AQM450 series

XP Power

450W External desktop

AC-DC power supplies

The AQM450 series of compact GaN based medical external AC-DC power supplies deliver 450W of convection cooled power. AQM450's GaN based design offers high efficiency and high power density, enabling a 50% size reduction relative to traditional designs. AQM450 also features a fully sealed enclosure with IP22 compliance and a smooth surface finish, ensuring easy cleaning in clinical environments.

AQM450's worldwide medical and industrial safety approvals, Class B conducted and radiated emissions, 2 x MOPP isolation and low leakage current benefits system designers with easy integration into a wide range of medical applications including imaging, patient monitoring, patient treatment, hospital equipment, and industrial applications such as test & measurement, process control and robotics.

Features

- Regulated single outputs 12V to 56VDC
- Universal, single phase input: 90 to 264VAC
- GaN based compact design
- Medical & ITE safety agency approvals
- IP22 environmental rating
- High efficiency, up to 94%
- Low earth leakage current
- <0.5W standby power
- Class B conducted & radiated emissions
- 0 to +60°C operation
- 3 year warranty

Applications

Robotics
Technology
Instrumentation
Healthcare
Medical Diagnostics

Dimensions

254 x 116 x 47mm (10" x 4.57" x 1.85")

More resources

Click the link or scan the code

→ xppower.com

Models & ratings

Model number	Output voltage	Output current	Total regulation	Efficiency[1]
AQM450PS12[2]	12.0V	33.34A	5%	91%
AQM450PS19	19.0V	23.60A		92%
AQM450PS24	24.0V	18.75A		93%
AQM450PS48	48.0V	9.38A		94%
AQM450PS56[2]	56.0V	8.05A		94%

Notes:
1. Measured at full load and 230VAC.
2. Available for OEM quantities.

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Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Input voltage	90		264	VAC	Derate linearly from 100% load at 100VAC to 90% load at 90VAC
Input frequency	47		63	Hz	
Power factor		>0.9			EN61000-3-2 class A
Input current			4.8/2.4	A	115/230VAC
Inrush current			150	A	240VAC cold start, 25°C
Earth leakage current			1.0	mA	264VAC, 60Hz
No load input power			0.4	W	
Input protection	T8A/250V Internal fuse fitted in line and neutral				
LED indicator	Green LED indicates DC OK				

Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Output voltage	12		56	VDC	See models and ratings table
Initial set accuracy			±2	%	50% load
Minimum load	No minimum load required				
Start up delay			3	s	
Start up rise time		30	35	ms	115VAC
Hold up time	10			ms	Full load and 115/230VAC
Line regulation			±0.5	%	90-264 VAC
Total regulation	See model and ratings table, includes initial set accuracy, line and load regulation				
Transient response			4	%	Recovery within 1% in less than 500µs for a 50-75% and 75-50% load step
Ripple and noise			1	% pk-pk	20MHz bandwidth and 47µF electrolytic at 25°C in parallel with 0.1µF ceramic capacitor at 25°C
Overshoot		5	10	%	At turn on/turn off
Overload protection	110		150	%	
Overvoltage protection	110		150	%	Recycle mains to reset
Short circuit protection	Trip and restart (hiccup), auto resetting				
Temperature coefficient		0.2		%/°C	
Patient leakage current		85	100	µA	264VAC, 60Hz

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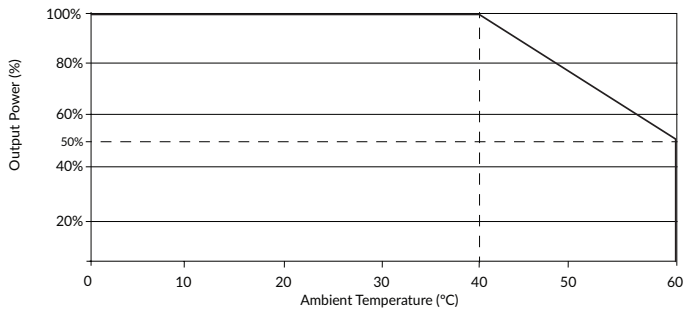
Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Operating temperature	0		+60	°C	Derate linearly from 100% load at 40°C to 50% load at 60°C, safety approved to 40°C
Cooling	Natural convection				
Operating humidity	20		80	%RH	Non-condensing
Storage humidity	10		90	%RH	Non-condensing
Storage temperature	-20		80	°C	
Operating altitude			5000	m	

