

Features

- Universal Input 100~240VAC 50/60Hz
- IEC/EN/ANSI/AAMI ES 60601-1 (ED 3.1)
- EMC: IEC60601-1-2:2014(ED 4.0)
- Safety Approvals: cULus / UKCA / CB / PSE / FCC / CE / TUV / RoHS / REACH
- Means of Protection: 2 X MOPP
- Touch Current: < 100µA
- Single Output to 90W
- Regulated Output with Low Ripple Noise



Ideal Power's 44ATM090T-Pxyz-RS 90W AC/DC External Desktop Medical Power Supply (PSU) Series are certified to cULus, UKCA, CB, PSE, FCC, CE, TUV, RoHS, REACH & EN 60601-1/IEC 60601-1/ES 60601-1 Standards and comply with (EU) 2019/1782, Level VI Efficiency Regulations. These are primarily used in Medical, ITE, Audio & Video Industries and customised solutions are available upon request.

Models

Model Number	RS Part Number	Output Voltage	Output Current	Output Power
44ATM090T-P120-RS	229-7876	12V DC	7A	84W
44ATM090T-P150-RS	229-7878	15V DC	6A	90W
44ATM090T-P180-RS	229-7879	18V DC	5A	90W
44ATM090T-P190-RS	229-7881	19V DC	4.74A	90W
44ATM090T-P240-RS	229-7883	24V DC	3.75A	90W

General Specification

Type	Switched Mode Power Supply
Input Connector	IEC 320-C14
Output Connection	2.5x5.5x11.0mm +ve inner/centre
Number of Outputs	1
Energy Efficiency Level	VI
Mounting Style	Desktop
MTBF	300,000 hours calculated at 25°C, by Telcoria SR-332
Power Indicator	LED Indicator for power on
Cable Length	1500mm(±30mm)
Cable Type	16AWG/18AWG (Depending on model)
Medical Approved	Yes

Mechanical Specifications

Housing Material	Fully Enclosed Plastic Case
Overall Dimensions	160mm x 64mm x 35mm
Overall Length	160mm
Overall Depth	64mm
Overall Width	35mm
Weight	460g

Input Specifications

Rated Input Voltage	100~240Vac (±10%)
Rated Frequency	50/60Hz
Efficiency Level VI	Level VI / Efficiency (EU) 2019/1782
Input Current	1.2A-0.5A
Inrush Current	80A Max. / 230Vac (Cold Start At 25°C, Full Load)
Touch Current	Less than 100µA
Input Protection	Internal Primary Current Fuse

Output Specifications

Output Regulation	±5%
Ripple & Noise (max.)	1% Vp-p Max. for Output Voltage @ Full Load
Voltage Tolerance	±5%
Load Regulation	±5%
No Load Power Consumption	<0.21W
Hold-up Time	10mS @ Full Load
Transient Response	0.5mS for 50% Load Change (Typical)
Number of Outputs	1
Insulation Class	I
Dielectric Strength	Primary to Secondary 4,000Vac for 1 Minutes
Isolation Resistance	10MΩ for 500Vdc
Over Circuit Protection	Auto-recovery
Over Voltage Protection	V out * 150% MAX., latch off
Over Current Protection	I out * 170% MAX., auto-recovery

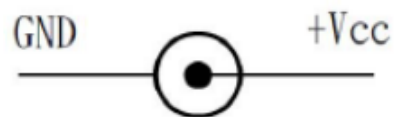
Protection Category

Means of Protection	2 X MOPP
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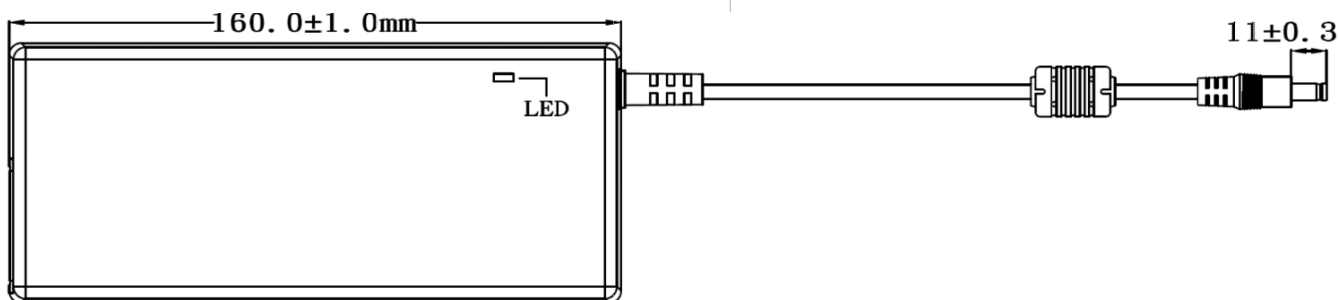
Approvals

