



120ACDRH_SC Series

120W - Single Output AC-DC Converter - Universal Input - Isolated & Regulated Industrial DIN Rail Enclosed Switching Power Supply

AC-DC Converter 120 Watt

- ⊕ Universal 85 - 264VAC or 120-370VDC input voltage
- ⊕ Accepts AC or DC input (dual-use of same terminal)
- ⊕ Operating ambient temperature range -40°C to +70°C
- ⊕ High efficiency up to 94%, high reliability
- ⊕ DC OK function
- ⊕ Active PFC
- ⊕ 150% peak load output f or 3 seconds
- ⊕ DC ON output status indicator LED
- ⊕ Output short circuit, over-current, over-voltage, over-temperature protection
- ⊕ Operating altitude up to 5000m
- ⊕ OVC II
- ⊕ Indoor use

The 120ACDRH_SC series is featuring a cost-effective, energy efficient explosion-proof solution for standard DIN-rail mounting. The products offer a high level of stability and immunity to noise, compliant with international IEC62368 standards for EMC and safety specifications meet IEC/EN/UL62368, UL61010. These light weight AC-DC converters also have an extremely compact design for space saving and are ideal for applications such as industrial control equipment, machinery, and all kinds of applications in a harsh environments.



UL-61010-1 (E525601)
UL-62368-1 (E347551)

Common specifications	
Short circuit protection: (Recovery time < 3s after the short circuit disappear.)	Constant current, continuous, self-recovery
Operation temperature range:	-40°C~+70°C
Storage temperature range:	-40°C ~+85°C
Operating humidity range:	< 95% RH (Non-condensing)
Storage humidity range:	20% ~ 95% RH (Non-condensing)
Operating Altitude:	2000m
Power Derating:	Operating temperature derating • -40°C to -25°C 3.34%/°C min. • +55°C to +70°C/85VAC-164VAC 2.0%/°C min. • +60°C to +70°C/165VAC-264VAC 3.0%/°C min. Input voltage derating • 85VAC-100VAC 0.67 %/VAC min.
Safety standards:	UL61010-1, UL61010-2-201 safety approved & EN62368-1 (Report). Design refer to IEC/EN/UL62368-1, UL61010-1, UL61010-2-201
Safety Class:	CLASS I
MTBF(MIL-HDBK-217F@25°C):	>300,000 hours
Case material:	Metal (AL5052, SPCC, SGCC) and Plastic (PA66)
Cooling:	Free air convection
Dimensions:	110.00 x 32.00 x 124.00 mm
Weight:	490g±10% Typ.

Output specifications					
Item	Test conditions	Min	Typ	Max	Units
Output voltage accuracy	Full load range		±1.0		%
Line regulation	Rated load		±0.5		%
Load regulation	0% - 100% load		±1.0		%
Ripple & noise* (peak-to-peak value)	20MHz bandwidth • 12V/24V Output • 48V Output			120 150	mV mV
Stand-by power consumption			2		W
Switching frequency			100		KHz
Minimum load		0			%
Start-up time				3	s
Hold-up time		20			ms
DC OK Signal	Resistive load			30VDC/1A Max.	

*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:

120ACDRH_48SC
120 = 120 Watts; AC = AC-DC; DR = Din Rail; H = Case style (housing);
48 = 48Vout; S = Single Output; C = PFC (Power factor correction)

Note:

- 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;
- All index testing methods in this datasheet are based on our company corporate standards;
- 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;
- We can provide product customization service, please contact our technicians directly for specific information;
- Products are related to laws and regulations: see „Features“ and „EMC“;
- The out case needs to be connected to PE () of system when the terminal equipment in operating;
- The output voltage can be adjusted by the ADJ, clockwise to increase;
- Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
- The power supply is considered a component which will be installed into a terminal equipment. All EMC tests should be confirmed with the final equipment.

Input specifications						
Item	Test conditions	Min	Typ	Max	Units	
Input Voltage Range	• Rated input (certified voltage) • AC input • DC input	100		240	VAC	
Input Frequency	• Rated AC input • AC input	50		60	Hz	
Input Current	Rated Input 115VAC 230VAC			1.5 1.5 0.75	A	
Inrush Current (Cold start)	115VAC 230VAC		15 30		A	
Leakage Current	240VAC	<1mA				
Power Factor	115VAC 230VAC			0.98 0.94		
Start-up Delay Time	230VAC		300	1000	ms	
Hot Plug	Unavailable					

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Protection specifications		
Over-current Protection (230VAC, rated load)	<ul style="list-style-type: none"> Normal temp. high temp. Low temp. 	105% - 200% Io, self-recovery ≥105% full load after derating, self-recovery
Over-voltage protection	<ul style="list-style-type: none"> 12V Output 24V Output 48V Output 	≤18V * ≤35V * ≤60V *
Over-temperature Protection (230VAC, 70% load)	<ul style="list-style-type: none"> Over-temperature protection start Over-temperature protection release 	90 °C Min. 60 °C Typ.

