AKM90 series

90W CONVECTION COOLED

AC-DC power supplies

The AKM90 series of desktop/external power supplies meeting Energy Efficiency Level VI, Commission Regulation (EU) 2019/1782 and CoC Tier 2. They have medical (2 x MOPP), ITE safety approvals and are available as class I or class II construction, ideal for medical applications.

Features

- Regulated single outputs 12V to 48VDC
- Energy efficiency level VI
- European Commission Regulation (EU) 2019/1782 & CoC tier 2 compliant
- Medical (2 x MOPP) & ITE approvals
- 4th Edition Medical EMC
- Class I as standard, class II optional
- Input voltage range 90 to 264VAC
- Low earth leakage current
- <0.15W standby power
- Optional AC cable restraint (class I versions with C14 inlet only)
- 0° to +60°C operating temperature
- Full power to +40°C
- 3 year warranty

Applications

Technology

Home Healthcare

Instrumentation

Dimensions

151.5 x 60.0 x 37.0mm (5.96" x 2.36" x 1.46")

Models & ratings

Model number[3,4]	Output voltage	Output current	Total regulation	Efficiency[2]
AKM90PS12	12.0VDC	7.00A	±5%	90.1%
AKM90PS15	15.0VDC	5.67A		90.9%
AKM90PS19	19.0VDC	4.76A		90.7%
AKM90PS24	24.0VDC	3.75A		90.5%
AKM90PS48	48.0VDC	1.88A		89.6%

Notes:

1. Total regulation includes initial set accuracy, line and load regulation.
2. Typical average value measured at 25%, 50%, 75% and 100% at 230 VAC.
3. For white case version add suffix '-W' e.g. AKM90PS12-W. MOQ applies, contact sales for details.
4. For optional Class II version add suffix C2, e.g. AKM90PS24C2.

AKM90 series

Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage	90		264	VAC	
Input frequency	47		63	Hz	
Input current			2.0	A	90VAC
Inrush current			100	A	230VAC, cold start at +25°C
No load input power			150	W	
Input protection	Internal fuse in both line and neutral				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	12		48	VDC	See models and ratings table
Minimum load	No minimum load required				
Start up delay			4	s	
Start up rise time			120	ms	
Hold up time	10			ms	Full load and 100VAC
Total regulation			5	%	See Models and Ratings table
Transient response			4	% deviation	Recovery within <1% within 500μs for a 60% step load change at 0.15A/μs
Ripple & noise			150/240	mV pk-pk	12VDC/Others. Measured with 20MHz bandwidth and 10μF electrolytic in parallel with 0.1μF ceramic capacitor
Overload protection			170	%	
Short circuit protection	Continuous, trip and restart (hiccup mode) with auto recovery				
Temperature coefficient			0.05	%/°C	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency		89		%	Typical average of efficiencies measured at 25%, 50%, 75% and 100% load and 115 VAC input
Energy efficiency	Level VI, EU2019/1782, CoC T2				
Isolation	4000			VAC	2 x MOPP
	1500			VAC	
				VDC	Output to ground (Negative output is connected to ground. (Class I versions only)
Leakage current			100	μA	264VAC, 60Hz
Switching frequency	24		85	kHz	Variable
Mean time between failure	250			khrs	MIL-HDBK-217F at +25°C GB
Weight		420 (0.93)		g (lb)	

AKM90 series

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		+80	°C	
Operating humidity	5		90	%	RH, non-condensing
Operating altitude			5000	m	
Cooling					Natural convection
Shock	1 m drop onto concrete on each of 6 axes, non operating				
Vibration	10		300	Hz	2g, 0.3 decades/min, 15 mins for each of 3 axes

Emissions - EMC

Phenomenon	Standard	Test level	Notes & conditions
Emissions	EN55032	Level B	Conducted and radiated
Harmonic currents	EN61000-3-2	Class A	
Voltage flicker	EN61000-3-3		

