

AC-DC Adapter

24 V 120 W / ADT-120A24AA F-A

ADT-120A



Highlights & Features

- Meet Efficiency DOE Level VI & CoC Tier 2
- No load power consumption < 0.15 W
- Universal AC input / Full range
- Fully enclosed plastic case
- Protection: short circuit / over voltage / overload/ over temperature

Safety Standards



CB Certified for worldwide use

Model Number: ADT-120A24AA F-A
Unit Weight: 340±10 grams (11.99±0.35 ounces)
Dimensions (L×W×H): 138 x 68.5 x 24.5 mm

General Description

The ADT Series of AC-DC desktop adapter in compact size. ADT-120A24AA F-A meets the DoE Level VI and CoC Tier 2 energy efficiency requirements with levels up to 90% and the extremely low no-load power consumption at 0.15W. The series conform to major international safety standards according to IEC/EN/UL 62368-1 and IEC/EN 60950-1 approval for ITE. In addition, they also meet the EMI approvals to EN/BS EN 55032 class B.

Model Information

Model Number	Input Voltage Range	Efficiency Level	Rated Output Voltage	Rated Output Current
ADT-120A24AA F-A	90-264 Vac	DOE Level VI & CoC Tier2	24 V	5.0 A

Model Numbering

ADT -	120	A	24	A	A	F -	A
Desktop Adapter for ITE application	Max wattage	Family Code	Output Voltage 24 for 24 V	A : Desktop	Input Connector A : C6	Output Connector F : Tuning fork O.D: 5.5 mm, I.D: 2.5 mm, Length: 11.0 mm	Standard

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Specifications

Input Ratings / Characteristics

Nominal Input Voltage	100-240 Vac	
Input Voltage Range	90-264 Vac	
Nominal Input Frequency	50-60 Hz	
Input Frequency Range	47-63 Hz	
Input Current (max)	115 Vac	1.85 A
	230 Vac	1.0 A
Efficiency at 100% Load	115 Vac	91.0% typ.
	230 Vac	92.0% typ
Average Efficiency (min)	89% @ 115 Vac & 230 Vac	
Efficiency @ 10% load	79% @ 115 Vac & 230 Vac	
No Load Power Consumption (max)	0.15 W @ 115 Vac & 230 Vac	
Power Factor @ 100% load (min)	0.9 @ 230 Vac	
Inrush Current	No damage	
Leakage Current (max)	250 uA @ 240 Vac / 50 Hz	

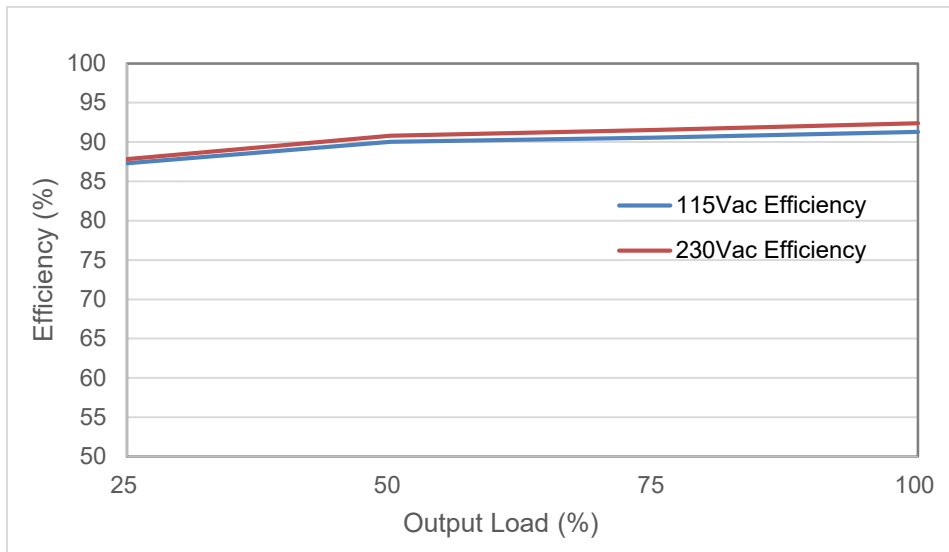


Fig 1. ADT-120A24AA F-A Efficiency versus Output Load

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Output Ratings / Characteristics

Nominal Output Voltage	24 V	
Output Current	5.0 A	
Output Power	120 W	
Line Regulation	± 0.5%	
Load Regulation	± 3%	
PARD* (20MHz)	0 to 40°C	240 mV pk-pk
	-10 to 0°C	480 mV pk-pk
Start-up Time	115 Vac	1000 ms typ. @ 115 Vac
	230 Vac	500 ms typ. @ 230 Vac
Rise Time (Max)	40 ms @ nominal input, full load	
Hold-up Time (typ.)	40 ms @ 115 Vac, full load	
Transient Responses	± 5% @ 0.1 A -50% & 50% -100% load change, Slew rate 2.5 A/us , 100 to 10 KHz, 50% Duty Cycle	
Capacitive load (max)	470 uF	

*PARD is measured with an AC coupling mode, and in parallel with 0.1 uF ceramic capacitor & 47 uF electrolytic capacitor.

