GAPTEC®
GREEN TECHNOLOGY

150ACPM_SC Series

150W - Single Output AC-DC Converter - Universal Input - Isolated & Regulated



AC-DC Converter 150 Watt

- **High efficiency up to 87%**
- **Universal AC input range (85~264VAC)**
- **Built-in Active PFC function, PF>0.95**
- **Over power protection (OPP)**
- **Over load protection (OLP)**
- **Short circuit protection (SCP)**
- **Wide operating ambient temperature (-20°C~70°C)**
- **Withstand 300VA surge input for 5 secs.**
- **100% full load burn-in test**
- **Easy assembling from top side**
- **All using 105°C long life electrolytic capacitors**

The 150ACPM_SC series features standard rail mounting, energy efficiency and is highly cost-effective. The series offers stability and high noise immunity especially for industrial control equipment, machinery and other demanding environments for industrial equipment. This converter offers a compact and light weight design with and standard rail installation (35mm). Furthermore this series offers Easy Fuse Tripping due and a built-in DC OK relay contact. The converter can be installed on TS-35/7.5 or TS-35/15.

SHORT CIRCUIT PROTECTED SCP

c UL us pending CB CE PFC

Common specifications

Short circut protection:	Long-term mode, automatic recovery
Temperature rise at full load:	40°C MAX
Cooling:	Free air convection
Operation temperature range:	-20°C~+70°C
Storage temperature range:	-30°C ~+85°C
Storage humidity range:	< 95%
Temperature coefficient:	0.03%/°C MAX
MTBF (using MIL-HDBK-217F):	+25°C >200,000 hours
Power boost:	150% of rated current
Parallel function:	support
Safety standards:	UL60950-1 2nd Ed; IEC 60950-1:2005(2nd Ed); EN60950-1:2006
Case material:	Heat-resistant Plastic (UL94-V0) and metal
Dimensions:	199*99*38mm
Weight:	750g

Isolation specifications

Item	Test condition	Min	Typ	Max	Units
Withstand voltage*	• Primary-Sec.: 10mA • Primary-PG: 10mA • Secondary-PG: 10mA	3000 1500 500			VAC
Isolation resistance		100			MΩ

* Input-Output, tested for 1 minute, 500VDC and leakage current less than 1mA

Protection specifications

Over-load protection	• 12V: 13.125~18.75A • 15V: 10.5~17A • 24V: 6.93~9.45A • 48V: 3.36~4.8A	Protection type: Constant power, auto recovery
Over-power protection	• 12V: 160~225W • 15V: 160~255W • 24V: 160~225W • 48V: 160~225W	Protection type: Constant power, auto recovery
Over-voltage protection	• 12V: 14~18V • 15V: 17.8~22.5V • 24V: 27~36V • 48V: 52.5~72V	Protection type: Constant power, auto recovery
Over-temperature protection	105°C +5°C (detect on Mosfet temperature); shut down, auto recovery after the temperature goes down to 50°C	

Input specifications

Input voltage range		85~264VAC, 120~370Vdc	
Input frequency		47~63Hz	
Power factor		115VAC • 0.98 (typ)	230VAC • 0.95 (typ)
AC current		2A (max)	
Inrush current	Cold start	115VAC • 30A (typ)	230VAC • 45A (typ)
Leakage current (input 264Vac, 63Hz)	Input—output: ≤0.25mA Input—PG: ≤3.5mA		

Output specifications

Item	Test conditions	Min	Typ	Max	Units
Output voltage accuracy	Full load			±2	%
Voltage adjustment range	• 12V • 15V • 24V • 48V	10.8 13.5 21.6 43.2		13.2 16.5 26.4 52.8	V V V V
Line regulation	Vin= min. to max. at full load			±0.5	%
Load regulation	• 12V, 15V • 24V, 48V			±2 ±1	% %
Set-up time	• @230VAC input • @115VAC input			2 3	s s
Hold-up time		10			ms
Overshoot and undershoot				5	%
Switching frequency			100		KHz

* Measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 uF & 10uF parallel capacitor.