Isolation specifications					
Item	Test conditions	Min	Typ	Max	Units
Isolation Test	Electric strength test for 1min., leakage current <10mA				
	• Input -	1500			VAC
	• Input - output	3000			VAC
	• Output -	500			VAC
Insulation Resistance	At 500VDC				
	• Input -	50			MΩ
	• Input - output	50			MΩ
	• Output -	50			MΩ

*Hiccup, self-recovery after the abnormality is removed

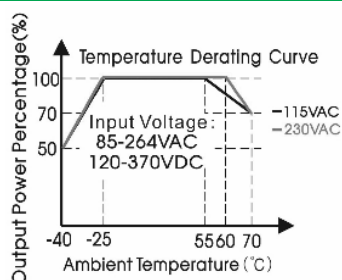
EMC specifications			
Emissions	CE	CISPR32/EN55032 CLASS B	
Emissions	RE	CISPR32/EN55032 CLASS B	
Emissions	Harmonic current	IEC/EN61000-3-2 CLASS A and CLASS D	
Immunity	ESD	IEC/EN61000-4-2 Contact ±6KV/Air ±8KV	perf. Criteria A
Immunity	RS	IEC/EN61000-4-3 10V/m	perf. Criteria A
Immunity	EFT	IEC/EN61000-4-4 ±4KV	perf. Criteria A
Immunity	Surge	IEC/EN61000-4-5 line to line ±2KV/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	Part Number	Power [W]	Nominal Output [Vo, VDC]	Rated Current [Io/A]	Output Voltage Adjustable [Range, V]*	Efficiency at 230VAC [% , Typ.]	Capacitive Load [μF, Max.]
UL	120ACDRH_12SC	120	12V	10A	11.8-14.0	93.5	80,000
UL	120ACDRH_24SC	120	24V	5A	23.5-28.0	94	50,000
UL	120ACDRH_48SC	120	48V	2.5A	47.0-53.0	94	30,000

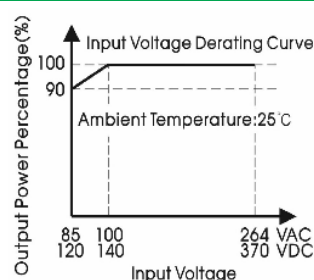
* The actual adjustment range may extend outside the values stated, care should be exercised to ensure that the output voltage and power levels remain within the published maximum values.

Typical characteristics

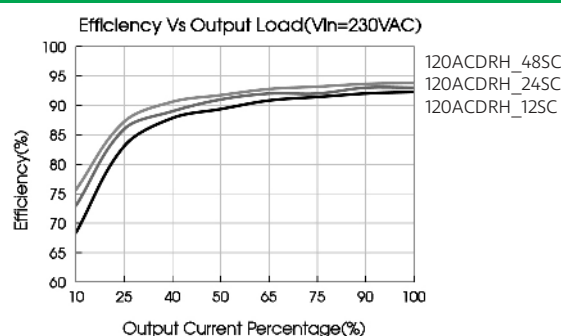
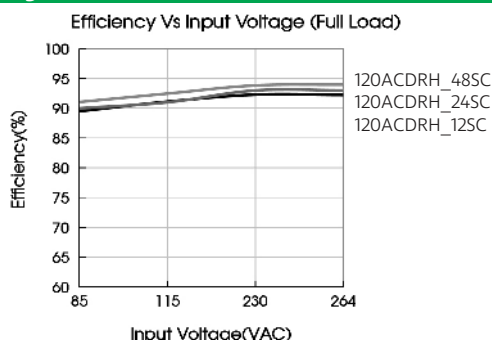


Note:

1. With an AC input voltage between 85 -100VAC and a DC input between 120-140VDC 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 our FAE.



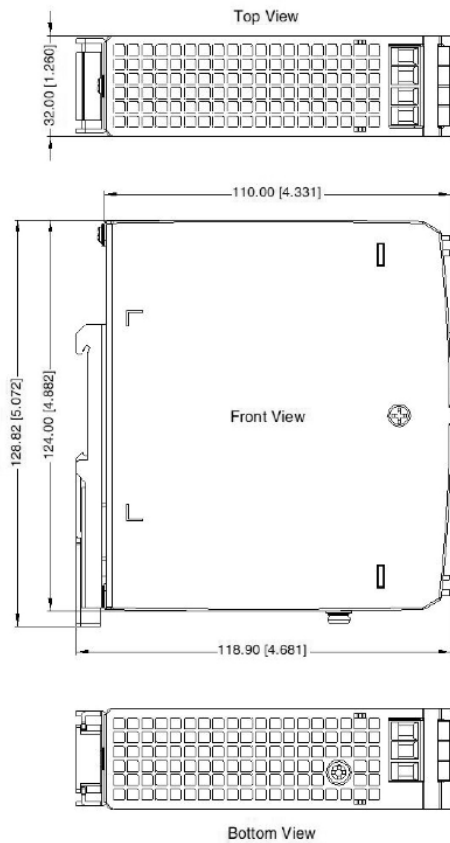
Efficiency



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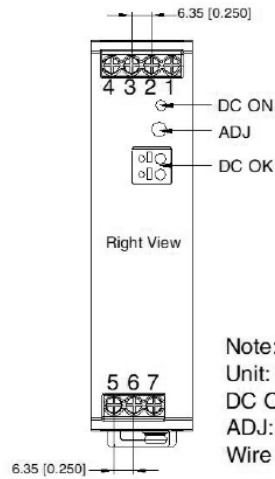
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Mechanical dimensions



THIRD ANGLE PROJECTION

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



Note:

Unit: mm[inch]

DC ON: Output status indicator LED

ADJ: Output adjustable resistor

Wire range: Input: 26-10AWG(12-10AWG for Pin7)

Output: 12V: 16-10AWG

24V: 20-10AWG

48V: 22-10AWG

DC OK: 24-16AWG

Tightening torque: 0.79 ± 0.079 N·m

Mounting rail: TS35, rail needs to connect safety ground

General tolerances: ± 1.00 [± 0.039]