Mechanical

Case	PC	
Dimensions (L × W × H)	138 x 68.5 x 24.5 mm (5.43 x 2.7 x 0.96 inch)	
Unit Weight	340 ± 10 grams (11.99 ± 0.35 ounces)	
Indicator	N/A	
Cooling System	Convection	
Output Cable Specification	Connector	Tuning fork (O.D: 5.5 mm, I.D: 2.5 mm, length: 11 mm)
	Length	UL1571 #17AWG , 1800 mm
Input Socket	C6	

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Environment

Surrounding Temperature	Operating	-10°C to +60°C
	Storage	-40°C to +85°C
Power De-Rating		>40°C de-rated by 2.5%/°C
Operating Humidity		5%-95% RH (non-condensing)
Operating Altitude		5,000 meters (16400 feet)
Ball Impact Test		Test height 130 cm, 1 sample 1 time, Steel Ball 500 g, Concrete floor
Drop Test		Test height 100 cm, 6 face for each sample, concrete floor Function test pass after drop test
Shock Test (Non-Operating)		50 G, 11 ms, 1 shock for each direction
Vibration (Non-Operating)		5-500 Hz, 2.09 Grms, 20 mins, one cycle for each three axis

Protections

Overvoltage (max)	33 V, Latch mode
Overload / Overcurrent	120-180% , Latch
Over Temperature	Latch Mode
Short Circuit	Latch Mode
Pollution Degree	2
Protection Against Shock	Class I

Reliability Data

MTBF	> 300,000 hrs. per Telcordia SR-332 @ 115 Vac, 100% load, Ta: 25°C
Expected Cap Life Time	5 years @ 100 Vac, 50% load, 25°C

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Safety Standards / Directives

Electrical Safety		IEC/EN 60950-1 ; IEC/UL/EN 62368-1 BSMI CNS 14336-1 CCC GB 4943.1-2011 PSE J 60950-1 (H29) KC K 60950-1
CE		Comply with EMC Directive 2014/30/EU and the Low Voltage Directive 2014/35/EU
UKCA		In conformance with Electromagnetic Compatibility Regulations 2016 and Electrical Equipment (Safety) Regulations 2016
Galvanic Isolation	I/P to O/P	3000 Vac

EMC

EMC / Emissions		CISPR/EN/BS EN 55032 Class B BSMI CNS13438 GB/T 9254-2008 KN 32
Harmonic Current Emissions	IEC 61000-3-2	Class D ; GB 17625.1-2003
Immunity to		EN/BS EN 55024; KN 35
Radiated and Conducted Emissions		Conducted Emissions: EN/BS EN 55032 Class B Radiated Emissions: EN/BS EN 55032 Class B
Voltage Flicker	IEC 61000-3-3	
Electrostatic Discharge	IEC 61000-4-2	Level 4 Criteria A ¹⁾ Air Discharge: 15 kV Contact Discharge: 8 kV
Radiated Field	IEC 61000-4-3	Level 2 Criteria A ¹⁾ 80 MHz-1 GHz, 3 V/m , 80% AM (1 KHz)
Electrical Fast Transient / Burst	IEC 61000-4-4	Level 3 Criteria A ¹⁾ : 2 kV
Surge	IEC 61000-4-5	Level 3 Criteria A ¹⁾ Common Mode ⁴⁾ : 2 kV Differential Mode ⁵⁾ : 1 kV
Conducted	IEC 61000-4-6	Level 2 Criteria A ¹⁾ 150 kHz - 80 MHz, 3 Vrms, Sine Wave, 80%, AM modulation
Power Frequency Magnetic Fields	IEC 61000-4-8	Level 1 Criteria A ¹⁾ Magnetic field strength 1 A/m
Voltage Dips	IEC 61000-4-11	Voltage dips 70% reduction / 0.5 periods (Criterion A ¹⁾) 40% reduction / 5 periods (Criterion B ²⁾) Voltage short interruptions 5% reduction / 250 periods (Criterion C ³⁾)

1) Criteria A: Normal performance within the specification limits

2) Criteria B: Output out of regulation, or shuts down during test. Automatically restore to normal operation after test.

3) Criteria C: PSU shuts down during test, but need operator to reset.

