

150 Watts

- Energy Efficiency Level VI
- European CoC Tier 2
- High Power Density
- Single Outputs from 12 V to 48 V
- <0.15 W Standby Power
- China Compulsory Certification (CCC) Qualified
- 0 °C to 60 °C Operation
- Low Cost



Dimensions:

VES150:

6.66 x 2.79 x 1.56" (169.2 x 70.8 x 39.5 mm)

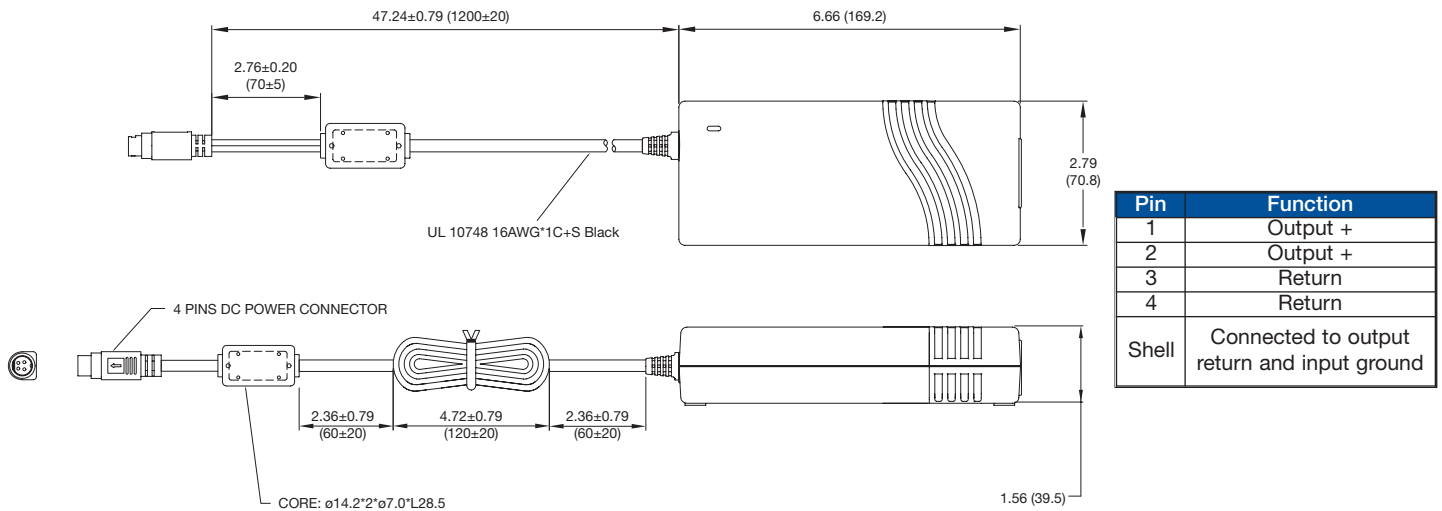
Models & Ratings

Output Power	Output Voltage	Output Current	Total Regulation	Efficiency ⁽¹⁾	Model Number
150 W	12.0V	12.50 A	±5%	89%	VES150PS12
	15.0V	10.0 A		89%	VES150PS15
	19.0V	7.80 A		89%	VES150PS19
	24.0V	6.25 A		89%	VES150PS24
	48.0V	3.12 A		89%	VES150PS48

Notes

1. Typical average of efficiencies measured at 25%, 50%, 75% and 100% load and 230 VAC input.

Mechanical Details



Notes

- All dimensions shown in inches (mm). Tolerance is 0.02 (0.5) maximum, except output cable length.
- Output connector: Power Mini DIN, mates with Kycon KPJ-4S or equivalent.
- Weight: 1.87 lbs (850 g) approx.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage	90		264	VAC	
Input Frequency	47		63	Hz	
Input Current		2.1/1.1		A	Measured at 115/230 VAC
Inrush Current			120	A	230 VAC, cold start at 25 °C
Power Factor					EN61000-3-2 Class A
Earth Leakage Current				µA	264 VAC, 60 Hz
No Load Input Power			0.15	W	
Input Protection	T3.15A/250 VAC internal fuse in line				

