

40W

AC-DC POWER SUPPLIES

The AEK40 series is a range of single-output desktop power supplies that delivers 40W of power and offers single output voltages ranging from 5V to 48V. With a standby output power less than 75mW, the AEK40 complies with energy Efficiency Level VI and European CoC Tier 2.

Worldwide ITE safety approvals, Class B conducted and radiated emissions, and 3kVAC isolation make the AEK40 ideal for a wide range of industrial and analytical instrumentation applications including test and measurement, process control, factory automation and IoT.



Features

- Single voltage outputs from 5V to 48VDC
- Universal input range 90 to 264VAC
- Energy Efficiency level VI, European CoC tier 2
- 3kVAC input to output isolation
- EN55032 Class B conducted and radiated emissions
- IEC62368-1 ITE safety agency approvals
- 0°C to +60°C operating temperature
- Overvoltage, overload, and short circuit protection

Applications



Analytical Instrumentation



Industrial Electronics



IoT



Process Control

Dimensions

4.21" x 1.85" x 1.19" (107.0 x 47.0 x 30.1mm)

Models & Ratings

Model Number ⁽¹⁾	Output Voltage	Output Current	Total Regulation	Ripple & Noise ⁽³⁾	Efficiency ⁽¹⁾	Output Power
AEK40US05	5.0V	5.00A	±5%	50mV	85.9%	25W
AEK40US12	12.0V	3.33A		100mV	88.5%	40W
AEK40US15	15.0V	2.67A		100mV	88.5%	
AEK40US24 ⁽²⁾	24.0V	2.08A		100mV	88.0%	50W
AEK40US48 ⁽²⁾	48.0V	1.04A		100mV	88.0%	

Notes:

1. Typical average of efficiencies measured at 25%, 50%, 75% and 100% load and 230VAC input
2. No load input power is <0.15W
3. Pk Pk value measured with 20 MHz bandwidth and 0.47µF ceramic capacitor

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage	90		264	VAC	
Input Frequency	47		63	Hz	
Input Current		0.9/0.52			Measured at 100VAC/240VAC
Inrush Current			110	A	230VAC cold start, 25°C
Earth Leakage Current			0.75	mA	240VAC, 60Hz
No Load Input Power			75	mW	150mW for 24V and 48V models
Input Protection	T2.0A/250 VAC internal fuse in line				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage	5		48	VDC	See Models and Ratings
Initial Set Accuracy			±2	%	At 60% load
Minimum Load	No minimum load required				
Start Up Delay			2	s	
Hold Up Time	12			ms	115VAC full load
Line Regulation			±1	%	From minimum to maximum input voltage at full load
Load Regulation			±4	%	Load regulation measured from 10% to 100% load
Transient Response			5	%	Maximum deviation, recovering to less than 1% within 500µs for 25% step load
Overshoot		5		%	At turn on/turn off
Ripple & Noise	50		100	mV pk-pk	See Models and Ratings
Overvoltage Protection		125		%	Vnom, recycle AC to reset
Overload Protection	110		150	%	
Temperature Coefficient		0.04		%/°C	
Short Circuit Protection	Trip and restart (hiccup mode), auto resetting				

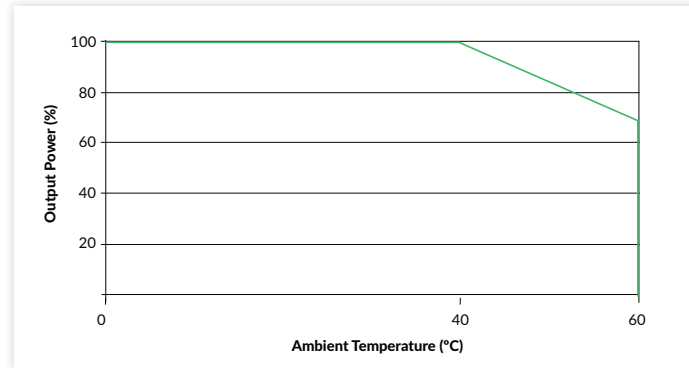
General

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Efficiency		88		%	See Models and Ratings and Efficiency Curves
Isolation: Input to Output	3000			VAC	
	Input to Ground	1500		VAC	
	Output to Ground	500		VDC	
Switching Frequency		65		kHz	
Power Density		4.3		W/in ³	
Mean Time Between Failure	100			khrs	MIL-HDBK-217F 25°C GB
Weight		0.38 (190)		lb (g)	

Application Notes

Derating Curve

Figure 1



Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Operating Temperature	0		+60	°C	Derate from 100% load at 40°C to 67% load at 60°C (see figure 1)
Storage Temperature	-40		+85	°C	
Cooling	Natural convection				
Humidity	0		95	%RH	Non-condensing
Operating Altitude			5000	m	
Vibration	IEC68-2-6, 10-500Hz, 5g 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
AEK40US12

