equivalent.

Pin #	Signal	Pin #	Signal
1	+Vout	7	+Vout
2	+Vout	8	+Vout
3	+Vout	9	+Vout
4	GND	10	GND
5	GND	11	GND
6	GND	12	GND

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### DC fan recommended direction