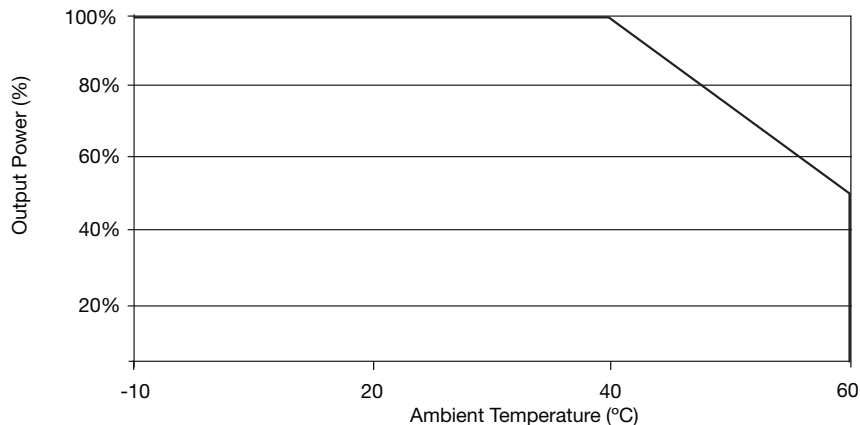
Output

Characteristic	Min.	Typ.	Max.	Units	Notes & Conditions
Output Voltage	12		48	VDC	See Models and Ratings table
Initial Set Accuracy			±2	%	At 50% load
Minimum Load					No minimum load required
Start Up Delay			3	s	
Start Up Rise Time			50	ms	
Hold Up Time	10			ms	Full load and 115 VAC
Line Regulation			±0.5	%	
Total Regulation			±5	%	
Transient Response			5	%	Maximum deviation, recovering to less than 1% within 500 µs for 50% to 100% step load change
Ripple and Noise			240/480	mV pk-pk	12-24V / 48V. Measured with 20 MHz Bandwidth and 10 µF electrolytic in parallel with 0.1 µF ceramic capacitor.
Overshoot			5	%	At turn on / turn off
Overload Protection	120		200	%	
Overvoltage Protection			180	%	Recycle mains to reset
Short Circuit Protection	Trip and restart (hiccup), auto resetting				
Temperature Coefficient		0.04		%/°C	

Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	-10		+60	°C	Derate from 100% load at 40 °C to 50% load at 60 °C
Cooling	Natural convection				
Operating Humidity	10		90	%RH	Non-condensing
Storage Temperature	-20		+95	°C	
Operating Altitude			5000	m	
Shock	IEC68-2-27, 30 g, 30 ms half sine, 3 times in each of 6 axes				
Vibration	IEC68-2-6, 10-300 Hz, 2 g 15 mins/sweep, 60 mins for each of 3 axes, non operating				

Derating Curve

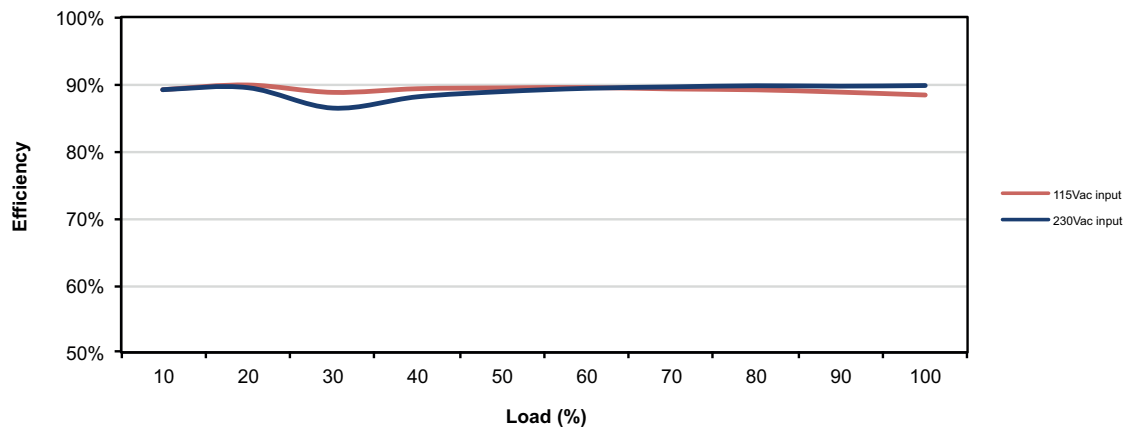


General

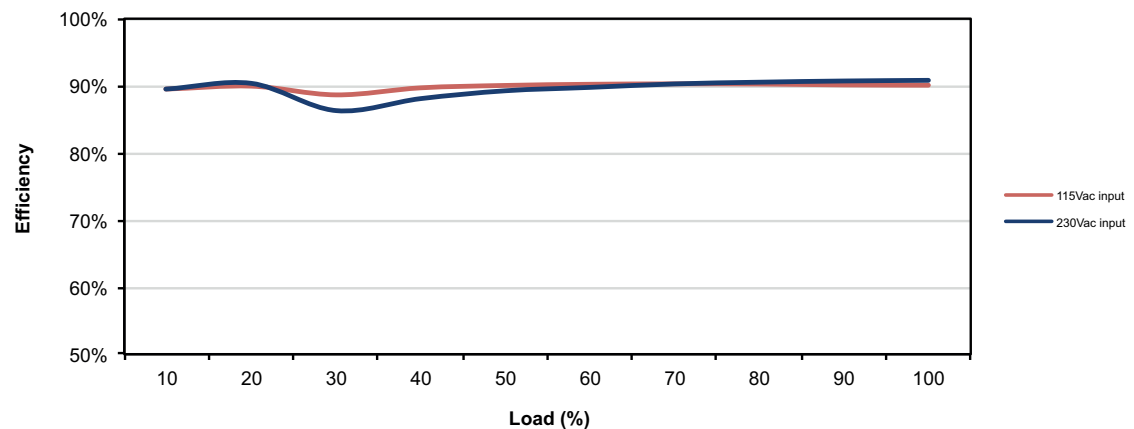
Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		89		%	See Models and Ratings table and curves.
Isolation: Input to Output Input to Ground Output to Ground	3000			VAC	
	1500			VAC	
				VDC	Output return is connected to input ground
Switching Frequency				kHz	At full load
Power Density		4.5		W/in ³	
Mean Time Between Failure	100			kHrs	MIL-HDBK-217F at 25 °C GB
Weight		1.87 (850)		lb (g)	

