



100ACPW_4 series

100W - Single Output AC-DC Converter - Enclosed Switching - Universal Input - Isolated

AC-DC Converter 100 Watt

- ⊕ Universal 85 - 305VAC or 120 - 431VDC input voltage
- ⊕ Accepts AC or DC input (dual-use of same terminal)
- ⊕ Operating ambient temperature range: -30°C to +70°C
- ⊕ Low standby power consumption, high efficiency
- ⊕ High I/O isolation test voltage up to 4000VAC
- ⊕ Low ripple & noise
- ⊕ Output short circuit, over-current, over-voltage protection
- ⊕ Safety according to IEC/EN/UL62368, EN60335, GB4943, EN61558
- ⊕ Over-voltage class III (designed to meet EN61558)
- ⊕ Operating up to 5000m altitude

The 100ACPW_4 series is one of GAPTEC's enclosed AC-DC switching power supply. It features universal AC input and at the same time accepts DC input voltage, cost-effective, low no load power consumption, high efficiency and high reliability. These converters offer excellent EMC performance and meet IEC/EN61000-4, CISPR32/EN55032, IEC/UL/EN62368, EN60335, GB4943, EN61558 standards and they are widely used in areas of industrial, LED, street light control, electricity, security, telecommunications, smart home etc.



Common specifications

Item	Test conditions	Min	Typ	Max	Units
Short circuit protection	recovery time <5s after the short circuit disappear	Hiccup, continuous, self-recovery			
Operating temperature		-30		+70	°C
Storage temperature		-40		+85	°C
Storage humidity	Non-condensing	10		95	%RH
Operating humidity	Non-condensing	20		90	%RH
Switching Frequency			65		kHz
Power derating	Operating temp derating				
	• 5V output +40 to +70°C	1.6			%/°C
	• Other output +50 to 70°C	2.0			%/°C
	Input voltage derating				
	• 85VAC-100VAC	0.67			%/VAC
Safety standard	Meet IEC/EN/UL62368/EN60335/GB4943/EN61558				
Safety certification	IEC/EN/UL62368/EN60335/GB4943/EN61558				
Safety class	CLASS I				
MTBF	MIL-HDBK-217F@25°C	>300,000 h			
Case Material	Metal (AL1100, SGCC)				
Dimensions	129.00 x 97.00 x 30.00mm				
Weight	5V	325g	TYP.		
	12V/15V/24V/36V/48V	305g	TYP.		
Cooling Method	Free air convection				

Input specifications

Item	Test conditions	Min	Typ	Max	Units
Input Voltage Range	• AC input	85		305	VAC
	• DC input	120		431	VDC
Input frequency		47		63	Hz
Input current	• 115VAC			3	A
	• 230VAC			1.5	A
Inrush current (Cold start)	• 115VAC		35		A
	• 230VAC		65		A
Leakage current	240VAC	<0.75mA			
Hot plug	Unavailable				

Output specifications

Item	Test conditions	Min	Typ	Max	Units
Output voltage accuracy	Full load range • 5V • 12V/15V/24V/36V/48V		±2.0		%
			±1.0		%
Line regulation	Rated load		±0.5		%
Load regulation	0% - 100% load • 5V • 12V/15V/24V/36V/48V		±1		%
			±0.5		%
Ripple & noise*	20MHz bandwidth; peak-to-peak value • 5V • 12V/15V • 24V • 36V/48V			100	mV
				120	mV
				150	mV
				200	mV
Temperature coefficient	0°C to 50°C, 230VAC		±0.03		%/°C
Minimum load		0			%
Stand-by power consumption	5V/12V/15V/24V			0.3	W
	36V/48V			0.5	W
Hold-up time	• 115VAC		10		ms
	• 230VAC		55		ms

*The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor, please refer to Enclosed Switching Power Supply Application Notes for specific information.