General

Characteristic	Minimum	Typical	Maximum	Units	Notes & conditions
Efficiency	91	93		%	See models and ratings table
Isolation: input to output	4000			VAC	2 x MOPP
input to ground	1800			VAC	1 x MOPP
output to ground	500			VAC	
Switching frequency	80		100	kHz	PFC (varies with load and input voltage)
	70		130		Main converter (varies with load)
Power density		0.32		W/cm^3	
Mean time between failure	300			khrs	TELCORDIA SR-322 @ 25°C
Weight		1600 (3.53)		g (lb)	

Derating curve



Emissions - EMC

Phenomenon	Standard	Test level	Notes & conditions
Conducted	EN55032/EN55011	Class B	
Radiated			
Harmonic currents	EN61000-3-2	Class A	
Voltage flicker	EN61000-3-3		

Emissions - immunity

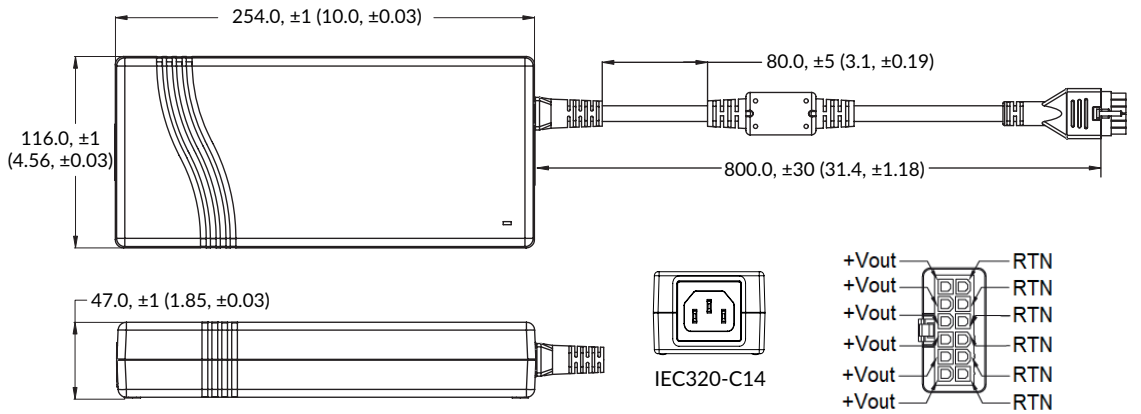
Phenomenon	Standard	Test level	Criteria	Notes & conditions
ESD immunity	EN61000-4-2	4	A	±8kV contact / ±15kV air discharge
Radiated immunity	EN61000-4-3	10V/m	A	
EFT/burst	EN61000-4-4	±2kV	A	
Surge	EN61000-4-5	Installation class 3	A	±1kV line to lin, ±2kV line to earth
Conducted	EN61000-4-6	6V	A	
Magnetic field	EN61000-4-8	30A/m	A	
Dips and interruptions	EN55035 (115VAC)	Dip:100% (0VAC), 10ms	A	115VAC and above/100VAC
		Dip:30% (80.5VAC), 500ms	A	
		Dip:100% (0VAC), 500ms	B	
	EN55035 230VAC)	Dip:100% (0VAC), 10ms	A	
		Dip:30% (181VAC), 500ms	A	
		Dip:100% (0VAC), 500ms	B	
	EN60601-1-2 (100VAC)	Dip:100% (0VAC), 10ms	A	
		Dip:100% (0VAC), 20ms	B	
		Dip:30% (70VAC), 500ms	B	
		Dip:100% (0VAC), 5000ms	B	
	EN60601-1-2 (240VAC)	Dip:100% (0VAC), 10ms	A	
		Dip:100% (0VAC), 20ms	B	
		Dip:30% (168VAC), 500ms	A	
		Dip:100% (0VAC), 5000ms	B	

