



## 280ACMHP\_4 series

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

### AC-DC Converter 280 Watt

- ⊕ ITE 60950-1, 62368-1 & Medical 60601-1 approvals.
- ⊕ High Power density, 280W in 5" x 3.28" footprint.
- ⊕ Medical applications Protection: Means of Patient Protection ( MOPP).
- ⊕ Altitude during operation: ITE up to 5000m, Medical Below 3000m.
- ⊕ Main output and Standby output Power ON LED indicators.
- ⊕ 3 years warranty.

The 280ACMHP\_4 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.



Common specifications	
Short circuit protection	Auto-recovery.
Efficiency	91% typical @full load, 230VAC.
Operating temperature range	-20°C ~ +70°C (Refer to derating curve)
Storage temperature range	-20°C ~ +85°C
Humidity	0% to 90% (Non-condensing)
I/O-isolation voltage	4000VAC
5Vsb meet ErP	0.5W @No load
Remote control	(Inhibit) function
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	UL60601-1 3.1rd Edition UL/c-UL UL60950-1 UL/c-UL UL62368-1 EN60601-1 3.1 rd Edition TUV EN60950-1 TUV EN62368-1 IEC EN60601-1 3.1rd Edition CB IEC 60950-1 CB IEC 62368-1
MTBF	> 250,000 hours @full load and 25°C ambient temperature per Telcordia(Bellcore).
Cooling	Free air convection
Weight	500g
Dimension	127×83.2×39.5mm

Output specifications						
Item	Test conditions	Min	Typ	Max	Units	
Convection total cooling power				200	W	
18CFM Forced air total power				280	W	
Output voltage accuracy	Full load		±2		%	
Hold-up time	@full load, 115VAC		10		ms	

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

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

**Example:**  
**280ACMHP\_0554**  
**280= 280Watt; AC= AC-DC; MPH= series; 5Vout; S= Single Output;**  
**4= 4kVAC**

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 than 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 47uF electrolytic capacitor and a 0.1uF ceramic capacitor in parallel at output connector.

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	

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### Product Selection Guide

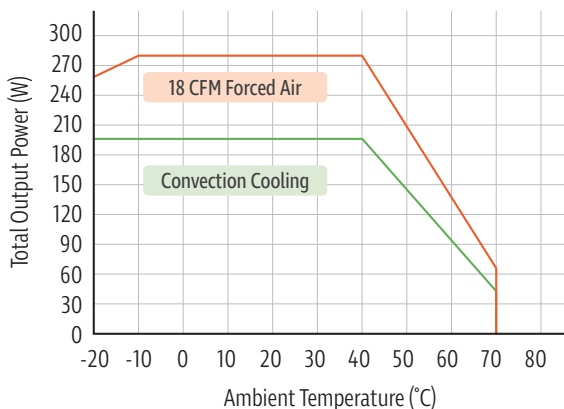
Model	Power [W]	Convection total power [W]	Output voltage[V]	Load [A, max]		Output Regulation [V1]	Ripple&Noise [mV, V1]	Standby supply [V/A, V2]	Fan output [V/A, V3]
				convection	18CFM Forced Air				
280ACMHP_12S4	280W	200W	12	16.66A	23.33A	±3%	150	5/0.5	12/0.3
280ACMHP_24S4	280W	200W	24	8.33A	11.66A	±3%	240	5/0.5	12/0.3
280ACMHP_28S4	280W	200W	28	7.14A	10A	±2%	280	5/0.5	12/0.3
280ACMHP_36S4	280W	200W	36	5.55A	7.77A	±2%	300	5/0.5	12/0.3
280ACMHP_48S4	280W	200W	48	4.16A	5.83A	±2%	300	5/0.5	12/0.3
280ACMHP_54S4	280W	200W	54	3.7A	5.18A	±2%	400	5/0.5	12/0.3

Note:

