

HXEF-320 SERIES

FEATURES



- Universal 85-305VAC or 120-430VDC input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Working temperature :-30°C to +70°C
- Built-in active PFC function
- LED indicator for power on
- High I/O isolation test voltage up to 4000VAC
- Low ripple & noise
- Output short circuit, over-current, over-voltage protection
- Built-in DC fan
- 4 years Warranty

HXEF-320 series are one of RHENXV enclosed AC-DC switching power supply. It features universal AC input and at the same time accepts DC input voltage, cost-effective, built-in active PFC function, high efficiency and high reliability. These converters offer excellent EMC performance and they are widely used in areas of industrial, LED, street light control, electricity, security, telecommunications, smart home etc.

SELECTION GUIDE

Product Model	Rated Power (W)	Output Voltage (VDC)	Output Current (A)	Max.Capacitive Load (μF)
HXEF-320-04	240	4	60	5000
HXEF-320-05	300	5	60	5000
HXEF-320-12	320.4	12	26.7	5000
HXEF-320-15	321	15	21.4	5000
HXEF-320-24	321.6	24	13.4	5000
HXEF-320-27	321.3	27	11.9	5000
HXEF-320-36	320.4	36	8.9	5000
HXEF-320-48	321.6	48	6.7	5000

Note: *Use suffix "C" for terminal with protective cover, suffix "Q" for bottom conformal coating and "QQX" for both sides conformal coating.

INPUT CHARACTERISTICS

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	AC Input		85	--	305	VAC
	DC Input		120	--	430	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	115VAC		--	4	4.2	A
	230VAC		--	2	2.1	A
Inrush Current	115VAC	Cold Start	--	35	--	A
	230VAC		--	65	--	A
Power Factor	115VAC	Full Load	--	0.98	--	--
	230VAC		--	0.95	--	--
Efficiency at 230VAC (%) Typ	83%		HXEF-320-04			
	84%		HXEF-320-05			
	87.5%		HXEF-320-12			
	89%		HXEF-320-15			
	91%		HXEF-320-24			
	91%		HXEF-320-27			
	91.5%		HXEF-320-36			
	91.5%		HXEF-320-48			

Remarks: This product does not support hot plug

OUTPUT CHARACTERISTICS

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full Load Range	4V/5V	--	±2	--	%
		12V/15V/24V/27V/36V/48V	--	±1	--	%
Line Regulation Rate	Rated Load	4V/5V	--	±0.5	--	%
		12V/15V	--	±0.3	--	%
		24V/27V/36V/48V	--	±0.2	--	%

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Load Regulation Rate	0%-100% Load	4V/5V	--	±1	--	%
		12V/15V/24V/36V/48V	--	±0.5	--	%
Ripple & Noise*	20MHz Bandwidth (Peak-To-Peak Value)	4V/5V/12V/15V/24V	--	60	150	mV
		27V/36V/48V	--	60	200	mV
Temperature Drift Coefficient			--	±0.03	--	%/°C
Minimum Load			0	--	--	%
Hold-up Time	115VAC/230VAC		--	12	--	ms
Over-temperature Protection			Hiccup, self-recover			
Over-current Protection			105% - 180% Io, hiccup, self-recover			
Over-voltage Protection	4V		≤5.8VDC		Hiccup, self-recover	
	5V		≤7.0VDC			
	12V		≤16.2VDC			
	15V		≤21.8VDC			
	24V		≤32.4VDC			
	27V		≤35.0VDC			
	36V		≤45.0VDC			
	48V		≤60.0VDC			
Voltage Adj Range	3.6-4.4		HXEF-320-04			
	4.5 - 5.5		HXEF-320-05			
	10 - 13.2		HXEF-320-12			
	13.5 - 18		HXEF-320-15			
	20 - 26.4		HXEF-320-24			
	26 - 31.5		HXEF-320-27			
	32-40		HXEF-320-36			
	41 - 56		HXEF-320-48			

