

150W

Switching Power Adapter

SPECIFICATION

Description: 12Volts/12.5Amps

Part No.: AD-AT12125

Version: 02

Date: 24- June - 2011

1. Feature :

- ◆ **Input** : Universal 100 ~ 240 Vac / 47 ~ 63 Hz Input, without any slide switch.
- ◆ **Output** : +12 V / 0 ~ 12.5 A
- ◆ **Case Dimension** : 175.2 (L) * 74 (W) * 42 (H) mm
- ◆ **Efficiency** : Eff (av) \geq 87%
- ◆ **Safety** : CUL / UL / GS / PSE / BSMI
- ◆ **EMI** : CE / FCC Class B ; Conduction & Radiation Met.
- ◆ **Protection** : OVP (Over Voltage Protection) · SCP (Short Circuit Protection) · OCP (Over Current Protection) · OTP (Over Temperature Protection)
- ◆ High frequency design, less power consumption.
- ◆ Suitable for usage at Telecommunication, Computer, Industrial Controller, & OA System.
- ◆ Meet Energy Star V / Erp (Stage 2) / MEPS V .

2. Input :

2.1 Voltage	Universal 100 ~ 240 Vac, single phase
2.2 Frequency	47 ~ 63 Hz
2.3 Current	2.2 A Max.
2.4 Inrush Current	100 A Max. / 230Vac (Cold start at 25 °C, full load)
2.5 Efficiency	Eff (av) \geq 87% (At 115 Vac & 230 Vac)
2.6 Power Consumption	Pi \leq 0.5 W (At 230Vac & No load)
2.7 Power Factor (PF)	Pi \geq 0.9 (At Full load)

$$\text{※Eff (av)} = \frac{E_1 + E_2 + E_3 + E_4}{4}$$

E₁=efficiency with 25% rated load, E₂= efficiency with 50% rated load
E₃=efficiency with 75% rated load, E₄= efficiency with 100% rated load

3. Output :

3.1 DC Output	Voltage	+12.00 V \pm 5%
	Current	12.5 A Max.
	Regulation	11.4 V min. ~ 12.0 V typ. ~ 12.6 V max.
	Ripple & Noise	240 mV Max.
	Total Power	150 W Max.

Remark : For ripple & noise measurement, use a 20MHz bandwidth frequency oscilloscope, and add a 0.1 μ F multilayer Cap. and a Low ESR Electrolytic Cap. (10 μ F) at output connector terminals. (At nominal line voltage, full load)

4. Protection :

4.1 Over Voltage Protection (OVP)	Vout * (110% ~ 150%)
4.2 Short Circuit Protection (SCP)	Automatic recovery after short-circuit fault being removed
4.3 Over Current Protection(OCP)	Iout * (110% ~ 150%)
4.4 Over Temperature Protection (OTP)	OTP 110 degree. Latch protection.

Remark : When Short Circuit Protection or Over Current Protection is activated, the power supply will shutdown automatically. Once the abnormal condition resulting in the failure being removed, the power supply will restart accordingly. When Over Voltage Protection is activated, the power supply will latch.

5. Safety 、 EMI and EMC Requirement :

5.1 Safety Requirement

a. Safety : CUL / UL / GS / PSE / BSMI

b. Dielectric Strength : Cut off current 10mA

(1)	Primary to Secondary	1800Vac for 1 Minute
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c. Insulation Resistance :

(1)	Primary to Secondary	10 M ohm for 500Vdc
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5.2 EMI Requirement : CE / FCC Class B ; Conduction & Radiation Met.

5.3 Leakage Current : Less than 3.5mA

6. Operation and Environment Performance :

6.1 Temperature Range

Operating	+ 0°C ~ + 40°C
Storage	- 20 °C ~ + 80 °C

6.2 Humidity Range(Non-condensing)

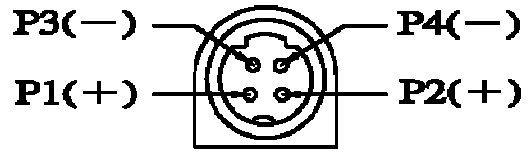
Operating	20% ~ 80% RH
Storage	10% ~ 90% RH

