VEH20/40-L6 Series

AC-DC Power Supplies

XP Power

20/40 Watt

- Energy Efficiency Level VI
- Optional Inlet Connectors
- Class II Versions
- +60 °C Operating Temperature
- Compact Dimensions
- Low Cost

Dimensions:

VEH20: 4.11 x 1.65 x 1.22" (104.0 x 42.0 x 31.0 mm)
VEH40: 4.21 x 1.85 x 1.19" (107.0 x 47.0 x 30.1 mm)

Models & Ratings

Max Output Power	Output Voltage[1]	Output Current	Efficiency[6]	Total Regulation[2]	Model Number
15 W	5.0 VDC	3,00 A	83%	5%	VEH20US05-L6[3,4]
20 W	12.0 VDC	1.67 A	87%	5%	VEH20US12-L6[3,4]
20 W	15.0 VDC	1.33 A	87%	5%	VEH20US15-L6[3,4]
20 W	18.0 VDC	1.11 A	87%	5%	VEH20US18-L6[3,4]
20 W	24.0 VDC	0.83 A	87%	5%	VEH20US24-L6[3,4]
20 W	48.0 VDC	0.42 A	91%	5%	VEH20US48-L6[3,4]
25 W	5.0 VDC	5.00 A	85%	5%	VEH40US05-L6[5]
40 W	12.0 VDC	3.33 A	88%	5%	VEH40US12-L6[5]
40 W	15.0 VDC	2.67 A	88%	5%	VEH40US15-L6[5]
40 W	18.0 VDC	2.22 A	88%	5%	VEH40US18-L6[5]
40 W	24.0 VDC	1.67 A	88%	5%	VEH40US24-L6[5]
40 W	48.0 VDC	0.83 A	89%	5%	VEH40US48-L6[5]

Notes

1. Other output voltages available, contact sales for details
2. Total regulation includes line regulation and load regulation.
3. Standard input connector is IEC320-C14 inlet. For optional IEC320-C6 inlet add suffix 'C6' to model number, e.g. VEH20US12-L6C6.
4. For optional class II version with IEC320-C8 inlet add suffix 'C2' to model number e.g. VEH20US12-L6C2
5. VEH40USXX-L6 available with output negative connected to ground, add suffix -G.
6. Minimum average of efficiencies measured at 25%, 50%, 75% and 100% load.

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage	90		264	VAC	
Input Frequency	47		63	Hz	
Input Current			0.5	A	100 VAC, VEH20
			1.0		100 VAC, VEH40
Inrush Current		45		A	115 VAC, cold start at 25 °C
		90			230 VAC, cold start at 25 °C
Power Factor					EN61000-3-2, class A
No Load Input Power			0.1	W	
Input Protection	VEH20: Internal fuse fitted in line T1.0A/250 VAC, VEH40: Internal fuse fitted in line T3.15 A/250 VAC				

Output

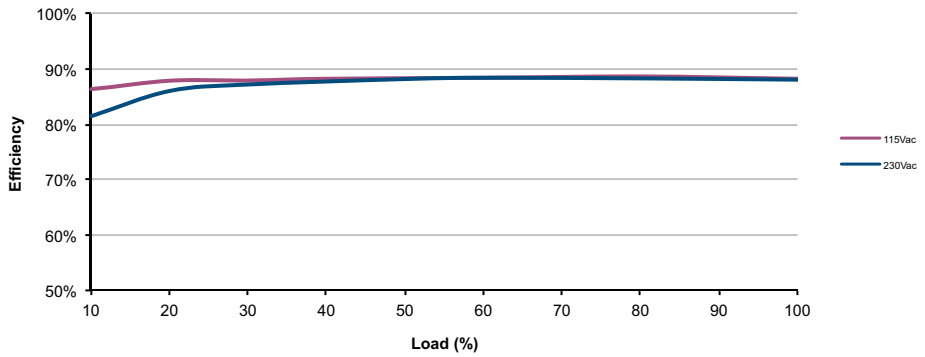
Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	5		48	V	See Models and Ratings table
Minimum Load	0			A	No minimum load required
Hold Up Time	5			ms	VEH20 at full load and 110 VAC
	12				VEH40 at full load and 110 VAC
Start Up Delay		2		s	Full load and 100 VAC
Regulation					See Models and Ratings table
Transient Response			2	% deviation	Recovery within 1% of nominal in 500 µs for 50% load change
Ripple & Noise		1		% pk-pk	Measured with 20 MHz bandwidth and 10 µF electrolytic capacitor in parallel with a 0.1 µF ceramic capacitor
Overload Protection	100		150	%	
Short Circuit Protection					Trip and restart (hiccup mode) with auto recovely
Temperature Coefficient			0.04	%/°C	