GENERAL CHARACTERISTICS

Item		Operating Conditions		Min.	Typ.	Max.	Unit
Isolation	Input - 	Electric strength test for 1min., leakage current <3mA		2000	--	--	VAC
	Input - output	Electric strength test for 1min., leakage current <5mA		4000	--	--	VAC
	Output - 	Electric strength test for 1min., leakage current <3mA		500	--	--	VAC
Insulation Resistance	Input - 	Ambient temperature: 25±5°C,		100	--	--	MΩ
	Input - output	Relative humidity : < 95%RH, non-condensing		100	--	--	MΩ
	Output - 	Test voltage: 500VDC,		100	--	--	MΩ
Operating Humidity		Non-condensing		20	--	90	%RH
Storage Humidity				10	--	95	%RH
Power Derating		Operating temperature derating	+50°C to +70°C	2.5	--	--	%/°C
		Input voltage derating	85VAC - 100VAC@50Hz	2.0	--	--	%/VAC
			85VAC - 100VAC@60Hz	1.33	--	--	%/VAC
			120VDC - 140VDC	1.25	--	--	%/VDC
Operating Temperature				-30	--	+70	°C
Storage Temperature				-40	--	+85	°C
Safety Standard				GB4943.1, IS 13252 (Part1) safety approved&EN62368-1 Design refer to IEC/IEC60950-1, EN60335-1			
Switching Frequency				--	--	--	kHz
Safety Class				CLASS I			
MTBF		MIL-HDBK-217F@25°C		>250,000 h			

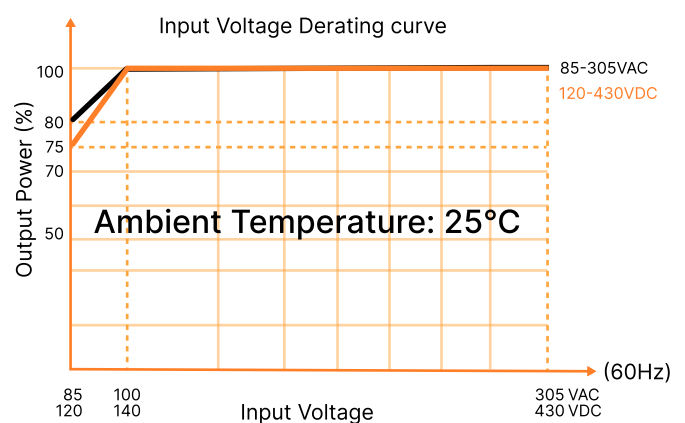
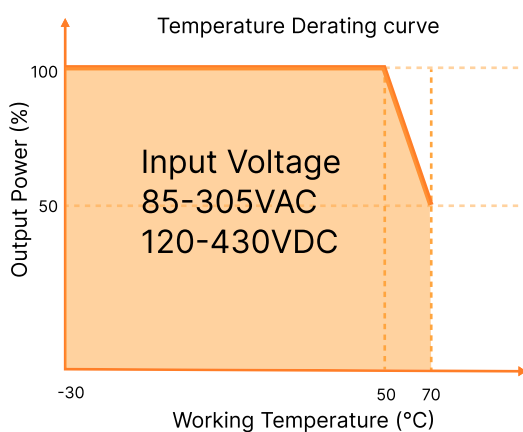
PHYSICAL CHARACTERISTICS

Item	Operating Conditions
Case Material	Metal (AL1100, SGCC)
Dimension	215.00 × 115.00 × 30.00 mm
Weight	620g (Typ.)
Cooling Method	Forced air cooling

