36W
Medical Power Supply
SPECIFICATION

Model No.	**:**	**ATM036T-A240(Level VI))**
Description	**:**	**24Volts / 1.5 Amps**
Part No.	**:**	
Version	**:**	**01**
Date	**:**	**20-Mar.-2017**

Approved	Reviewed	Checked	Prepared	Sales

1. Feature：

- ♦ **Input** ： **Universal 100 ~ 240 Vac / 50 ~ 60 Hz Input, without any slide switch.**
- ♦ **Output** ： **+24V / 0~1.5A**
- ♦ **Case Dimension** ： **100 (L) * 50 (W) * 33 (H) mm**
- ♦ **Efficiency** ： **Eff (av) ≧ 87.403%**
- ♦ **Safety** ： **UL / cUL / T-mark**
  ANSI/AAMI ES60601-1:2012(60601 3.1rd edition)
- ♦ **EMI** ： **CE / FCC Class B ； Conduction ＆ Radiation Met.**
- ♦ **Protection** ： **OVP (Over Voltage Protection)、SCP (Short Circuit Protection)、OCP (Over Current Protection)**
- ♦ **High frequency design, less power consumption.**
- ♦ **Suitable for usage at Medical.**
- ♦ **Meet DoE Level VI/ ErP (Stage 2) / GEMS / NRCan / CEC**

2. Input：

2.1 Voltage	**Universal 100~240Vac, single phase**
2.2 Frequency	**50 ~ 60 Hz**
2.3 Current	**1A Max.**
2.4 Inrush Current	**70A Max. / 230Vac (Cold Start At 25 °C, Full Load)**
2.5 Efficiency	**Eff (av) ≧ 87.403% (At 115 Vac & 230 Vac)**
2.6 Power Consumption	**Pi ≦ 0.1 W (At 230Vac & No Load)**

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

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**	**+24V ± 5%**
	Current	**1.5 A Max.**
	Regulation	**22.80Vmin. ~ 24.00Vtyp. ~ 25.20Vmax.**
	Ripple & Noise	**240 mVpp Max.**
	Total Power	**36W Max.**

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

4. Protection :

4.1 Over Voltage Protection (OVP)	V out *200% MAX.
4.2 Short Circuit Protection (SCP)	Automatic recovery after short-circuit fault being removed
4.3 Over Current Protection(OCP)	I out *200% MAX

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 shutdown .

5. Safety、EMI and EMC Requirement：

5.1 Safety Requirement

a. Safety : UL / cUL / T-mark
ANSI/AAMI ES60601-1:2012(60601 3.1rd edition)

b. Dielectric Strength : 10mA Max. Cut off current

(1)	Primary to Secondary	4000Vac for 1 Minute

c. Insulation Resistance :

(1)	Primary to Secondary	10 M OHMS for 500Vdc

5.2 EMI Requirement : CE / FCC Class B ; Conduction & Radiation Met.

5.3 Leakage Current : Less than 100uA

6. Operation and Environment Performance：

6.1 Temperature Range

Operating	+ 0 ºC ~ + 40 ºC
Storage	- 20 ºC ~ + 80 ºC

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.：300,000Hrs.(Calculated Hours at 25℃ , By Telcordia SR-332)

8.Mechanical :

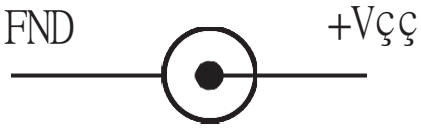
8.1 Weight : 210 g Typical

8.2 Cable Type : Black UL1185 18AWG

(Wire + Plug)

Plug :

(Tuning Fork & Cannelure)



