AC-DC Adapter
24V 120W / 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/UL 60950-1 approval for ITE. In addition, they also meet the EMI approvals to EN 55032 class B.

Model Information

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

Model Numbering

ADT -	120	A	24	A	A	F -	A
Desktop Adapter for ITE application	Max wattage	Family Code	Output Voltage 24 for 24V	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

All parameters are specified at 25°C ambient unless otherwise indicated.
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Specifications

Input Ratings / Characteristics

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

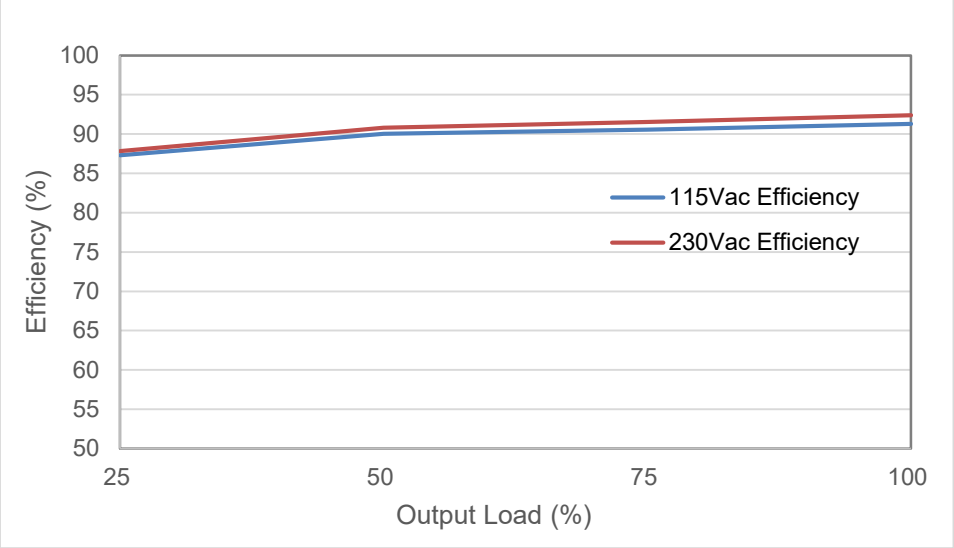

Fig 1. ADT-120A24AA F-A Efficiency versus Output Load

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Output Ratings / Characteristics

Nominal Output Voltage		24V
Output Current		5.0A
Output Power		120W
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	115Vac	1000 ms typ. @ 115Vac 500 ms typ. @ 230Vac
	230Vac	
Rise Time (Max)		40ms @ nominal input, full load
Hold-up Time (typ.)		40ms @ 115Vac, full load
Transient Responses		± 5% @ 0.1A -50% & 50% -100% load change, Slew rate 2.5A/us ,100 to 10KHz, 50% Duty Cycle
Capacitive load (max)		470uF

*PARD is measured with an AC coupling mode, and in parallel with 0.1uF ceramic capacitor & 47uF 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 130cm, 1 sample 1 time, Steel Ball 500g, Concrete floor
Drop Test		Test height 100cm, 6 face for each sample, concrete floor Function test pass after drop test
Shock Test (Non-Operating)		50G, 11ms, 1 shock for each direction
Vibration (Non-Operating)		5-500Hz, 2.09Grms, 20mins, one cycle for each three axis

Protections

Overvoltage (max)	33V, 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 @ 115Vac, 100% load, Ta: 25°C
Expected Cap Life Time	5 years @ 100Vac,50% load, 25°C

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Safety Standards / Directives

Electrical Safety		IEC/UL/EN 60950-1 ; IEC/UL/EN 62368-1
		BSMI CNS14336-1
		CCC GB4943.1-2011
		PSE J60950-1 (H29)
		KC K60950-1
CE		Comply with EMC Directive 2014/30/EU and the Low Voltage Directive 2014/35/EU
Galvanic Isolation	I/P to O/P	3000Vac