EMC CHARACTERISTICS

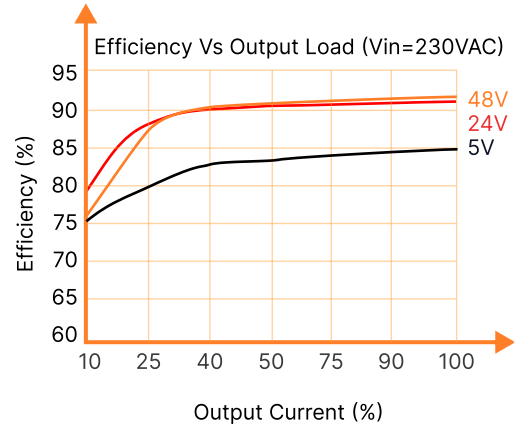
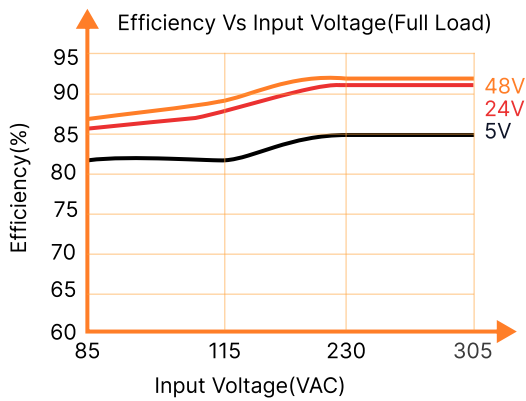
Parameter	Units		
Emissions	CE	CISPR32/EN55032 CLASS B	
	RE	CISPR32/EN55032 CLASS B	
	Harmonic current	IEC/EN61000-3-2 CLASS A and CLASS D	
	Voltage flicker	IEC/EN61000-3-3	
Immunity	ESD	IEC/EN 61000-4-2	Contact $\pm 6\text{KV}$ /Air $\pm 8\text{KV}$ perf. Criteria A
	RS	IEC/EN 61000-4-3	10V/m perf. Criteria A
	EFT	IEC/EN 61000-4-4	$\pm 4\text{KV}$ perf. Criteria A
	Surge	IEC/EN 61000-4-5	$\pm 2\text{KV}/\pm 4\text{KV}$ perf. Criteria A
	CS	IEC/EN 61000-4-6	10 Vr.m.s perf. Criteria A
	PFMF	IEC/EN 61000-4-11	0%, 70% perf. Criteria B

PRODUCT CHARACTERISTIC CURVE



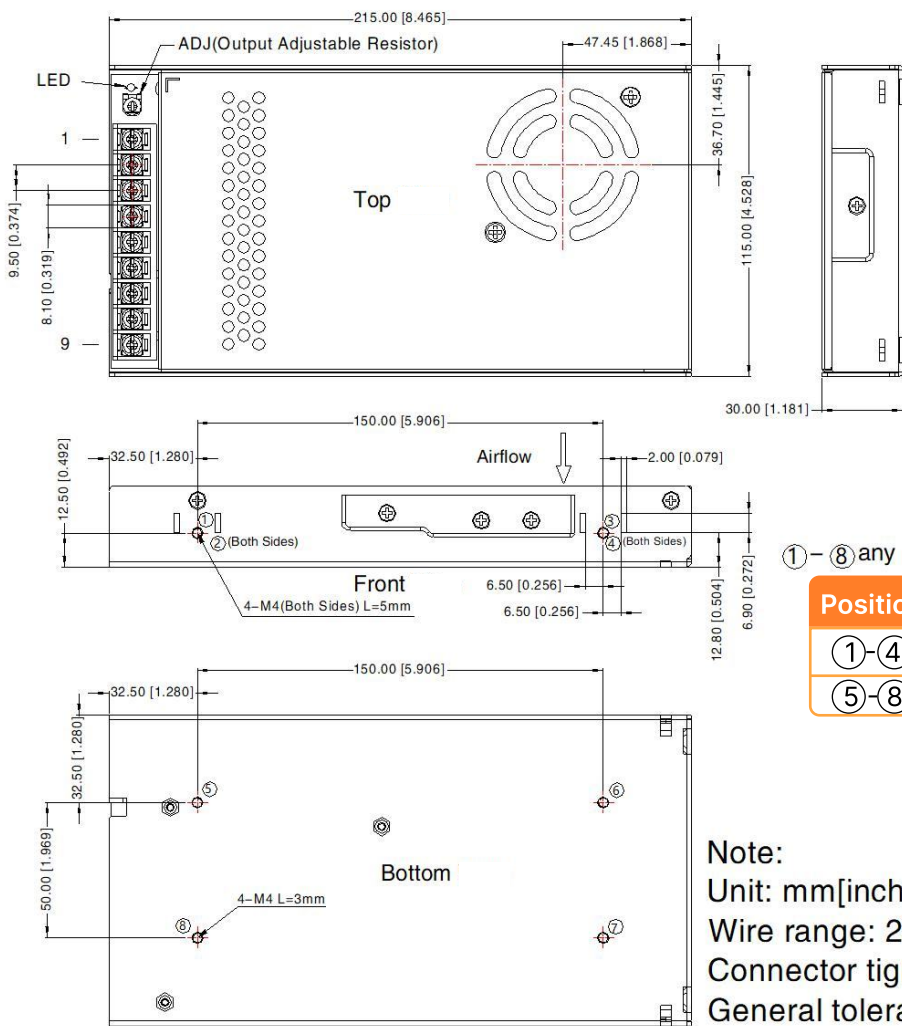
Note:

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 forced air cooling; for applications in closed environment please consult RHENXV.