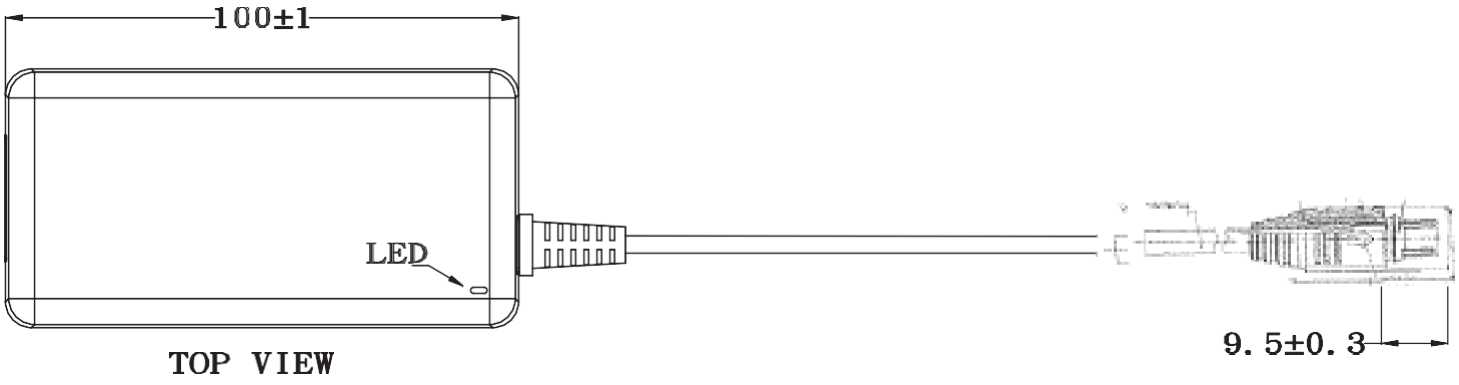
Output Cable Plug Pin Assignment

8.3 Cable Length : 2200mm

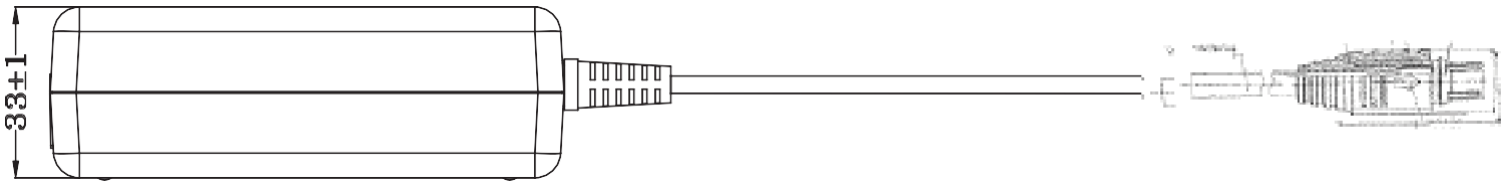
8.4 Case Dimension : 100mm(L)*50mm(W)*33mm(H)

8.5 Material Flammability : UL 94V-0

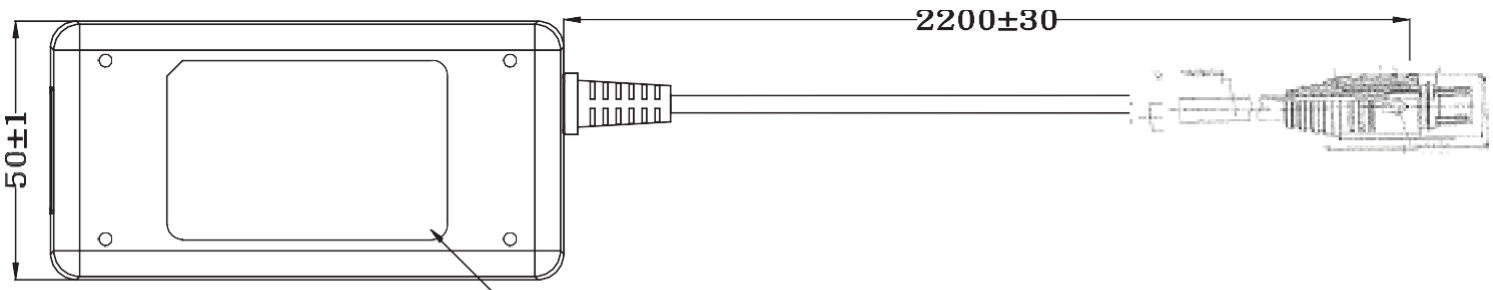
8.6 External Apperance : As drawing below (Scale → mm)