Compliance/Certifications	CB / cULus/ FCC / CE / UKCA / T-mark / TUV / PSE
Safety Standard	IEC/EN/ANSI/AAMI ES 60601-1
EMC Emission:	FCC Part 18 FCC MP-5 IEC 60601-1-2: 2014 EN 60601-1-2: 2015 CISPR 11: 2009 + A1: 2010 EN 55011: 2009 + A1: 2010 (Group 1, Class B) IEC 61000-4-2: 2008; EN 61000-4-2: 2009 IEC 61000-4-3: 2006 + A1: 2007 + A2: 2010. EN 61000-4-3: 2006 + A1: 2008 + A2: 2010 IEC 61000-4-4: 2012; EN 61000-4-4: 2012 IEC 61000-4-5: 2014; EN 61000-4-5: 2014 IEC 61000-4-6: 2013; EN 61000-4-6: 2014 IEC 61000-4-8: 2009; EN 61000-4-8: 2010 IEC 61000-4-11: 2004; EN 61000-4-11: 2004 IEC 61000-3-2: 2014; EN 61000-3-2: 2014 IEC 61000-3-3: 2013; EN 61000-3-3: 2013

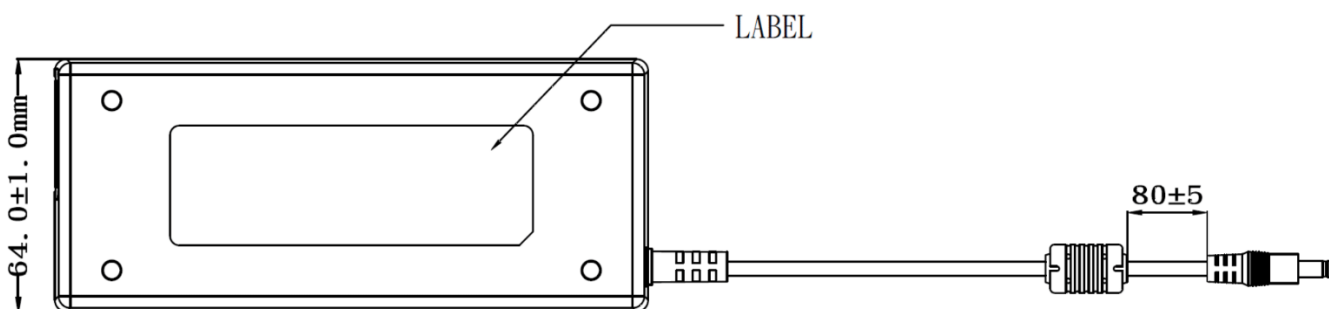
Mechanical Drawing



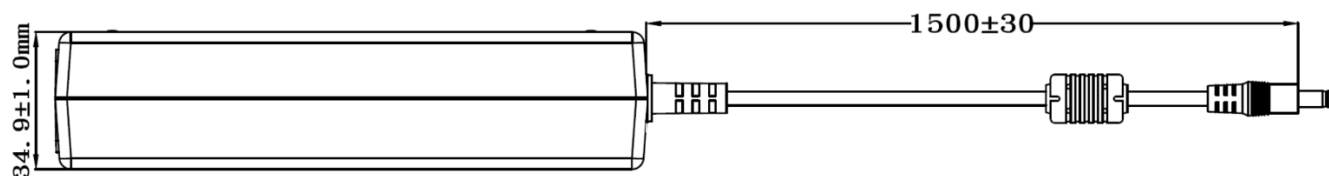
Output cable plug pin assignment



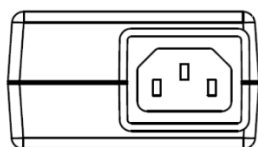
TOP-VIEW



BOTTOM-VIEW

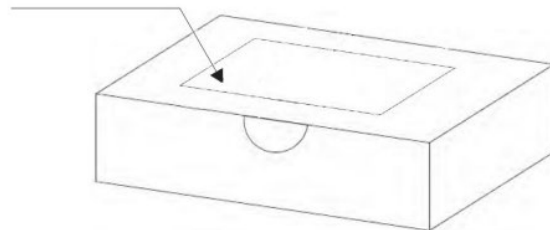


SIDE-VIEW



FRONT-VIEW

Labels



Barcode = Part Number (e.g. 123-4567)

Test Results
B. Efficiency test
Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac	88 % min.	90.18 %	89.85 %	89.76 %
230 Vac	88 % min.	89.88 %	89.64 %	89.45 %
230Vac@10% load	79 % min.	88.39 %	88.27 %	88.21 %

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

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
115 Vac / 0 % Load	22.8 V ~ 25.2 V	24.26 V	24.39 V	24.28 V
115 Vac / 50 % Load	22.8 V ~ 25.2 V	24.04 V	24.15 V	24.10 V
115 Vac / 100 % Load	22.8 V ~ 25.2 V	23.82 V	23.90 V	23.86 V
230 Vac / 0 % Load	22.8 V ~ 25.2 V	24.26 V	24.39 V	24.28 V
230 Vac / 50 % Load	22.8 V ~ 25.2 V	24.04 V	24.15 V	24.10 V
230 Vac / 100 % Load	22.8 V ~ 25.2 V	23.83 V	23.90 V	23.86 V

