

## 40W

AC-DC POWER SUPPLIES

The VEC40 Series of desktop AC-DC power supplies deliver 40W offering single output voltages of 12V, 15V and 24V, and are designed for high volume applications. A low standby power which is less than 75mW enables VEC40 to comply with energy efficiency level VI standards.

With world-wide safety approvals, class B compliance for conducted and radiated emissions, high efficiency and 3kVAC isolation, the limited power source (LPS) approved VEC40 series benefits system designers with easy integration into a wide range of industrial applications including test and measurement, process control, industrial displays and analytical instrumentation.



### Features

- Single outputs of 12V, 15V and 24V
- 90-264VAC input range
- High efficiency – 89%
- <75mW standby power – Energy efficiency level VI
- China Compulsory Certification (CCC) qualified
- ITE safety approvals
- 3kVAC isolation
- Class B conducted and radiated emissions
- Operating temperature range of 0–65°C
- Overload, overvoltage, and short circuit protection
- Optional inlet connector

### Applications



Analytical Instrumentation



Display Systems



Industrial Electronics



Process Control

### Dimensions

4.58" x 2.06" x 1.23" (116.3 x 52.4 x 31.3mm)

### Models & Ratings

Model Number <sup>(1)</sup>	Output Voltage	Output Current	Total Regulation	Efficiency <sup>(1)</sup>	Output Power
VEC40US12	12.0V	3.33A	±5%	89%	40W
VEC40US15	15.0V	2.67A		89%	
VEC40US24	24.0V	1.67A		89%	

#### Notes:

1. Typical average of efficiencies measured at 25%, 50%, 75% and 100% load and 230 VAC input.
2. For optional IEC320-C6 inlet add suffix -C6 to the part number, e.g. VEC40US24-C6. MOQs apply, contact sales for details.

## Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage	90		264	VAC	
Input Frequency	47		63	Hz	
Input Current		0.8/0.6			Measured at 115VAC/240VAC
Inrush Current			110	A	230VAC cold start, 25°C
Power Factor					EN61000-3-2 Class A
Earth Leakage Current			0.7	mA	240VAC, 60Hz
No Load Input Power			0.1	W	
Input Protection	T3.15A/250VAC internal fuse in line				

## Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	12		24	VDC	See Models and Ratings
Minimum Load	No minimum load required				
Start Up Delay			4	s	
Start Up Rise Time			50	ms	
Hold Up Time	8			ms	115VAC full load
Line Regulation			±0.5	%	
Load Regulation			±5	%	Including initial set accuracy
Transient Response			4	%	Maximum deviation, recovering to less than 1% within 500µs for 25% step load
Overshoot		5		%	At turn on/turn off
Ripple & Noise			240	% pk-pk	Measured with 20 MHz Bandwidth and 22µF electrolytic in parallel with 0.1µF ceramic capacitor.
Overvoltage Protection		175		%	Recycle mains to reset
Overload Protection	110		170	%	
Temperature Coefficient		±0.04		%/°C	
Short Circuit Protection	Trip and restart (hiccup mode), auto resetting				

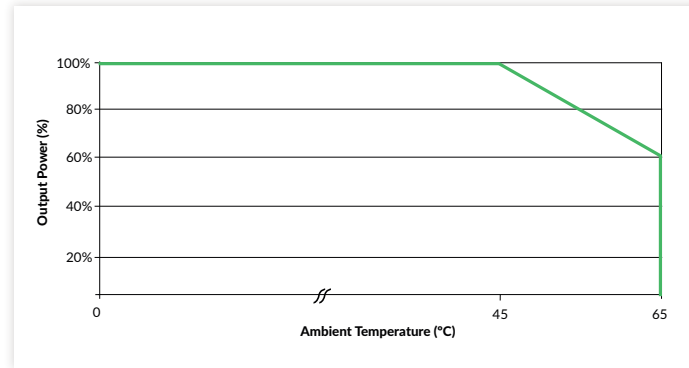
## General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		89		%	See Models and Ratings and Efficiency Curves
Isolation: Input to Output Input to Ground Output to Ground			3000	VAC	
			1500	VAC	
				VDC	Negative output is connected to ground
Switching Frequency		65		kHz	±10kHz
Power Density			3.14	W/in <sup>3</sup>	
Mean Time Between Failure		>200		khrs	MIL-HDBK-217F 25°C GB
Weight		0.52 (240)		lb (g)	

## Application Notes

### Derating Curve

Figure 1



## Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	0		+65	°C	Derate from 100% load at 45°C to 50% load at 65°C
Storage Temperature	-20		+85	°C	
Cooling	Natural convection				
Humidity	5		90	%RH	Non-condensing
Operating Altitude			5000	m	
Vibration	IEC68-2-6, 10-500 Hz, 2g 10 mins/sweep, 60 mins for each of 3 axes				
Shock	IEC68-2-27, 30g, 11ms half sine, 3 times in each of 6 axes				