6.3 Cooling : By natural air.

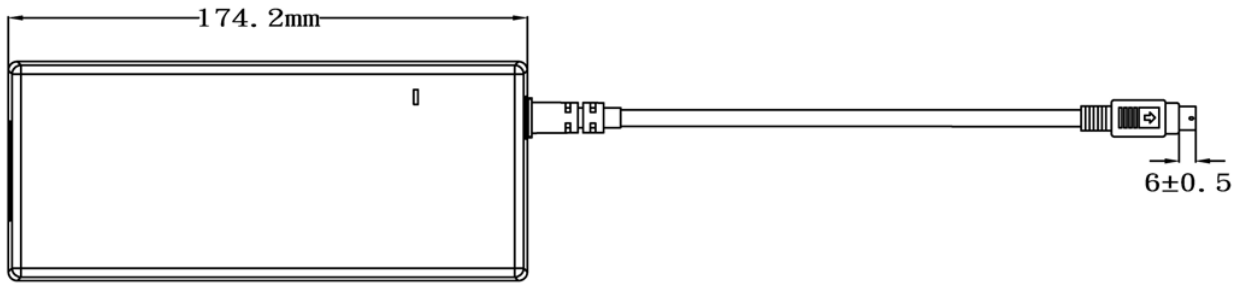
7. M.T.B.F. : 50,000 hours min. at 25°C, by MIL-HDBK-217F

8. Mechanical :

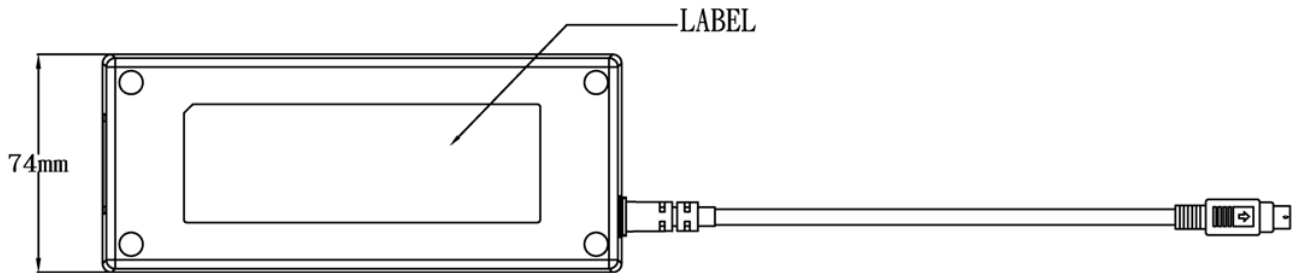
- 8.1 Weight : 700 g Typical
- 8.2 Cable Type : Black UL2464 AWG16
(Wire + Plug)
- 8.3 Cable Length : 1200 mm
- 8.4 Case Dimension : 175.2mm(L) * 74 mm(W) * 42 mm(H)
- 8.5 Material Flammability : UL 94V-0
- 8.6 External Appearance : As drawing below (Scale → mm)



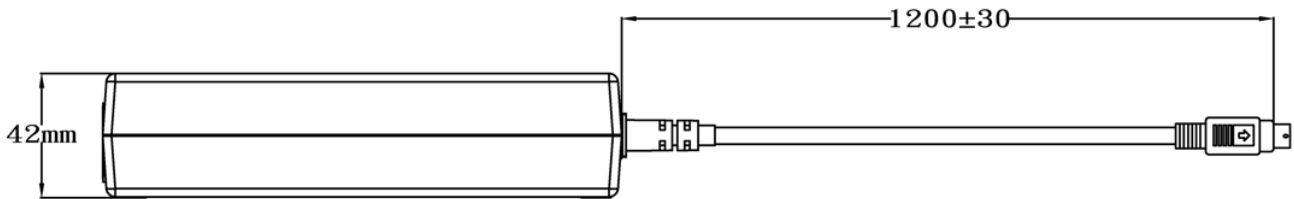
Output Cable Plug Pin Assignment



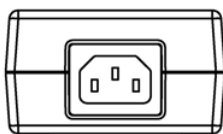
TOP-VIEW



BOTTOM-VIEW



SIDE-VIEW



FRONT-VIEW

A. Line Regulation Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
90Vac / 50 % Load	11.4 V ~ 12.6 V	12.04 V	12.06 V	12.06 V
115Vac / 50 % Load	11.4 V ~ 12.6 V	12.04 V	12.06 V	12.06 V
132Vac / 50 % Load	11.4 V ~ 12.6 V	12.04 V	12.06 V	12.06 V
180Vac / 50 % Load	11.4 V ~ 12.6 V	12.04 V	12.06 V	12.06 V
230Vac / 50 % Load	11.4 V ~ 12.6 V	12.04 V	12.06 V	12.06 V
264Vac / 50 % Load	11.4 V ~ 12.6 V	12.04 V	12.06 V	12.06 V