General

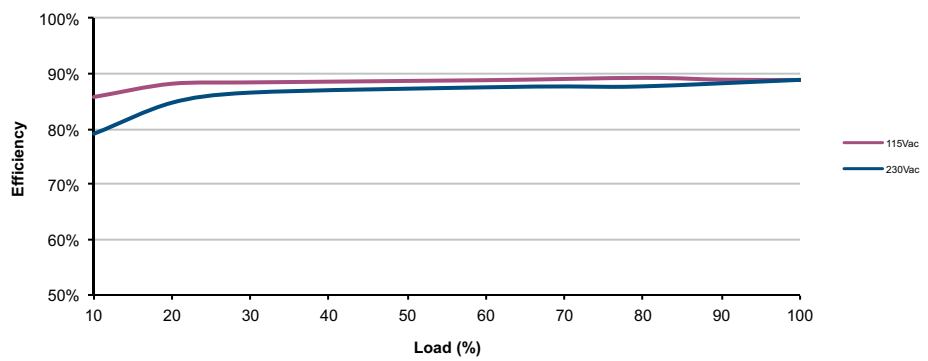
Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		87		%	Average of measured values with output loads of 25%, 50%, 75% and 100%
Isolation	3000			VAC	Input to Output
	1500			VAC	Input to Ground (not C2 version)
	500			VDC	Output to Ground (not C2 version)
Switching Frequency		63		kHz	VEH20
	20		60		VEH40
Mean Time Between Failure		>250		kHrs	MIL-HDBK-217F at 25 °C GB
Weight		0.37 (170)		lb (g)	VEH20
		0.62 (260)			VEH40

Efficiency Curves

VEH20US12

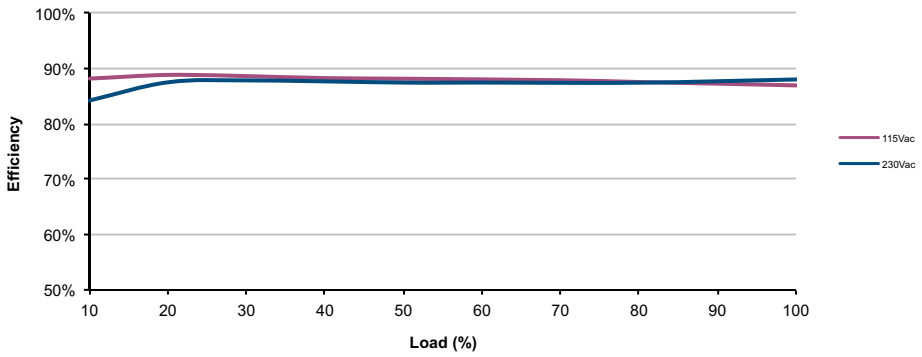


VEH20US24

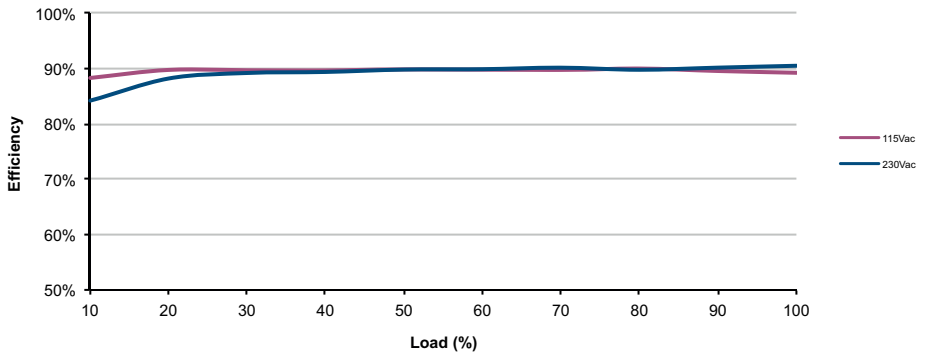


Efficiency Curves

VEH40US12-L6



VEH40US24-L6



Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	0		+60	°C	Derate from 100% load at +40 °C to 50% load at +60 °C
Storage Temperature	-40		+85	°C	
Operating Humidity	5		95	%	RH, non-condensing
Cooling					Convection convection
Shock					10 g, 10 ms on 3 axes

EMC: Emissions

Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55022	Level B	
Radiated	EN55022	Level B	
Harmonics Current	EN61000-3-2	Class A	
Voltage Flicker	EN61000-3-3		

