

36.0W

AC ADAPTER

SPECIFICATION

Model No. : ATS036T-W120U(Level VI)

Description : 12.0Volts / 3.0Amps

Part No. :

Version : A1

Date : 11– Jan.– 2023

Approved	Reviewed	Checked	Prepared	Sales

1. Feature :

- ◆ **Input** : Universal 100 ~ 240 Vac / 50 ~ 60 Hz Input, without any slide switch.
- ◆ **Output** : 12.0V / 0~3.0A
- ◆ **Case Dimension** : 79(L) * 34 (W) * 74(H) mm
- ◆ **Efficiency** : Eff (av) $\geq$ 87.40%
Eff $\geq$ 78.303% (At 230V/50Hz input@10% load for CoC Tier2)
- ◆ **Safety** : UL / CUL / PSE / BSMI
- ◆ **EMI** : FCC (conduction & radiation Class B)
- ◆ **Protection** : OVP (Over Voltage Protection)、SCP (Short Circuit Protection)、
OCP (Over Current Protection)
- ◆ Suitable for usage at I.T.E., industrial controller
- ◆ Meet DoE VI / ErP (Lot 7) / 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) (ac source chroma 6530)
2.5 Efficiency	Eff (av) $\geq$ 87.40 % (At 115 Vac & 230 Vac) Eff $\geq$ 78.303% (At 230V/50Hz input@10% load for CoC Tier2)
2.6 Power Consumption	Pi $\leq$ 0.1 W (At 115 Vac & 230 Vac & No Load)

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

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	12.0V $\pm$ 5%
	Current	3.0A Max.
	Regulation	11.4Vmin. ~ 12.0Vtyp. ~ 12.6Vmax.
	Ripple & Noise	120 mVpp Max.
	Total Power	36.0W 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. (47 μ F) at output connector terminals. (At nominal line voltage, Full Load)

4. Protection :

4.1 Over Voltage Protection (OVP)	V out *180%(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 requirement :

5.1. Dielectric strength : Cut off current 10 mA

(1)	Primary to secondary	3000Vac for 1 minute
-----	----------------------	----------------------

5.2. Insulation resistance :

(1)	Primary to secondary	10 MΩ for 500Vdc
-----	----------------------	------------------

5.3 Leakage current : Less than 0.25 mA

6. Operation and Environment Performance :

6.1 Temperature Range

Operating	- 20 °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. : 300,000Hrs.(Calculated Hours at 25°C,By Telcordia SR-332)

8.Mechanical :

8.1 Weight : 160 g Typical

8.2 Cable Type : Black UL2468 18AWG

(Wire + Plug)

Plug : $\varnothing 5.5 \times \varnothing 2.1 \times 9.5 \text{mm}$

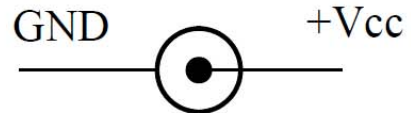
(Tuning Fork & Cannelure)

8.3 Cable Length : 1500mm

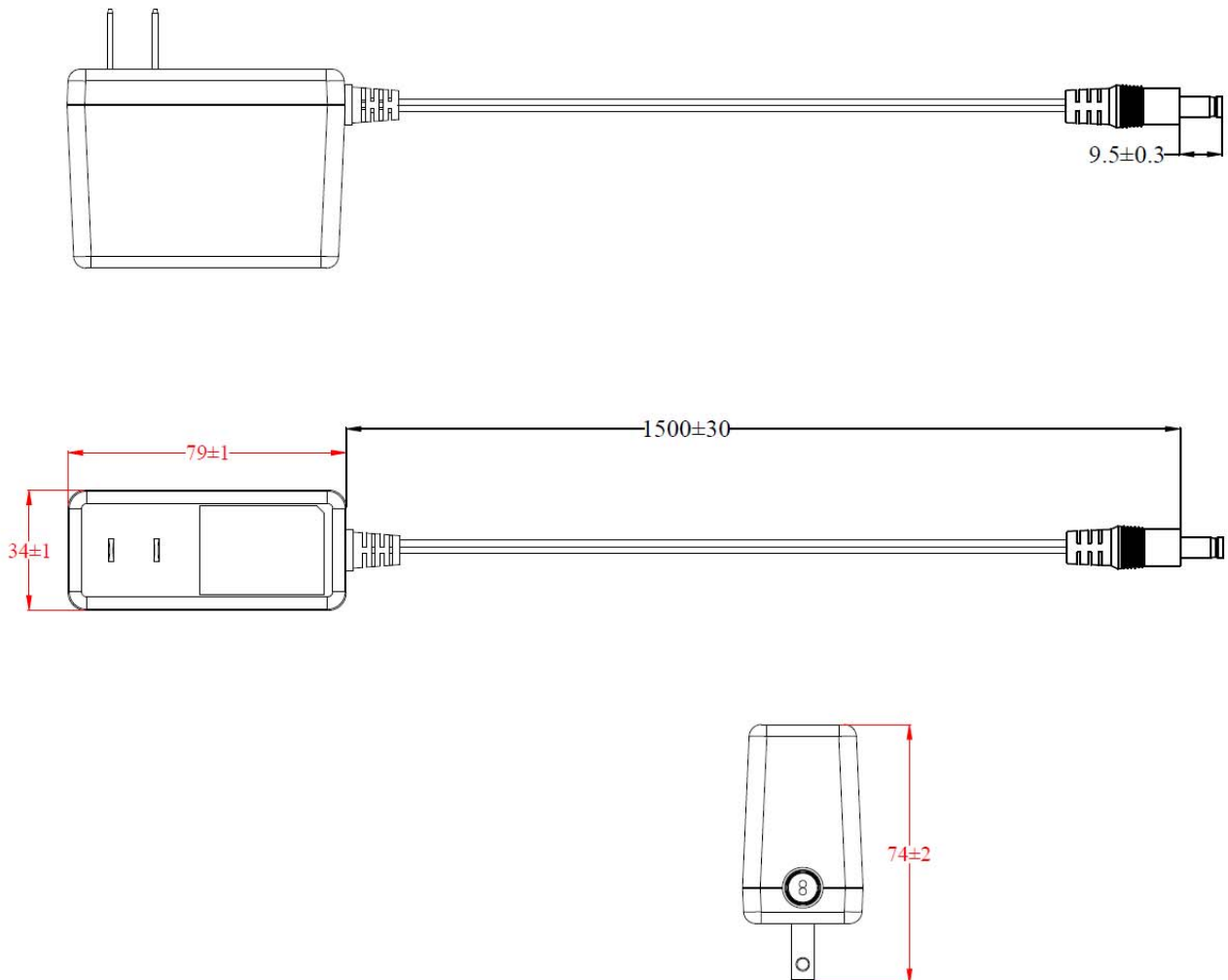
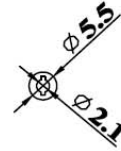
8.4 Case Dimension : 79mm(L)*34mm(W)*74mm(H)