B. Efficiency Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac	87 % Min.	87.46%	88.09%	88.04%
230Vac	87 % Min.	88.89%	89.47%	88.96%

$$\text{Eff (av)} = \frac{E_1 + E_2 + E_3 + E_4}{4}$$

E_1 =efficiency with 25% rated load, E_2 = efficiency with 50% rated load
 E_3 =efficiency with 75% rated load, E_4 = efficiency with 100% rated load

C. Load Regulation Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 0 % Load	11.4 V ~ 12.6 V	12.19 V	12.20 V	12.22 V
115Vac / 50 % Load	11.4 V ~ 12.6 V	12.04 V	12.06 V	12.06 V
115Vac / 100 % Load	11.4 V ~ 12.6 V	11.89 V	11.91 V	11.92 V
230Vac / 0 % Load	11.4 V ~ 12.6 V	12.19 V	12.20 V	12.22 V
230Vac / 50 % Load	11.4 V ~ 12.6 V	12.04 V	12.06 V	12.06 V
230Vac / 100 % Load	11.4 V ~ 12.6 V	11.89 V	11.91 V	11.92 V

D. Ripple & Noise Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	240 mV Max.	174 mV	183 mV	183mV
230Vac / 100 % Load	240 mV Max.	175 mV	184 mV	185mV

E. Inrush Current

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
230Vac / 100 % Load	100A Max.	79 A	77 A	78 A

F. Over Voltage Protection

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	Vout*(110%~150%)	118%	117%	118%
230Vac / 100 % Load	Vout*(110%~150%)	118%	117%	118%

G. Over Current Protection

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	Iout*(110%~150%)	121%	120%	122%
230Vac / 100 % Load	Iout*(110%~150%)	121%	120%	122%

H. Short Circuit Protection

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	Auto Recovery	OK	OK	OK
230Vac / 100 % Load	Auto Recovery	OK	OK	OK

I. Input Power Consumption(No Load)

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
230Vac / 0 % Load	≤ 0.5 W	0.42W	0.40W	0.44W

J. Power Factor

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	≥ 0.9	0.99	0.99	0.99
230Vac / 100 % Load	≥ 0.9	0.95	0.95	0.95

Efficiency Test Report

- A. Model Number AD-AT12125 (12V /12.5A /150 W)
- B. DC Power Cord 1200 mm
- C. Average Efficiency
 Energy Star V 87% Min.
 Erp (Stage 2) 87% Min.
 MEPS V 87% Min.
- D. NO Load Power Consumption
 Energy Star V 0.5W max.
 Erp (Stage 2) 0.5W max.
 MEPS V 0.5W max.
- E. Testing Equipment
 1.AC Power Source "APE" 2700M-10
 2. Electronic Load "PRODIGIT " 3302
 3.Power Meter "JDRC" CP-290
 4. Digital Meter "FLUKE" 179
- F. AC Input Voltage 115Vac/60Hz

Load Conditions	100%* I ₀	75%* I ₀	50%* I ₀	25%* I ₀	0%* I ₀
Rms Output Current (mA)	12500mA	9375mA	6250mA	3125mA	0mA
Rms Output Voltage(V)	11.890V	11.970V	12.040V	12.110V	12.190V
Active Output Power(W)	148.63W	112.22W	75.25W	37.84W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V
Rms Input Current(A)	1.479A	1.110A	0.762A	0.404A	0.035A
Rms Input Power(W)	168.50W	126.30W	85.20W	44.80W	0.44W
Voltage T.H.D.(%)	0.19	0.17	0.15	0.10	0.09
True Power Factor	0.992	0.989	0.971	0.963	0.080
Power Consumed by UUT(W)	19.88W	14.08W	9.95W	6.96W	0.44W
Efficiency	88.20%	88.85%	88.32%	84.47%	*
Average Efficiency	87.46%				*

- G. AC Input Voltage 230Vac/50Hz

Load Conditions	100%* I ₀	75%* I ₀	50%* I ₀	25%* I ₀	0%* I ₀
Reported Quantity					
Rms Output Current (mA)	12500mA	9375mA	6250mA	3125mA	0mA
Rms Output Voltage(V)	11.890V	11.970V	12.040V	12.110V	12.190V
Active Output Power(W)	148.63W	112.22W	75.25W	37.84W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V
Rms Input Current (A)	0.756A	0.580A	0.405A	0.227A	0.034A
Rms Input Power(W)	165.70W	124.70W	84.30W	43.70W	0.42W
Voltage T.H.D.(%)	0.17	0.15	0.12	0.11	0.09
True Power Factor	0.955	0.935	0.906	0.838	0.040
Power Consumed by UUT(W)	17.08W	0.43W	9.05W	5.86W	0.42W
Efficiency	89.70%	89.99%	89.26%	86.60%	*
Average Efficiency	88.89%				*