EMC: Immunity

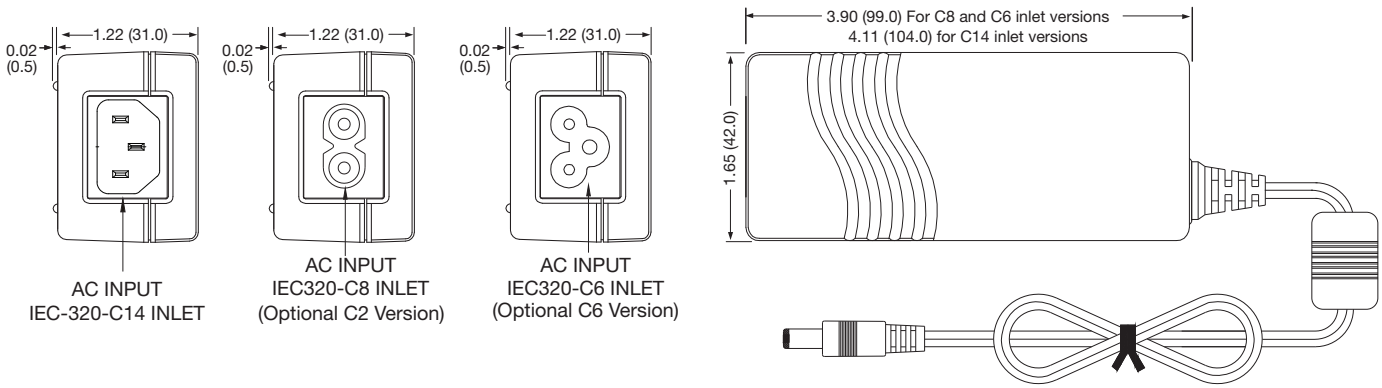
Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD Immunity	EN61000-4-2	3	A	
Radiated Immunity	EN61000-4-3	3 V/m	A	
EFT/Burst	EN61000-4-4	Level 2	A	
Surges	EN61000-4-5	Installation Class 3	A	
Conducted Immunity	EN61000-4-6	2	A	
Magnetic Fields	EN61000-4-8	1 A/m	A	
Dips and Interruptions	EN61000-4-11, 30% 10 ms, 60% 100 ms, 100% 5000 ms, Perf Criteria A, B, B			

Safety Approvals

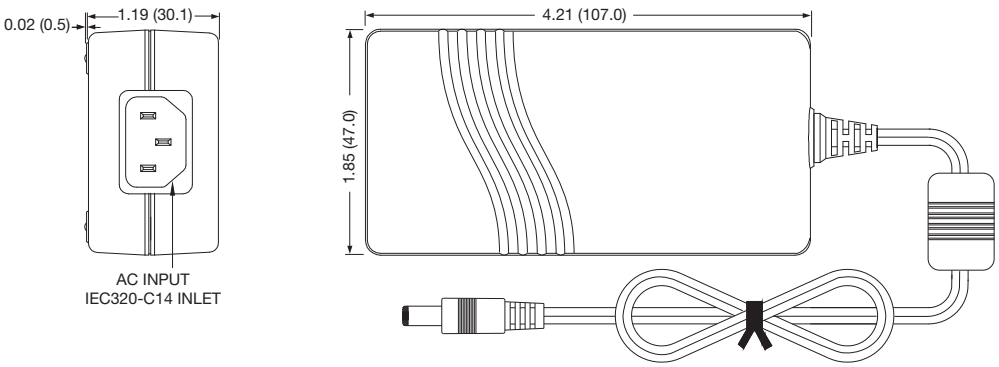
Phenomenon	Standard	Notes
EN	EN60950-1	
UL	UL/cUL60950-1	Approved as limited power source (LPS)

Mechanical Details

VEH20-L6



VEH40-L6



Notes

1. All dimensions are shown in inches (mm). Tolerance ±0.04 (±1.0) max.
2. Weight: 0.37 lbs (170 g) for VEH20, 0.62 lbs (280 g) for VEH40
3. Output connector: is 0.22 (5.5) outer diameter barrel, 0.10 (2.5) inner diameter barrel with center positive (+) and outer shell negative (-). Length is 0.433 (11.0).
4. Output cable length is 48" (1220mm) approx.
5. For European mains lead order part: EU-MAINS-IEC, for IEC320-C14 inlet, EU-MAINS-C5 for IEC320-C6 inlet, EU-MAINS-8 for Class II
6. For UK mains lead order part: UK-MAINS-IEC, for IEC320-C14 inlet, UK-MAINS-C5 for IEC320-C6 inlet, UK-MAINS-8 for Class II
7. For US mains lead order part: US-MAINS-IEC, for IEC320-C14 inlet, US-MAINS-C5 for IEC320-C6 inlet, US-MAINS-8 for Class II