EMC

EMC / Emissions		CISPR /EN 55032 Class B BSMI CNS13438 GB/T9254-2008 KN32
Harmonic Current Emissions	IEC61000-3-2	Class D ; GB17625.1-2003
Immunity to		EN 55024; KN35
Radiated and Conducted Emissions		Conducted Emissions: EN55032 Class B Radiated Emissions: EN55032 Class B
Voltage Flicker	IEC61000-3-3	
Electrostatic Discharge	IEC61000-4-2	Level 4 Criteria A[1)] Air Discharge: 15kV Contact Discharge:8kV
Radiated Field	IEC61000-4-3	Level 2 Criteria A[1)] 80MHz-1GHz, 3V/m , 80% AM(1KHz)
Electrical Fast Transient / Burst	IEC61000-4-4	Level 3 Criteria A[1)]: 2kV
Surge	IEC61000-4-5	Level 3 Criteria A[1)] Common Mode[4)]: 2kV Differential Mode[5)]: 1kV
Conducted	IEC61000-4-6	Level 2 Criteria A[1)] kHz-80MHz, 3Vrms, Sine Wave, 80%, AM modulation
Power Frequency Magnetic Fields	IEC61000-4-8	Level 1 Criteria A[1)] Magnetic field strength 1A/m
Voltage Dips	IEC61000-4-11	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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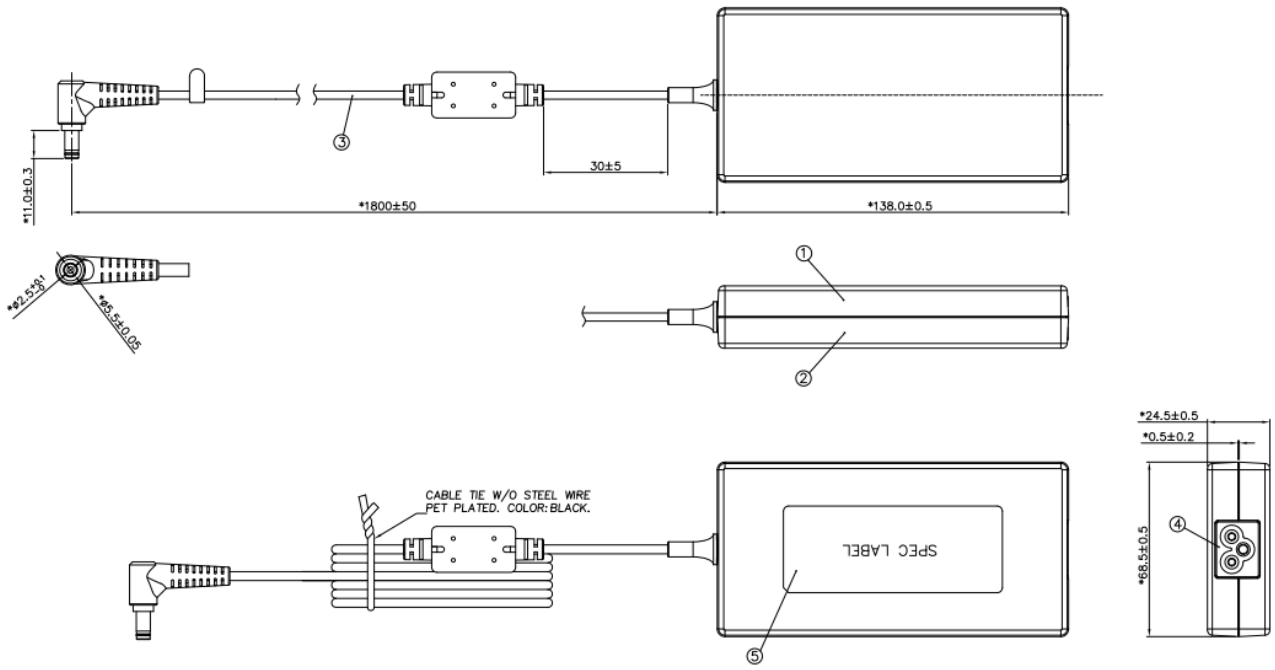
Dimensions

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

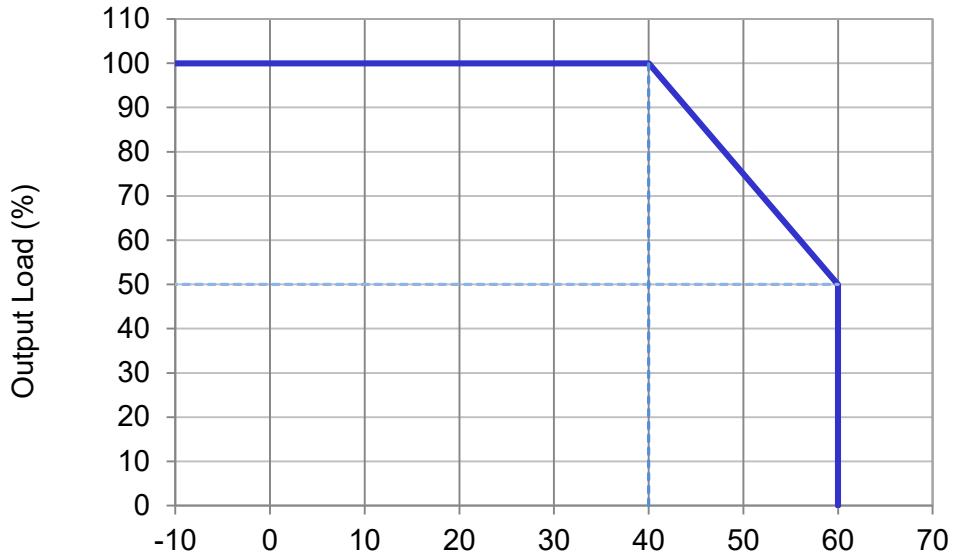


Fig. 2 De-rating for All Mounting Orientation
> 40°C de-rate power by 2.5% / °C

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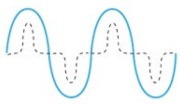
Others

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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