Example:
150ACPM_24SC

150= 150Watt
AC= AC-DC
PM= series
24= 24 Vout
S= single output
C= PFC (Power Factor Correction)

Note:
1. All parameters NOT specially mentioned are measured at rated input, rated load and 25°C of ambient temperature.

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Specifications subject to change without notice.

150ACPM_SC Series

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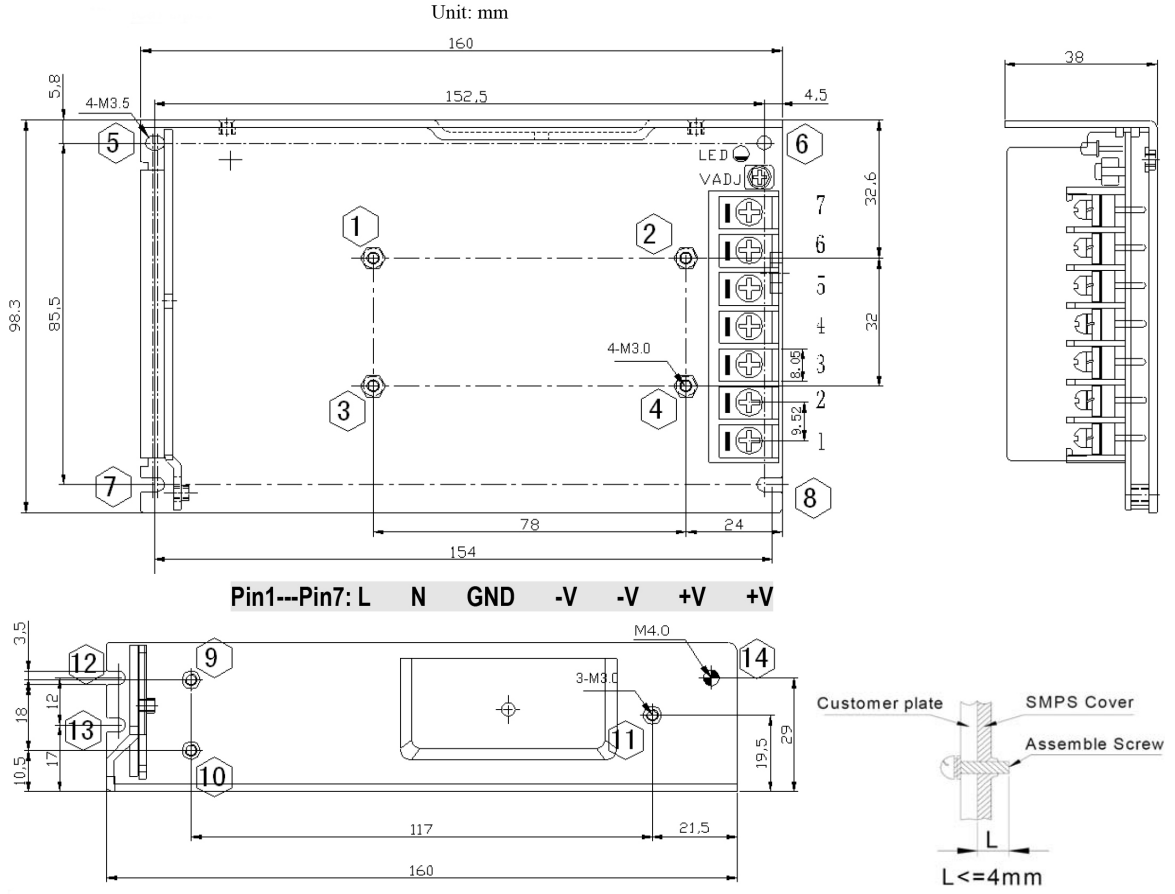
EMC specifications	
EMC / Emission	Compliance to EN55022, Class B
EMC / Harmonic current	Compliance to EN61000-3-2, CLASS D
EMC / Immunity	Compliance to EN61000-4-2, -3, -4, -5, -6, -8, -11; heavy industry level

The power supply is considered as a component which will be installed into a final equipment.
The final equipment must be re-confirmed that it still meets EMC directives.