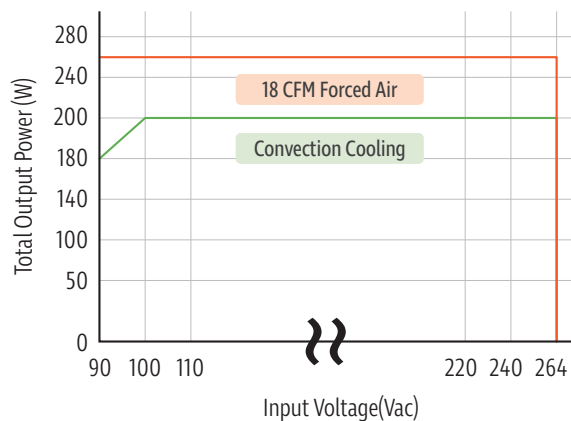
1. Output connector options: Z = T ( Terminal block type, pitch 8.25mm) or Z = M ( Mini-fit type, pitch 4.2mm) or Z = C ( Connector type, pitch = 3.96mm ).
2. All models are equipped with 5Vsb & 12V fan outputs.
3. All models have total power 200W Max. convection or 280W Max. forced air cooling.
4. Ripple and noise are measured at oscilloscope 20MHz bandwidth by a 47uF electrolytic capacitor and a 0.1uF ceramic capacitor in parallel at output connector.

### Typical characteristics

#### Power Derating Curve

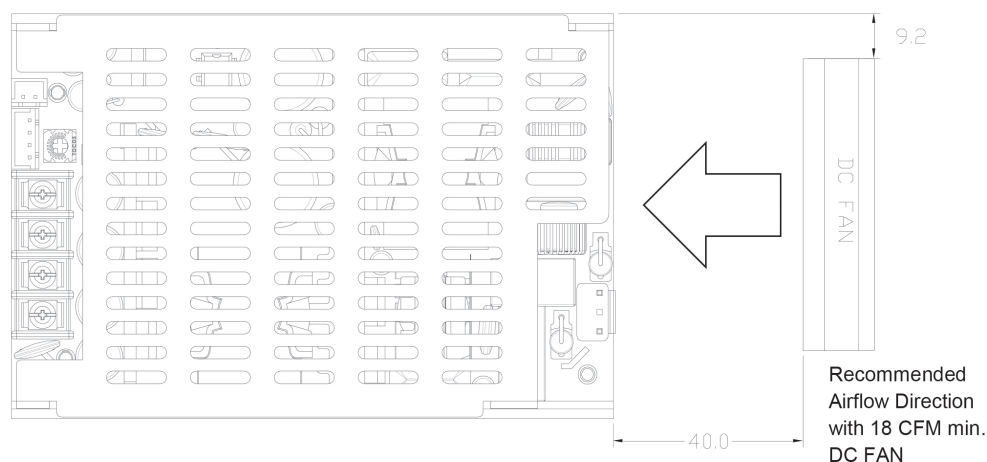


convection cooling and 18CFM forced air cooling  
Derate linearly 2.5% per °C from 41 to 70°C



Convection cooling total output 200W  
Derate linearly 1% per Vac from 100 to 90Vac