## Efficiency Curves

Figure 2  
VEC40US12

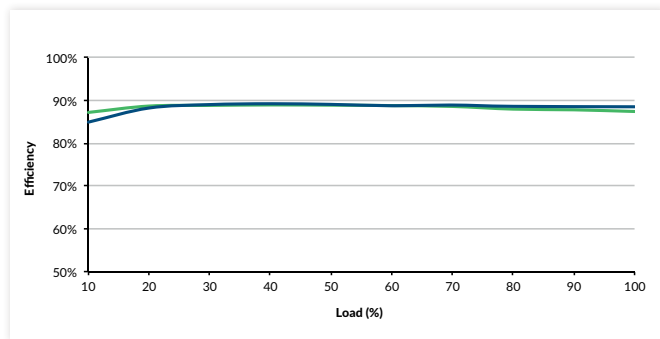
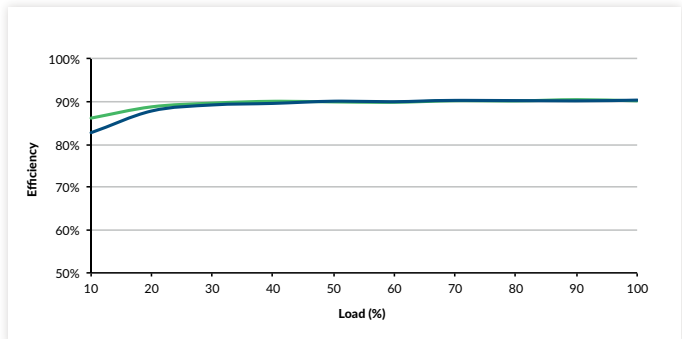


Figure 3  
VEC40US24



— 115VAC input  
— 230VAC input

## EMC: Emissions

Phenomenon	Standard	Test Level	Notes & Conditions
Conducted	EN55032	Class B	
Radiated	EN55032	Class B	
Voltage Flicker	EN61000-3-3		

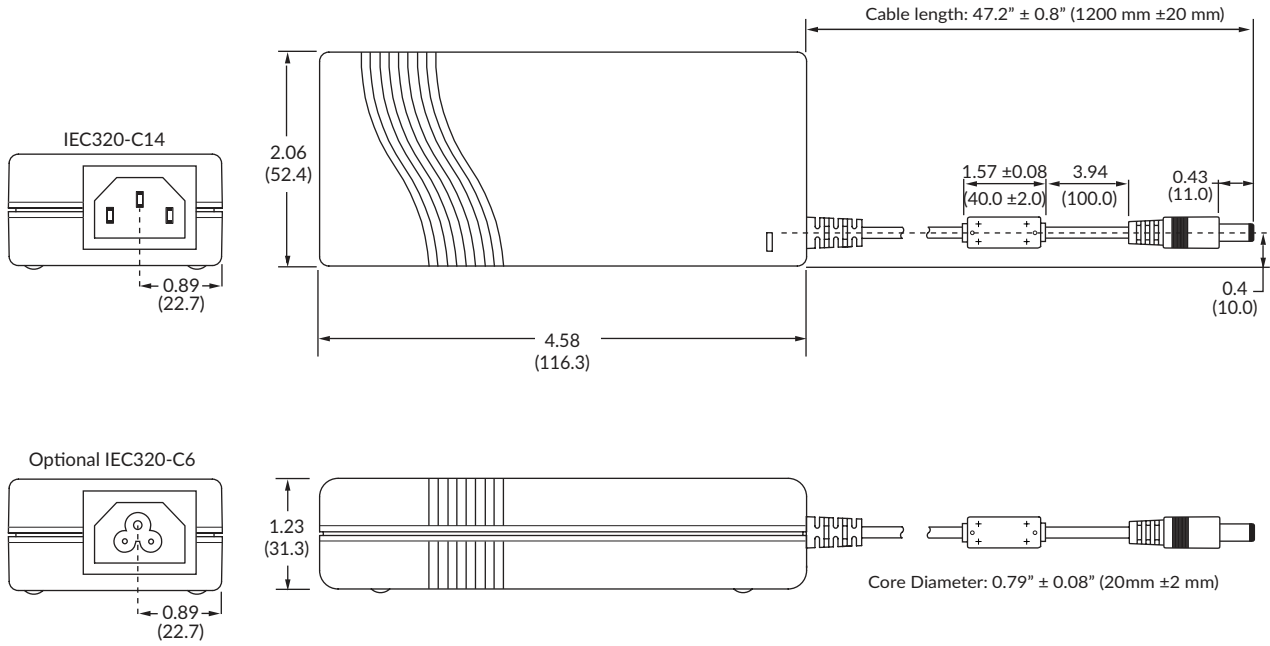
## EMC: Immunity

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

## Safety Approvals

Certification	Standard	Notes & Conditions
CB	IEC60950-1, IEC62368-1	Approved at Limited Power Source (LPS)
UL /CSA	UL60950-1, UL62368-1	
EN	EN60950-1, EN62368-1	
CCC	China Compulsory Certification, GB4943	
AU/NZ	AU/NZ 60950.1	
CE		Meets all applicable directives
UKCA		Meets all applicable legislation

Mechanical Details



Notes:

1. All dimensions are shown in inches (mm), Tolerance is 0.04" (±1.0) max except output lead.
2. Weight: 0.52lbs (240g) approx.
3. Output connector is barrel type with 11mm length, 5.5mm dia. outer, 2.5mm dia. inner with center + and outer shell - polarity.