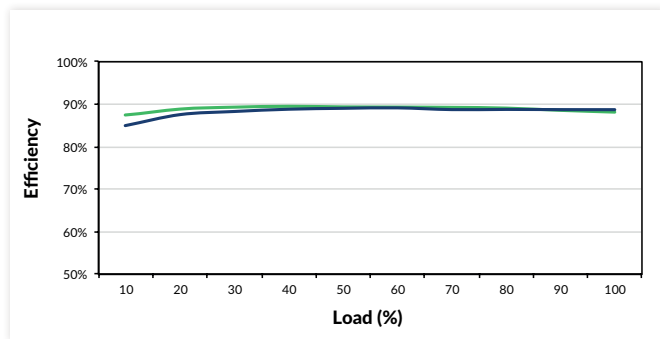
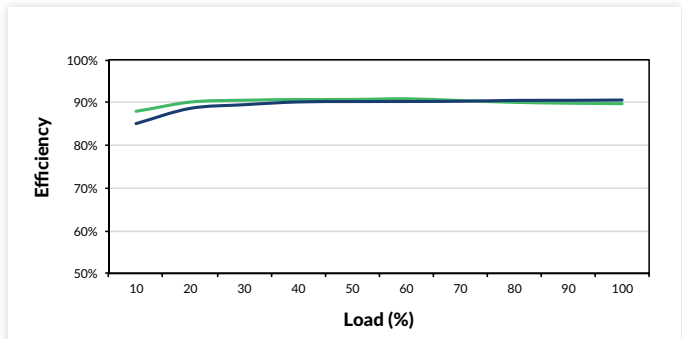


Figure 3
AEK40US24



— 115VAC input
— 230VAC input

EMC: Immunity

Phenomenon	Standard	Test Level	Criteria	Notes & Conditions
ESD Immunity	EN61000-4-2	±8kV Air, ±6kV contact	A	
Radiated Immunity	EN61000-4-3	3V/m	A	
EFT/Burst	EN61000-4-4	2	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	EN55024 (EN61000-4-11)	Dip: 30% 10ms	A	High Line/Low Line
		Dip: 60% 100ms	A/B	
		Int: 100% 5000ms	B	

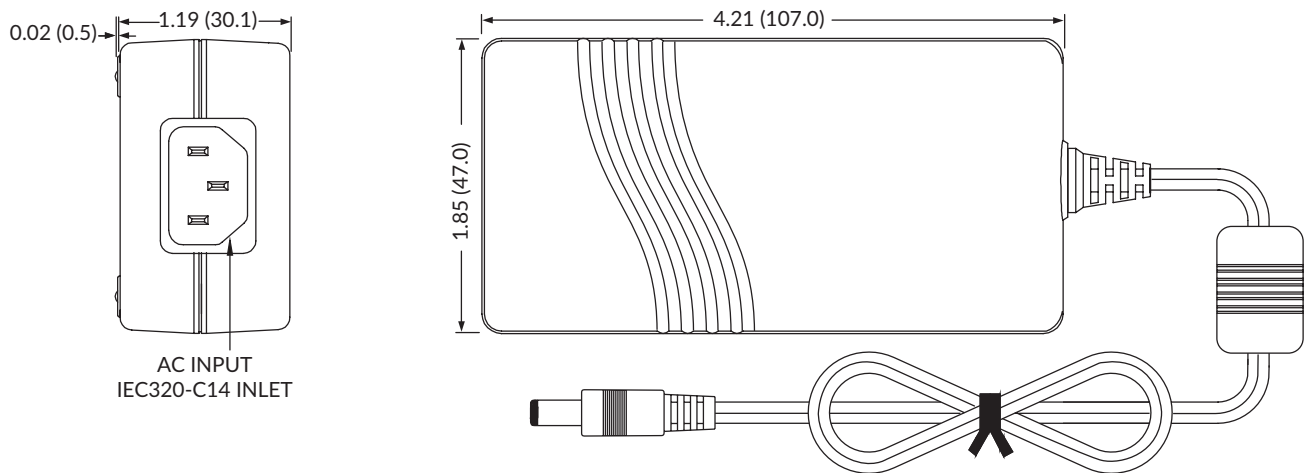
EMC: Emissions

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

Safety Approvals

Certification	Standard	Notes & Conditions
CB	IEC62368-1	
UL	UL62368-1	
EN	EN62368-1	
AU/NZ	AU/NZ 60950.1	
CE		Meets all applicable directives
UKCA		Meets all applicable legislation

Mechanical Details



Notes:

1. All dimensions shown in inches (mm).
2. Weight: 0.38lbs (190g) approx.
3. Tolerance is ± 0.02 (± 0.5) maximum, except output cable length which is ± 2 " (± 50 mm)
4. Output connector is 5.5mm dia. outer barrel, inner dia. is 2.5 mm with a center + and outer shell - polarity.
5. Cable Length: 48" (1220mm)
Cable wires:
 - 5V, 14AWG, OD 5mm (coaxial)
 - 12 & 15V, 16AWG (flat cable)
 - 24 to 48V, 18AWG (flat cable)