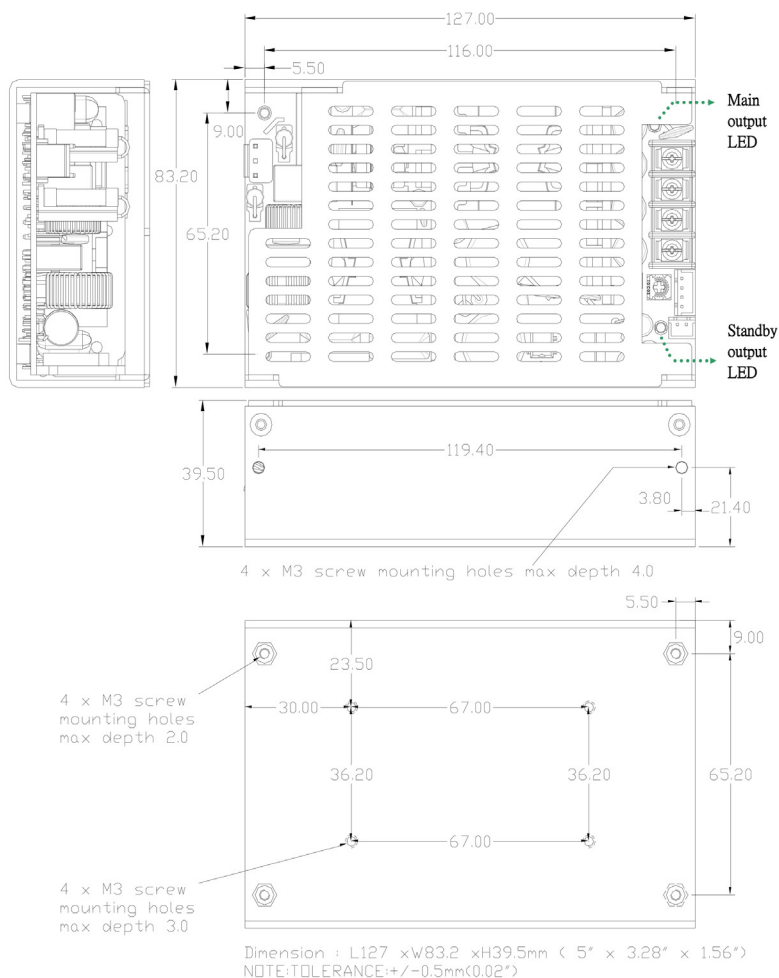
### DC FAN Recommended Direction



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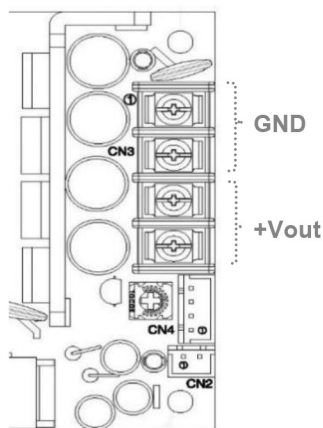
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### Mechanical dimensions

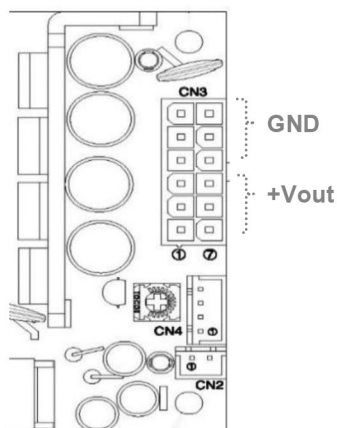


### Main output optional type (CN3)

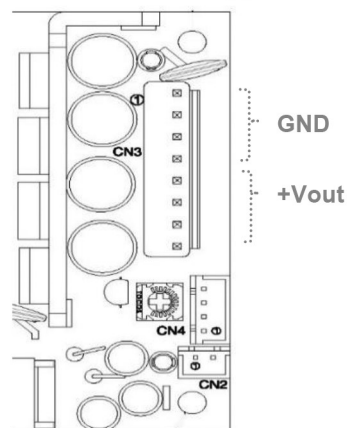
#### Terminal Block Type



#### Mini Fit Type



#### Connector Type



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# Mechanical specifications

### Matching Connectors

#### CN1: Input Connector

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

Pin number	Signal
1	AC Line
2	AC Neutral

#### CN2: FAN Output Connector

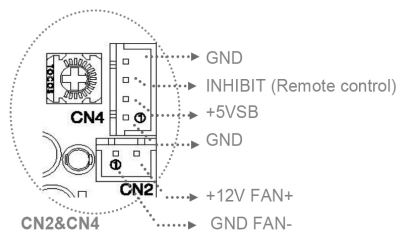
JST B2B-XH-A pitch: 2.5mm or equivalent, mates with JST XHP-2 or equivalent

Pin number	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 number	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 number	Signal	Pin number	Signal
1-2	GND	3-4	+Vout

##### Connector Type

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

Pin number	Signal	Pin number	Signal
1-4	GND	5-8	+Vout

##### Mini Fit type

12 PIN Min Fit Pitch: 4.2mm . Molex P/N 39-28-1123 or equivalent.

Pin number	Signal	Pin number	Signal
1-3	+Vout	7-10	+Vout
4-6	GND	10-12	GND