Efficiency Curves

VES150PS12



VES150PS24



EMC: Emissions

Phenomenon	Standard	Test Level	Notes & Conditions
Emissions	EN55032	Level B	Conducted & Radiated
Harmonic Current	EN61000-3-2	Class A	
Voltage Flicker	EN61000-3-3		

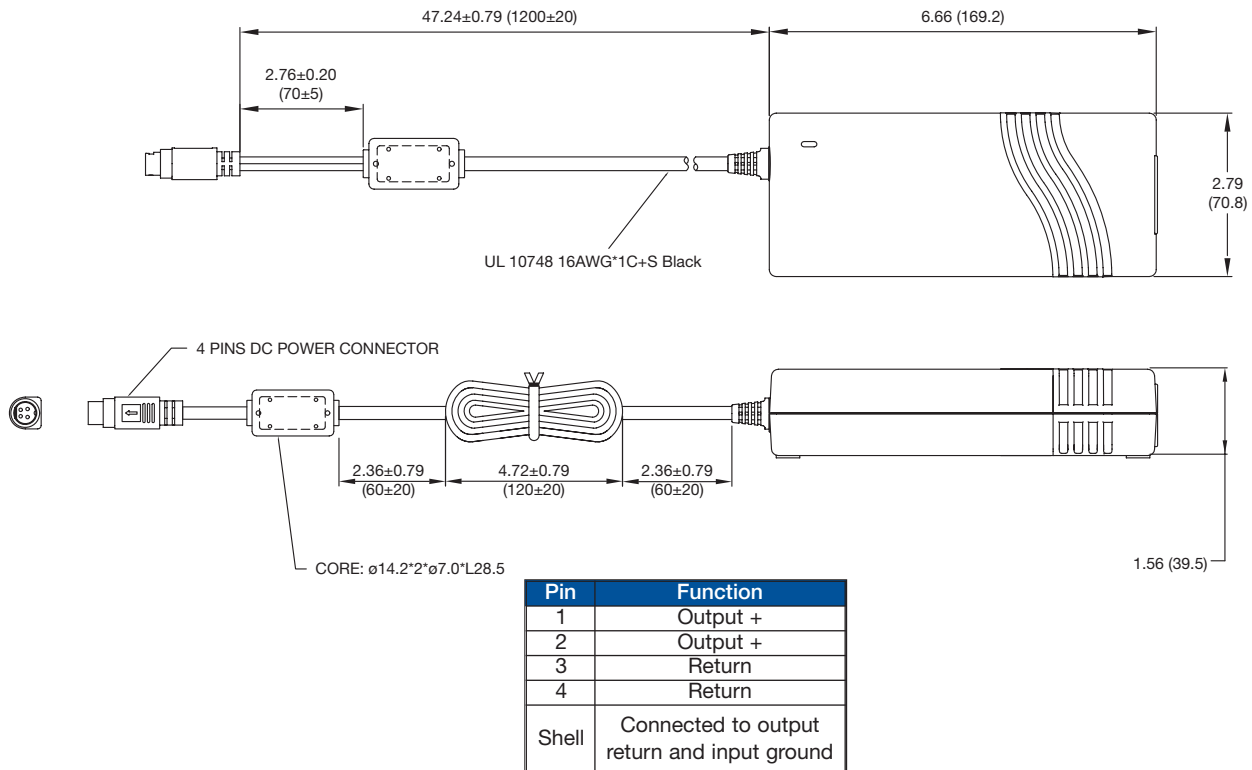
EMC: Immunity

Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD	EN61000-4-2	±8 kV Air, ±4 kV contact	A	
Radiated	EN61000-4-3	3 V/m	A	
EFT/Burst	EN61000-4-4	2	A	
Surge	EN61000-4-5	Installation Class 3	A	
Conducted	EN61000-4-6	3 V	A	
Magnetic Fields	EN61000-4-8	3 A/m	A	
Dips and Interruptions	EN61000-4-11	Dip: 30% 500 ms	A/B	High Line/Low Line
		Dip: 60% 200 ms	A/B	High Line/Low Line
		Dip: 100% 5000 ms	B	
		Int: 100% 10 ms	A	

Safety Approvals

Safety Agency	Safety Standard	Notes & Conditions
UL	UL60950-1	
TUV	EN60950-1	
CB	IEC60950-1	
CCC	China Compulsory Certification (CCC) Qualified	

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