4) Asymmetrical: Common mode (Line to earth)

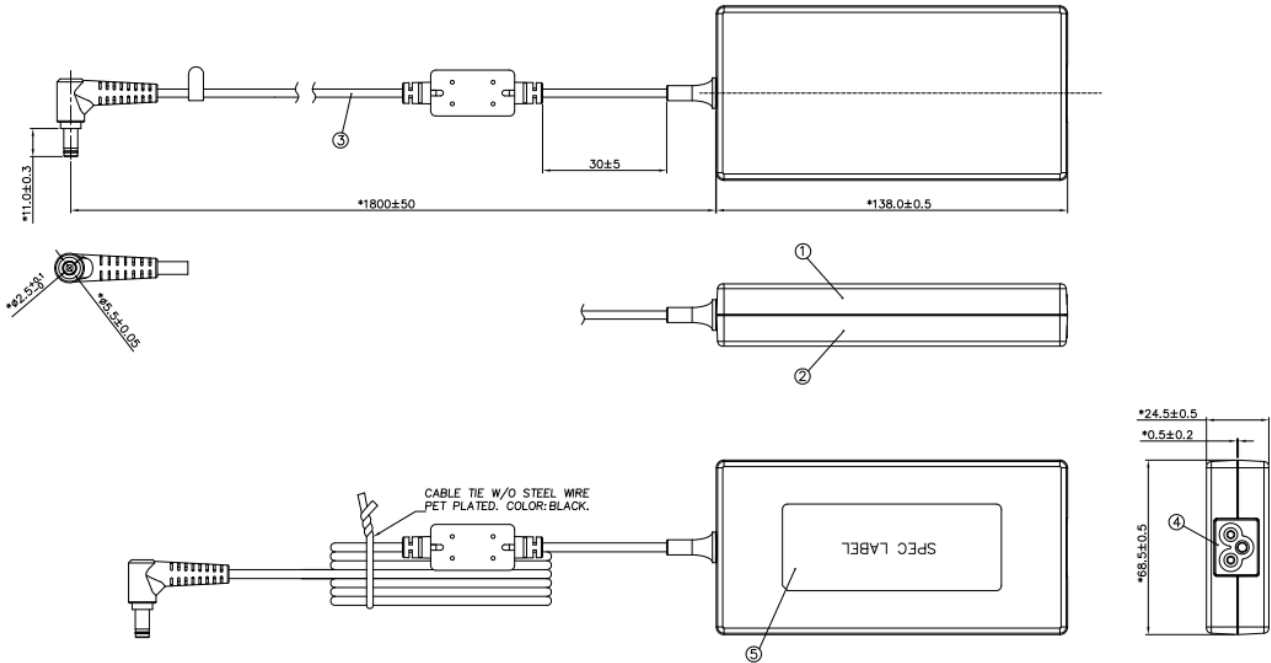
5) Symmetrical: Differential mode (Line to line)

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Dimensions

L x W x H: 138 x 68.5 x 24.5 mm (5.43 x 2.7 x 0.96 inch)



ITEM	PART NAME	COLOR	MATERIAL
①	COVER	BLACK	PC
②	CHASSIS	BLACK	PC
③	POWER CORD	BLACK	PVC
④	SOCKET	BLACK	PA
⑤	LABEL	BLACK	PE+PET

Engineering Data

Output Load De-rating V.S. Surrounding Air Temperature

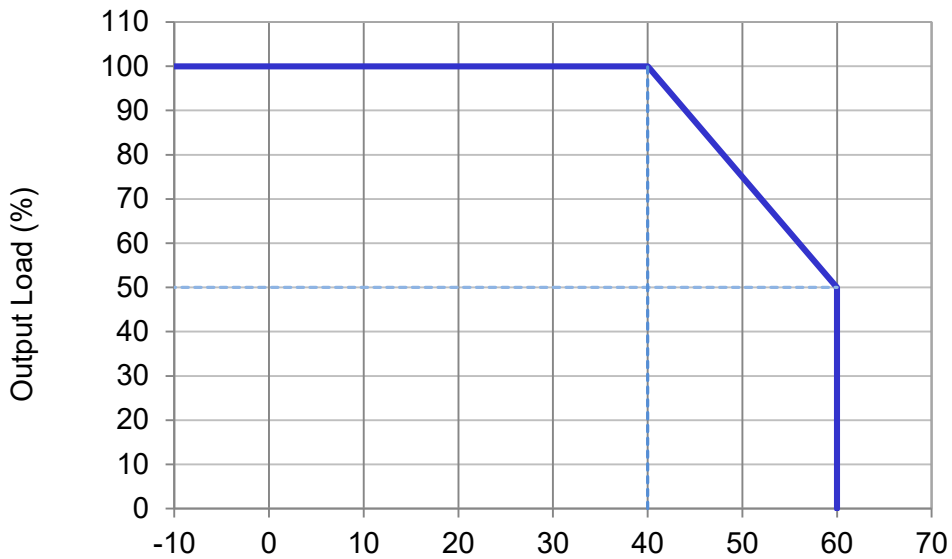


Fig. 2 De-rating for All Mounting Orientation
 > 40°C de-rate power by 2.5% / °C

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Others

PFC – Norm EN 61000-3-2

Line Current Harmonic content



Typically, the input current waveform is not sinusoidal due to the periodical peak charging of the input capacitor. In industrial environment, complying with EN 61000-3-2 is only necessary under special conditions. Complying to this standard can have some technical drawbacks, such as lower efficiency as well as some commercial aspects such as higher purchasing costs. Frequently, the user does not profit from fulfilling this standard, therefore, it is important to know whether it is mandatory to meet this standard for a specific application.

Attention

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