8.5 Material Flammability : UL 94V-0

8.6 External Apperance : As drawing below (Scale $\rightarrow$ mm)



Output Cable Plug Pin Assignment

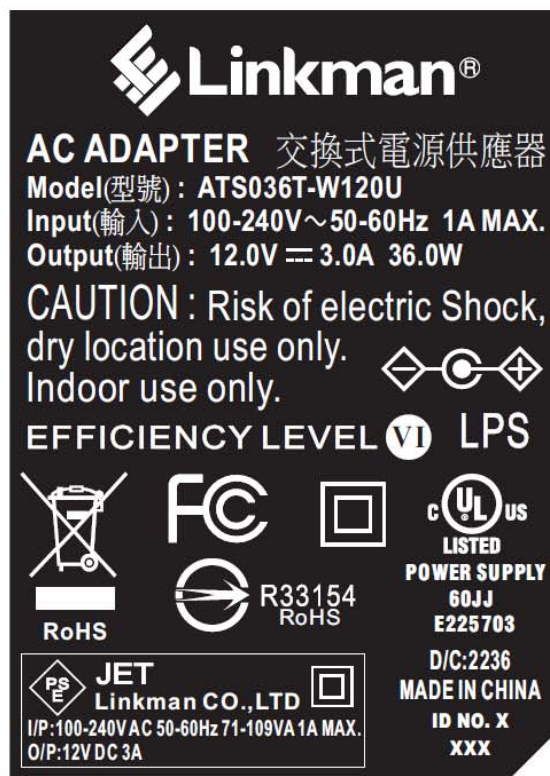


8.7 Spec. Label Materials : Metalized Polyester Label (Silver Gloss)
 Color : Black Background with Silver Printing
 Label Dimension : 34.4mm(L)*24.4mm(W)+/-0.1mm
 Label Thickness : 75#

100%



300%



Label Part No.:9443127180
REV.: A

A. Line Regulation Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
90Vac / 50 % Load	11.4 V ~ 12.6 V	12.09 V	12.07 V	12.11 V
115Vac / 50 % Load	11.4 V ~ 12.6 V	12.09 V	12.07 V	12.11 V
132Vac / 50 % Load	11.4 V ~ 12.6 V	12.09 V	12.07 V	12.11 V
180Vac / 50 % Load	11.4 V ~ 12.6 V	12.09 V	12.07 V	12.11 V
230Vac / 50 % Load	11.4 V ~ 12.6 V	12.09 V	12.07 V	12.11 V
264Vac / 50 % Load	11.4 V ~ 12.6 V	12.09 V	12.07 V	12.11 V

B. Efficiency Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac	87.40 % Min.	88.23 %	88.34 %	88.41 %
230Vac	87.40 % Min.	88.01 %	88.12 %	88.18 %
230Vac@10% load	78.30 % Min.	85.38 %	85.40 %	85.35 %

$$\text{Eff (av)} = \frac{E1 + E2 + E3 + E4}{4}$$

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

C. Load Regulation Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 0 % Load	11.4 V ~ 12.6 V	12.23 V	12.20 V	12.25 V
115Vac / 50 % Load	11.4 V ~ 12.6 V	12.09 V	12.07 V	12.11 V
115Vac / 100 % Load	11.4 V ~ 12.6 V	11.95 V	11.94 V	11.98 V
230Vac / 0 % Load	11.4 V ~ 12.6 V	12.23 V	12.20 V	12.25 V
230Vac / 50 % Load	11.4 V ~ 12.6 V	12.09 V	12.07 V	12.11 V
230Vac / 100 % Load	11.4 V ~ 12.6 V	11.95 V	11.94 V	11.98 V