D. Ripple & Noise test
Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100 % Load	240 mV _{p-p} max.	121 mV _{p-p}	124 mV _{p-p}	116 mV _{p-p}
230 Vac / 100 % Load	240 mV _{p-p} max.	113 mV _{p-p}	117 mV _{p-p}	104 mV _{p-p}

E. Inrush current
Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
230 Vac / 100 % Load	80 A max.	60.8 A	61.5 A	63.8 A

Test Results

F. Over voltage protection

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100 % Load	Vout*150 % max.	127 %	128 %	128 %
230 Vac / 100 % Load	Vout*150 % max.	127 %	128 %	128 %

G. Over current protection

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac	Iout*170 % max.	137 %	134 %	134 %
230 Vac	Iout*170 % max.	137 %	134 %	134 %

H. Short circuit protection

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac	Auto recovery	Ok	Ok	Ok
230 Vac	Auto recovery	Ok	Ok	Ok

I. Input power consumption (no load)

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 0 % Load	≤ 0.21 W	0.09 W	0.09 W	0.09 W
230 Vac / 0 % Load	≤ 0.21 W	0.10 W	0.11 W	0.11 W

J. Power factor

Test result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100 % Load	≥ 0.9	0.993	0.993	0.993
230 Vac / 100 % Load	≥ 0.9	0.946	0.947	0.947

Test Results
Efficiency Test Report

- A. Model Number : ATM090T-X240 (24.0V / 3.75A / 90.0W) (X = A or P)
- B. DC Power Cord : UL1185, 18AWG, L=1500mm
- C. Average Efficiency
- ERP (LOT 7) : 88.0 % Min.
 - DoE Level VI : 88.0 % Min.
 - GEMS Level VI : 88.0 % Min.
 - CoC Tier 2 : 89.0 % Min.
 - CoC Tier 2 (10% Load) : 79.0 % Min.
- D. NO Load Power Consumption
- ERP (LOT 7) : 0.21W Max.
 - DoE Level VI : 0.21W Max.
 - GEMS Level VI : 0.21W Max.
 - CoC Tier 2 : 0.15W Max.
- E. Testing Equipment
- a. AC Power Source : " EXTECH " 6600
 - b. Electronic Load : " PRODIGIT " 3356
 - c. Power Meter : " YOKOGAWA " WT-210
 - d. Digital Meter : " FLUKE " 45

F. AC Input Voltage : 115Vac/60Hz

Load Conditions	100% * I ₀	75% * I ₀	50% * I ₀	25% * I ₀	10% * I ₀	0% * I ₀
Reported Quantity						
Rms Output Current (mA)	3750mA	2813mA	1875mA	938mA	375mA	0mA
Rms Output Voltage (V)	23.900V	23.990V	24.090V	24.180V	24.240V	24.270V
Active Output Power (W)	89.63W	67.47W	45.17W	22.67W	9.09W	0.00W
Rms Input Voltage (V)	115V	115V	115V	115V	115V	115V
Rms Input Current (A)	885.30mA	662.80mA	445.90mA	423.70mA	181.64mA	20.62mA
Rms Input Power (W)	101.17W	75.51W	50.36W	25.04W	9.96W	0.08W
T.H.D. of the input current (%)	7.6A%	9.3A%	12.5A%	166.8A%	180.4A%	10.0A%
True Power Factor (PF)	0.99	0.99	0.98	0.51	0.48	0.03
Power Consumed by UUT (W)	11.55W	8.04W	5.19W	2.37W	0.87W	0.08W
Efficiency	88.59%	89.35%	89.69%	90.53%	91.27%	-
Average Efficiency	89.54%				91.27%	-

G. AC Input Voltage : 230Vac/50Hz

Load Conditions	100% * I ₀	75% * I ₀	50% * I ₀	25% * I ₀	10% * I ₀	0% * I ₀
Reported Quantity						
Rms Output Current (mA)	3750mA	2813mA	1875mA	938mA	375mA	0mA
Rms Output Voltage (V)	23.900V	23.990V	24.090V	24.180V	24.240V	24.270V
Active Output Power (W)	89.63W	67.47W	45.17W	22.67W	9.09W	0.00W
Rms Input Voltage (V)	230V	230V	230V	230V	230V	230V
Rms Input Current (A)	454.14mA	351.10mA	248.10mA	254.48mA	116.08mA	33.20mA
Rms Input Power (W)	100.11W	75.59W	50.90W	25.17W	10.28W	0.09W
T.H.D. of the input current (%)	17.8A%	22.9A%	30.3A%	200.9A%	188.2A%	4.8A%
True Power Factor (PF)	0.96	0.93	0.89	0.43	0.38	0.01
Power Consumed by UUT (W)	10.49W	8.12W	5.73W	2.50W	1.19W	0.09W
Efficiency	89.53%	89.26%	88.74%	90.06%	88.39%	-
Average Efficiency	89.40%				88.39%	-