Example:

100ACPW_24S4
100 = 100Watt; AC = AC-DC; P = series; W = wide-input (2:1);
24 = 24Vout; S = Single Output; 4 = 4kVAC isolation

Note:

1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta = 25°C, humidity <75%RH with nominal input voltage and rated output load;
2. The room temperature derating of 5°C/1000m is needed for operating altitude greater than 2000m;
3. All index testing methods in this datasheet are based on our company corporate standards
4. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability;
5. We can provide product customization service..
6. Products are related to laws and regulations: see "Features" and "EMC";
7. The out case needs to be connected to the earth of system when the terminal equipment in operating;
8. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;

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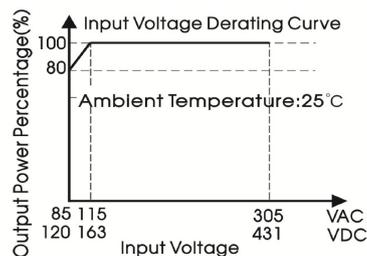
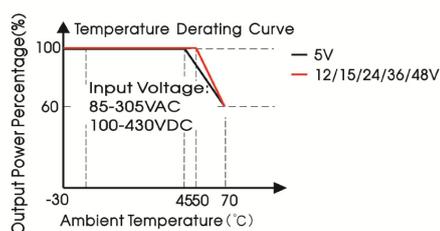
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Protection specifications		Isolation specifications					
Over-current protection	110%-200% I _o , self-recovery						
Over-voltage protection	<ul style="list-style-type: none"> • 5V • 12V • 15V • 24V • 36V • 48V 	<ul style="list-style-type: none"> • ≤7.5VDC (Output voltage turn off, hiccup or clamp) • ≤19.2VDC (Output voltage turn off, hiccup or clamp) • ≤24VDC (Output voltage turn off, hiccup or clamp) • ≤38.4VDC (Output voltage turn off, hiccup or clamp) • ≤57.6VDC (Output voltage turn off, hiccup or clamp) • ≤60VDC (Output voltage turn off, hiccup or clamp) 					
		Item	Test condition	Min	Typ	Max	Units
		Isolation test	• Input	2000			VAC
			• Input-output	4000			VAC
			• Output	1250			VAC
		Insulation resistance	At 500VDC				
			• Input	100			MΩ
			• Input-output	100			MΩ
			• Output	100			MΩ

EMC specifications				
Emissions	CE	CISPR32/EN55032	CLASS B	
Emissions	RE	CISPR32/EN55032	CLASS B	
Emissions	Harmonic current	IEC/EN61000-3-2	CLASS A	
Immunity	ESD	IEC/EN61000-4-2	Contact ±6KV/Air ±8KV	perf. Criteria A
Immunity	RS	EC/EN61000-4-3	10V/m	perf. Criteria A
Immunity	EFT	IEC/EN61000-4-4	±2KV	perf. Criteria A
Immunity	Surge	IEC/EN61000-4-5	line to line ±1KV/line to ground ±4KV	perf. Criteria A
Immunity	CS	IEC/EN61000-4-6	10Vr.m.s	perf. Criteria A
Immunity	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%,70%	perf. Criteria B

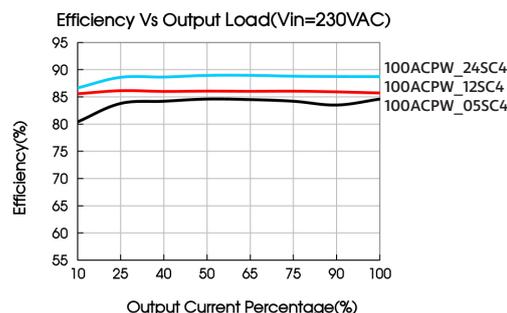
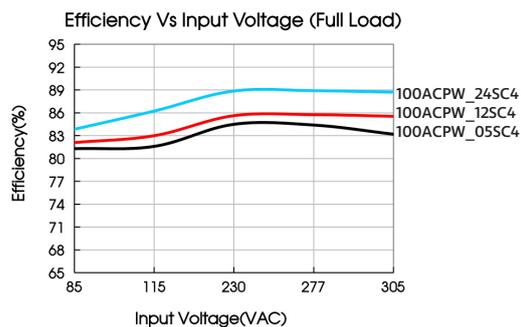
Product Selection Guide						
Approval	Model	Output Power [W]	Nominal Output Voltage and Current [Vo/Io]	Output Voltage Adjustable Range (V)	Efficiency at 230VAC [% , typ]	Max. Capacitive Load (μF)
UL	100ACPW_05S4	90	5V/18A	4.5-5.5	85.5	10000
UL	100ACPW_12S4	102	12V/8.5A	10.2-13.8	87	6800
UL	100ACPW_15S4	105	15V/7.0A	13.5-18	87	3300
UL	100ACPW_24S4	108	24V/4.5A	21.6-28.8	89.5	2200
UL	100ACPW_36S4	100.8	36V/2.8A	32.4 - 39.6	89.5	1000

Product Characteristic Curve



1. With an AC input voltage between 85 -115VAC and a DC input between 120 -163VDC the output power must be derated as per the temperature derating curves;
2. This product is suitable for applications using natural air cooling; for applications in closed environment please consult FAE.