Emissions - immunity

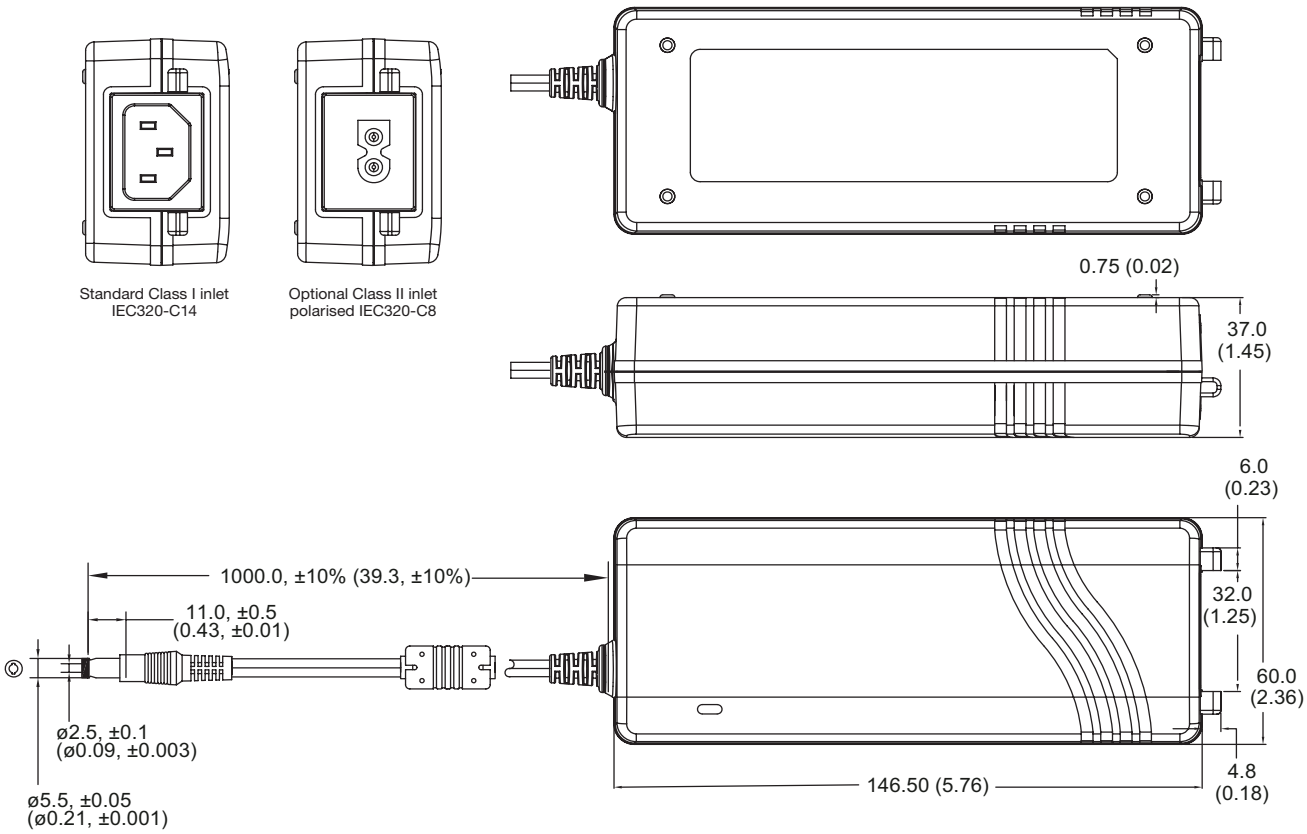
Phenomenon	Standard	Test level	Criteria	Notes & conditions
Medical device EMC	IEC60601-1-2	Ed.4.0 : 2014	as below	
Low voltage PSU EMC	EN61204-3	High severity level	as below	
ESD immunity	EN61000-4-2	±8kV contact, ±15kV air	A	
Radiated immunity	EN61000-4-3	10V/m	A	80-2700MHz. IEC60601-1-2 Ed.4 at other frequencies
EFT/burst	EN61000-4-4	Level 3	A	
Surge	EN61000-4-5	Installation Class 3	A	
Conducted	EN61000-4-6	6V	A	
Magnetic fields	EN61000-4-8	30A/m	A	
Dips and interruptions	EN61000-4-11	Dip: 100% 10ms	A	
		Dip: 70% 500ms	B	
		Int: 100% 5000ms	B	
	EN60601-1-2	Dip: 30% 25 AC Cycles	A/B	High Line/Low Line
		Int: 100% 0.5 AC Cycle	A	At 8 angles
		Int: 100% 1 AC Cycle	A	
		Int.: >95% 5000ms	B	

Safety approvals

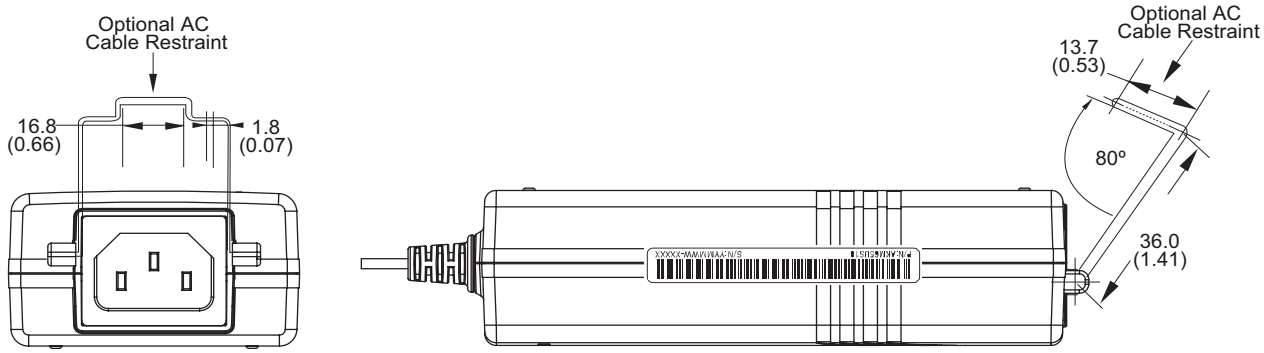
Safety agency	Standard	Notes & conditions
UL	UL62368-1, ANSI/AAMI ES 60601-1	2 x MOPP, approved for 0 to +40°C ambient
EN	EN62368-1, EN60601-1	2 x MOPP, approved for 0 to +40°C ambient
CB	IEC62368-1	2 x MOPP, approved for 0 to +40°C ambient
AU/NZ	AU/NZ 60950.1	2 x MOPP, approved for 0 to +40°C ambient
Others	CSA C22.2 No. 60601, China Compulsory Certification, GB4943	Approved for 0 to +40°C ambient
CE	Meets all applicable legislation	
UKCA	Meets all applicable legislation	

Mechanical details

AKM90PSXX



AKM90PSxx with Optional AC Cable Restraint



Notes:

1. All dimensions shown in mm (inches). Tolerance is 0.5 (0.02) maximum, except output cable length.
2. Output connector: Power Mini DIN, mates with Kycon KPJX-4S or equivalent.
3. Weight: 350g (0.77lbs) approx.
4. For European mains lead order part EU-MAINS-8.
5. For UK mains lead order part UK-MAINS-8.
6. For US mains lead order part US-MAINS-8.

Specifications subject to change without notice.