OVERALL DIMENSIONS AND PIN FUNCTIONS

HXEF-320-xx Series



THIRD ANGLE PROJECTION

Right View

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

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

Position	Screw Spec.	L(max)	Torque(max)
①-④	M4	5mm	0.9N . m
⑤-⑧	M4	3mm	0.9N . m

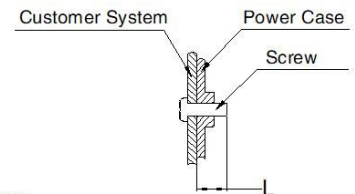
Note:

Unit: mm[inch]

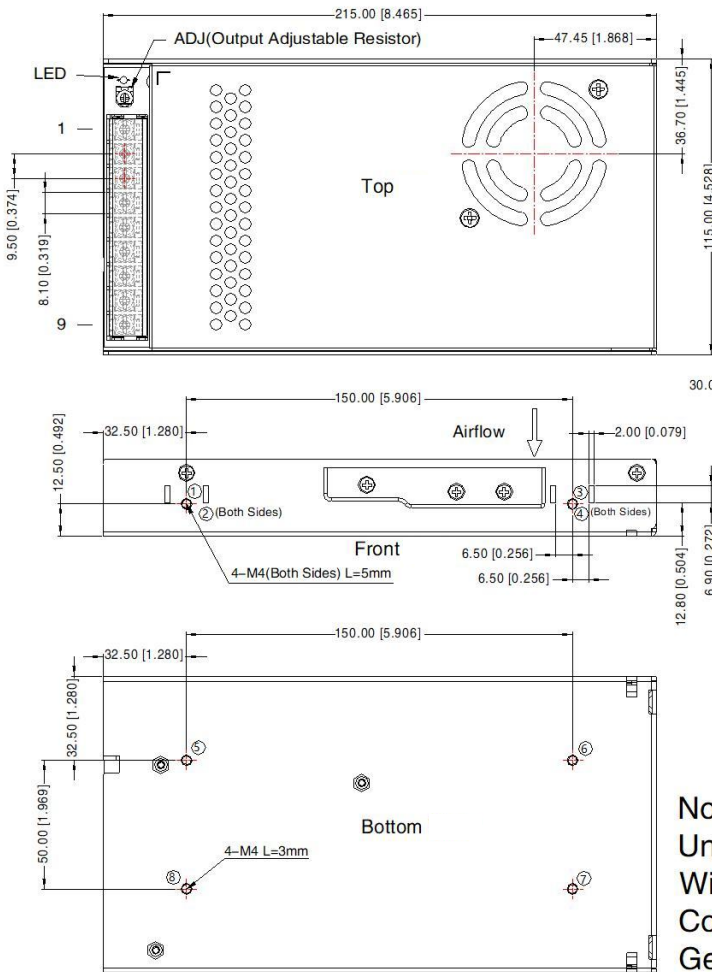
Wire range: 22-12AWG

Connector tightening torque: M3.5, Max 0.8N·m

General tolerances: $\pm 1.00 [\pm 0.039]$



HXEF-320-xx-C SERIES



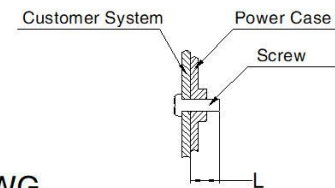
THIRD ANGLE PROJECTION

Right View

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

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

Position	Screw Spec.	L(max)	Torque(max)
①-④	M4	5mm	0.9N . m
⑤-⑧	M4	3mm	0.9N . m



Note:

Unit: mm[inch]

Wire range: 22-12AWG

Connector tightening torque: M3.5, Max 0.8N·m

General tolerances: $\pm 1.00 [\pm 0.039]$

Note:

1. Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^{\circ}\text{C}$, humidity $<75\%\text{RH}$ with nominal input voltage and rated output load;
2. The ambient temperature derating of $5^{\circ}\text{C}/1000\text{m}$ 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, please contact our technicians directly for specific information;
6. The out case needs to be connected to PE (⊕) of system when the terminal equipment is operating;
7. The output voltage can be adjusted by the ADJ, clockwise to decrease;
8. 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.