Approval	Model	Power [W]	Output [Vo, VDC]	Rated Current [A]	Current Range [A]	Ripple&Noise* [mV, typ] 0~70°C	-20~0°C	Efficiency [%, typ] 230VAC	115VAC
UL (pending)	150ACPM_12SC	150	12	12.5	0~12.5	100	200	86	82.5
UL (pending)	150ACPM_15SC	150	15	10	0~10	100	200	87	82.5
UL (pending)	150ACPM_24SC	150	24	6.3	0~6.3	100	200	88	85
UL (pending)	150ACPM_48SC	150	48	3.2	0~3.2	100	200	88	83.9

Measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 uF & 10uF parallel capacitor.

Mechanical dimensions



AC terminal blocks installation information			
Terminal No.	Function	Wire specs	Torque max.
1	L	22-12AWG	7.5Kgf.cm
2	N		
3	PG		

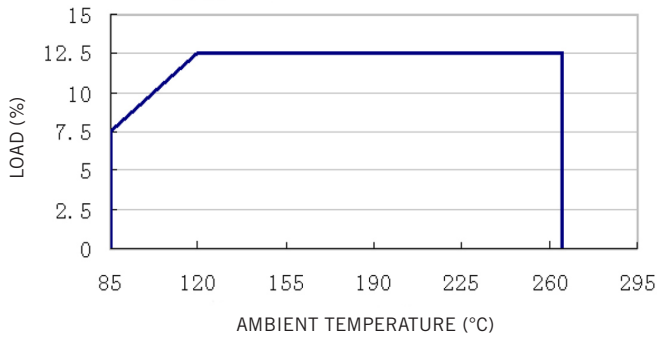
DC terminal blocks installation information			
Terminal No.	Function	Wire specs	Rec. torque
4-5	-V	22-12AWG	7.5Kgf.cm
6-7	+V		

Mounting method	Mounting holes	Screw specs	L max.	Torque max.
Bottom	1-4	M3	4mm	12kgf.cm (max)
Bottom	5-8	M3	/	10kgf.cm (max)
Side	9-11	M3	4mm	6.5kgf.cm (max)
Side	12-14	M3	/	10kgf.cm (max)