D. Ripple & Noise Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	120 mVpp Max.	83.8 mV	89.6 mV	74.0 mV
230Vac / 100 % Load	120 mVpp Max.	83.6 mV	89.7 mV	74.4 mV

E. Inrush Current

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
240Vac / 100 % Load	70A Max	60.8 A	53.1 A	54.5 A

F. Output Current Protection

Test Result Test Result

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac	Iout*200%(Max)	154 %	148 %	147 %
230Vac	Iout*200%(Max)	153 %	144 %	142 %

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

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 0 % Load	≤ 0.10 W	0.033 W	0.034 W	0.033 W
230Vac / 0 % Load	≤ 0.10 W	0.055 W	0.056 W	0.055 W

Efficiency Test Report

A.	Model Number	: ATS036T-W120Z	12.0V	3.00A	36.00W
B.	DC Power Cord	: UL2468 18AWG , 1.5M			
C.	Average Efficiency	:			
	Erp (Lot 7)	$0.071 \cdot \ln(P_{out}) - 0.0014 \cdot P_{out} + 0.67 =$	87.403%	Min.	
	DoE Level VI	$0.071 \cdot \ln(P_{out}) - 0.0014 \cdot P_{out} + 0.67 =$	87.403%	Min.	
	GEMS Level VI	$0.071 \cdot \ln(P_{out}) - 0.0014 \cdot P_{out} + 0.67 =$	87.403%	Min.	
	CoC Tier 2	$0.071 \cdot \ln(P_{no}) - 0.00115 \cdot P_{no} + 0.67 =$	88.303%	Min.	
	CoC Tier 2 (10% Load)	$0.071 \cdot \ln(P_{no}) - 0.00115 \cdot P_{no} + 0.57 =$	78.303%	Min.	
D.	NO Load Power Consumption	:			
	Erp (Lot 7)	0.1W Max.			
	DoE Level VI	0.1W Max.			
	GEMS Level VI	0.1W Max.			
	CoC Tier 2	0.075W Max.			
E.	Testing Equipment	:			
	a. AC Power Source	: " Zentech " 2700M-10			
	b. Electronic Load	: " PRODIGIT " 3311C			
	c. Power Meter	: " YOKOGAWA " WT-210A			
	d. Digital Meter	: " FLUKE " 45			
F.	AC Input Voltage	: 115Vac/60Hz			

Load Conditions Reported Quantity	100% * I ₀	75% * I ₀	50% * I ₀	25% * I ₀	10% * I ₀	0% * I ₀
Rms Output Current(mA)	3000mA	2250mA	1500mA	750mA	300mA	0mA
Rms Output Voltage(V)	11.950V	12.020V	12.100V	12.170V	12.210V	12.240V
Active Output Power(W)	35.85W	27.05W	18.15W	9.13W	3.66W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V	115V
Rms Input Current(A)	0.661A	0.513A	0.375A	0.218A	0.098A	0.014A
Rms Input Power(W)	41.380W	30.840W	20.500W	10.270W	4.194W	0.033W
True Power Factor (PF)	0.540	0.513	0.471	0.406	0.367	0.020
Total Harmonic Distortion of the input current	140.1A%	153.9A%	176.3A%	214.8A%	242.1A%	17.8A%
Power Consumed by UUT(W)	5.530W	3.795W	2.350W	1.143W	0.531W	0.033W
Active Efficiency	86.636%	87.695%	88.537%	88.875%	87.339%	*
Average Efficiency	87.936%				87.339%	*

G. AC Input Voltage : 230Vac/50Hz

Load Conditions Reported Quantity	100% * I ₀	75% * I ₀	50% * I ₀	25% * I ₀	10% * I ₀	0% * I ₀
Rms Output Current(mA)	3000mA	2250mA	1500mA	750mA	300mA	0mA
Rms Output Voltage(V)	11.950V	12.020V	12.100V	12.170V	12.210V	12.240V
Active Output Power(W)	35.85W	27.05W	18.15W	9.13W	3.66W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V	230V
Rms Input Current(A)	0.456A	0.357A	0.251A	0.138A	0.063A	0.023A
Rms Input Power(W)	41.050W	30.750W	20.530W	10.365W	4.315W	0.055W
True Power Factor (PF)	0.388	0.367	0.354	0.325	0.292	0.010
Total Harmonic Distortion of the input current	243.1A%	257.2A%	259.5A%	262.4A%	198.5A%	6.8A%
Power Consumed by UUT(W)	5.200W	3.705W	2.380W	1.238W	0.652W	0.055W
Active Efficiency	87.333%	87.951%	88.407%	88.061%	84.890%	*
Average Efficiency	87.938%				84.890%	*

Tester : Jordan

ATS036T-W120U Derating Curve