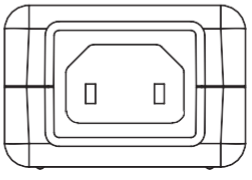
TOP VIEW



SIDE VIEW



BOTTOM VIEW



FRONT-VIEW

A. Line Regulation Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
90Vac / 50 % Load	22.80V ~ 25.20V	24.192 V	24.015 V	24.104 V
115Vac / 50 % Load	22.80V ~ 25.20V	24.192 V	24.015 V	24.104 V
132Vac / 50 % Load	22.80V ~ 25.20V	24.192 V	24.015 V	24.104 V
180Vac / 50 % Load	22.80V ~ 25.20V	24.185 V	23.993 V	24.104 V
230Vac / 50 % Load	22.80V ~ 25.20V	24.185 V	23.993 V	24.104 V
264Vac / 50 % Load	22.80V ~ 25.20V	24.185 V	23.993 V	24.104 V

B. Efficiency Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac	87.403% Min.	90.31 %	90.22 %	90.19 %
230Vac	87.403% Min.	90.12 %	90.04 %	90.05 %

C. Load Regulation Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 0 % Load	22.80V ~ 25.20V	24.281 V	24.127 V	24.212 V
115Vac / 50 % Load	22.80V ~ 25.20V	24.192 V	24.015 V	24.104 V
115Vac / 100 % Load	22.80V ~ 25.20V	24.104 V	23.893 V	23.910 V
230Vac / 0 % Load	22.80V ~ 25.20V	24.278 V	24.127 V	24.212 V
230Vac / 50 % Load	22.80V ~ 25.20V	24.185 V	23.993 V	24.104 V
230Vac / 100 % Load	22.80V ~ 25.20V	24.088 V	23.872 V	23.910 V

D. Ripple & Noise Test

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	240mVpp Max.	78.1 mV	71.2 mV	74.3 mV
230Vac / 100 % Load	240mVpp Max.	66.8 mV	71.2 mV	72.2 mV

E. Inrush Current

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
230Vac / 100 % Load	70A Max	62.9 A	63.5 A	62.1 A

F. Over Current Protection

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	I out *200% MAX	150 %	149 %	148 %
230Vac / 100 % Load	I out *200% MAX	156%	155 %	154 %

G. 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

H. Input Power Consumption(No Load)

Test Result ：

Test condition	Spec.	Reading 1	Reading 2	Reading 3
230Vac / 0 % Load	≦ 0.1 W	0.07W	0.07W	0.07W

INSTALLATION INSTRUCTION

Manufacturer: Adapter Technology Co., Ltd

ATM036T-Ax (where x = 050, 075, 090, 120, 150, 180, 240) (Class II)

1. The switching power supply is intended used for medical electrical equipment.
   The equipment has not been evaluated applied parts that suitable for direct patient contact! It shall be evaluated for the end system configuration.

2. Circuit diagrams, descriptions and component parts list will be made available only upon request when servicing is required. Please, contact the address below for related information.
   Adapter Technology Co., Ltd.
   6F-9, No.258, Liancheng Rd., Zhonghe District, New Taipei City 235, Taiwan

3. Environmental conditions:

Environmental Conditions	Operation	Temperature (°C)	0 to +40°C
		Relative Humidity (%)	20 to 80%RH
		Atmospheric Pressure (kPa)	540 to 1060hPa
	Storage/Transportation	Temperature (°C)	-20 to +80°C
		Relative Humidity (%)	10 to 90%RH

4. Input Rating: AC 100-240Vac, 50-60Hz, 1.0-0.45A

5. The output load shall not exceed the rating:
   Output:

Model	O/P Voltage	O/P Current
ATM036T-A050	5V	5A
ATM036T-A075	7.5	4A
ATM036T-A090	9V	4A
ATM036T-A120	12V	3A
ATM036T-A150	15V	2.4A
ATM036T-A180	18V	2A
ATM036T-A150	24V	1.5A

6. Any inspection and maintenance tasks must be carried out only by authorized by the manufacturer service personnel.

7. The classification of the equipment is:

- Class II
- The equipment has not been evaluated applied parts
- Not AP or APG type
- Not intended for use in the presence of flammability an aesthetic mixture with air or with oxygen or nitrous oxide
- Intended for continuous operation
- Protection class IPX0

8. The equipment provided with two fuses (F1), fuse rated T2AL or T4AL or T6.3AL, 250Vac, size 8.35 x 4.3 x 7.7 mm.

9. Expected service life of the power supply: 100,000 hours

10. WARNING: Do not modify this equipment without authorization of the manufacturer

11.  "Do not dispose this product in the household waste, please, follow the respective national law for proper disposal."

12. LED indicate: Green → Power On