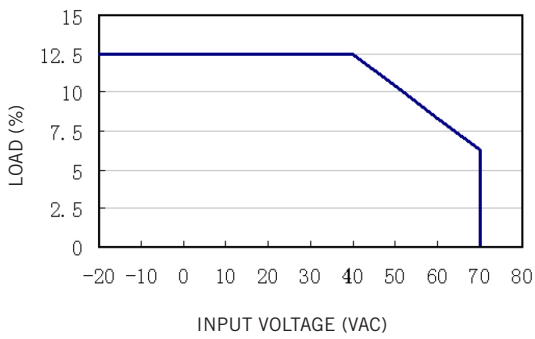
Typical characteristics

150ACPM_12SC

Load-input derating curve

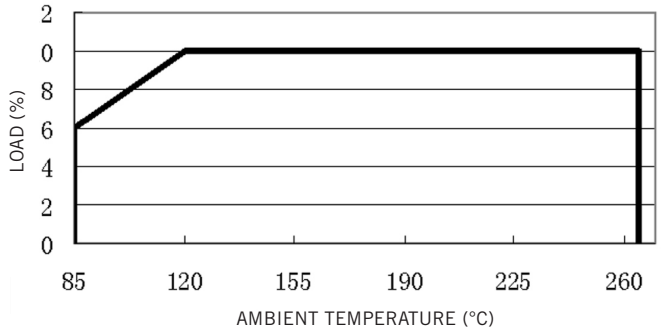


Ambient derating curve

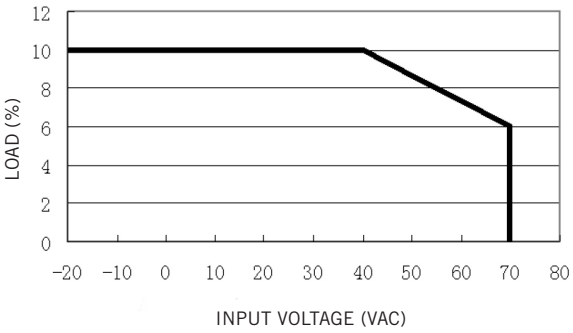


150ACPM_15SC

Load-input derating curve

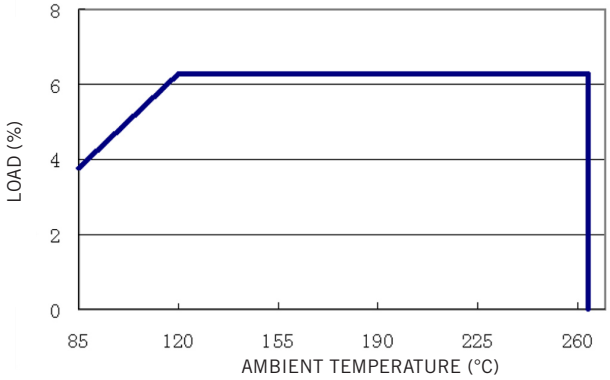


Ambient derating curve

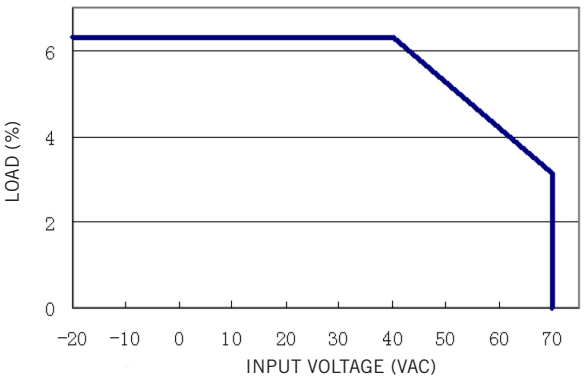


150ACPM_24SC

Load-input derating curve

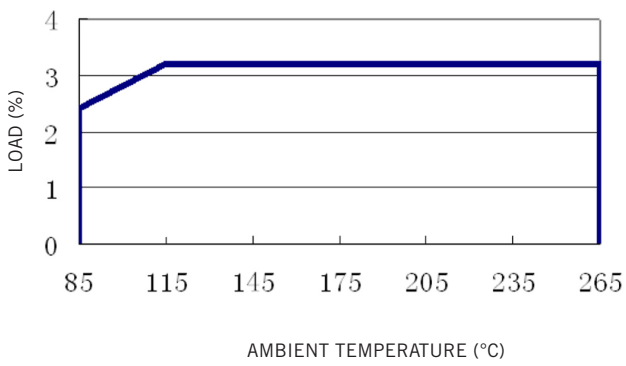


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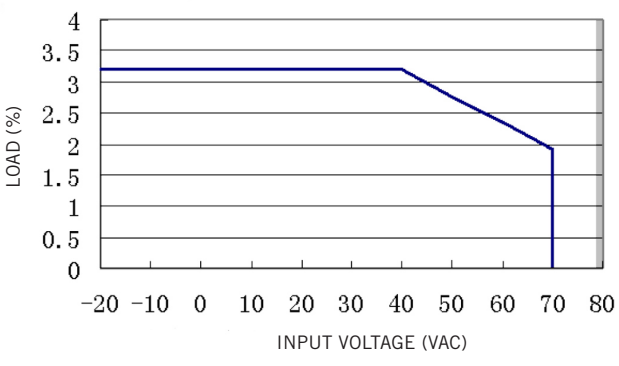


150ACPM_48SC

Load-input derating curve



Ambient derating curve



Functional block diagram

Functional diagram