Safety approvals

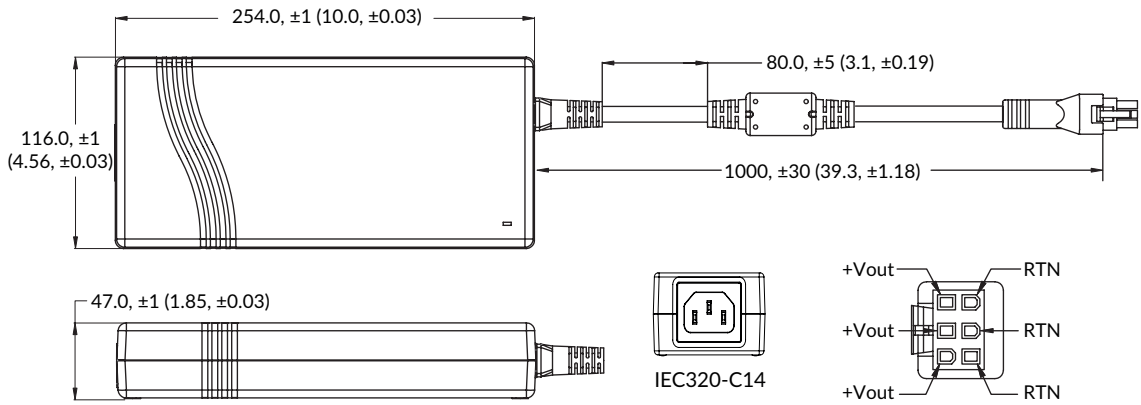
Safety agency	Standard	Notes & conditions
UL	UL62368-1	Audio/video, information and communication technology equipment
	ANSI/AAMI ES60601-1 & CSA C22.2 No.60601-1	Medical
EN	EN62368-1	Audio/video, information and communication technology equipment
	EN60601-1	Medical
CB	IEC62368-1	Audio/video, information and communication technology equipment
	IEC60601-1	Medical
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

Mechanical details

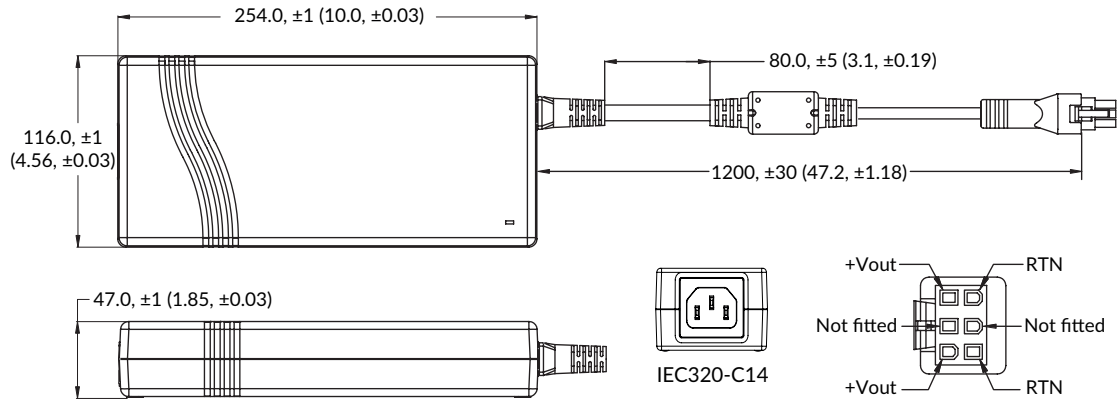
12V model



19V & 24V models



48V & 56V models



Notes:

1. All dimensions shown in mm (inches).
2. Weight: 1600g (3.53lb) approx.
3. Output connector: 12 pin Molex Mini Fit with 39-012125 housing for 12V model and 6 pin Molex Mini Fit with 39-01-2065 housing for other models and 39-00-0077 terminals. Mates with 5566 headers or equivalent.