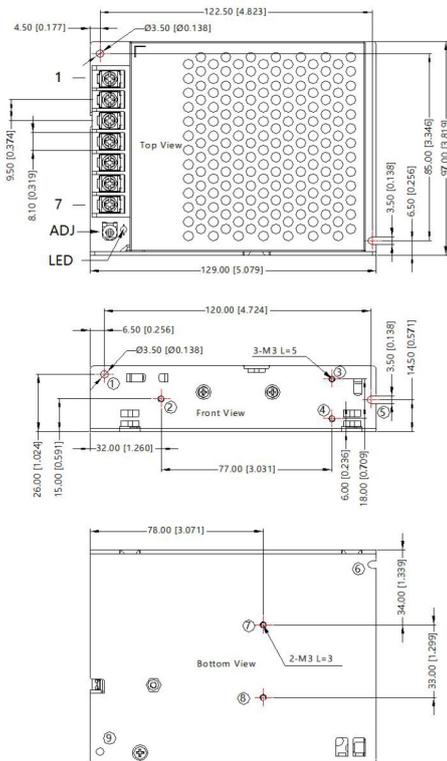
Efficiency



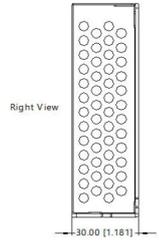
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Dimensions and recommended layout - Conformal coating



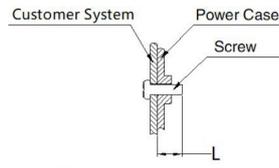
THIRD ANGLE PROJECTION



Pin-Out	
Pin	Function
1	AC(L)
2	AC(N)
3	⊕
4	-Vo
5	-Vo
6	+Vo
7	+Vo

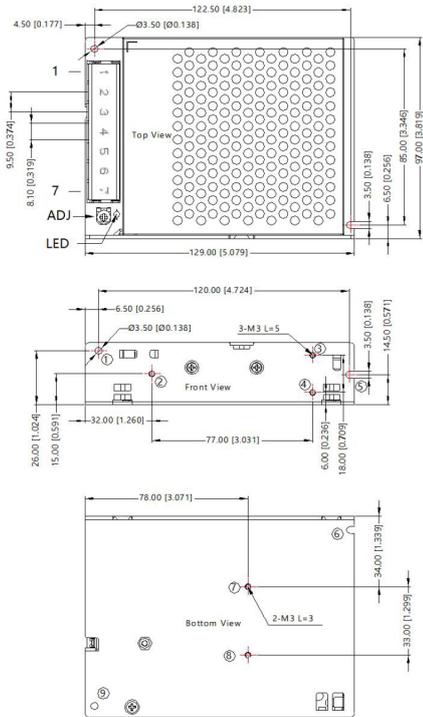
①-⑧ any position must be connected to the earth(⊕)

Position	Screw Spec.	L(max)	Torque(max)
② - ④	M3	5mm	0.4N·m
⑦ - ⑧	M3	3mm	0.4N·m

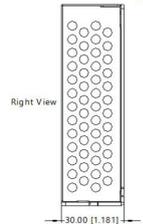


Note:
 Unit: mm[inch]
 Wire range: 22-12AWG
 Connector tightening torque: M3.5 , 0.8N·m
 General tolerances: ± 1.00[± 0.039]

Dimensions and recommended layout - Terminal with protective cover



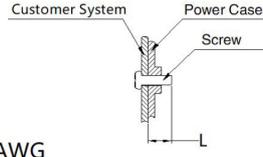
THIRD ANGLE PROJECTION



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Pin	Function
1	AC(L)
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4	-Vo
5	-Vo
6	+Vo
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