



**Specification for Approval**

**Customer** : 株式会社アコン

**Part Name** : AC Adapter

**Description** : 12.0 Volts / 33.34 Amps

**Model No.** : ATM450A2-P120 (Level VI)

**Customer P / N** :

**Product P / N** :

**Issued Date** : 16 – May – 2023

**Version** : 01

**Issued Stamp** :

**Customer's approval signature**

**ADAPTER TECHNOLOGY CO.,LTD.**

**Office (Taiwan) : 6F-9, No.258, Liancheng Rd., Zhonghe District, New Taipei City 235,Taiwan (R.O.C.)**

**TEL : +886-2-8226-2279**

**FAX : +886-2-8226-2238**

**E-mail : service\_tw@adaptech.com.tw ; service@adaptech.com.tw**

**Factory (China) : BOAYANG ELECTRONICS CO., LTD.**



**450.08W  
AC Adapter  
SPECIFICATION**

**Model No.** : **ATM450A2-P120 (Level VI)**

---

**Description** : **12.0 Volts / 33.34 Amps**

---

**Part No.** :

---

**Version** : **01**

---

**Date** : **16 – May – 2023**

---

Approved	Reviewed	Checked	Prepared	Sales



■ **Approval documents / spec. revised records**

■ Customer : 株式会社アコン

■ Model no : ATM450A2-P120

■ Original documents content : Spec. 11 pages , Attachment 0 pages

Revised Records : No.	Date	Description ( Before / After )	Page(s) Revised	Revised By (Adapter/Customer)	Version
1	May/16/2023	Issue	-	Satoshi	01



## 1. Feature :

- ◆ **Input** : Universal 100 ~ 240 Vac / 50 ~ 60 Hz Input, without any slide switch.
- ◆ **Output** : +12.0 V / 0 ~ 33.34 A
- ◆ **Case Dimension** : 254.0 (L) \* 116.0 (W) \*47.0 (H) mm ± 1 mm
- ◆ **Efficiency** : Eff<sub>(av)</sub> ≥ 88 %  
Eff ≥ 75 % @ 10 % load
- ◆ **Safety** : UL / cUL / GS / BSMI / PSE / UKCA
- ◆ **EMC** : CE / FCC (conduction & radiation Class B)
- ◆ **Protection** : OVP (Over Voltage Protection) 、 SCP (Short Circuit Protection) 、  
OCP (Over Current Protection) 、OTP (Over Temperature Protection)
- ◆ **High frequency and Gallium Nitride Based design, less power consumption**
- ◆ **Suitable for usage at I.T.E., industrial controller**

## 2. Input :

2.1 Voltage	Universal 100 ~ 240 Vac , single phase
2.2 Frequency	50 ~ 60 Hz
2.3 Current	5.3 A Max.
2.4 Inrush Current	150 A max. / 240 Vac (Cold start at 25 °C , full load) ( ac source chroma 6530 )
2.5 Efficiency	Eff <sub>(av)</sub> ≥ 88 % (At 115 Vac & 230 Vac) Eff ≥ 75 % @ 10 % load (At 230 Vac)
2.6 Power Consumption	Pi ≤ 0.5 W (At 115 Vac & 230 Vac & At No load)
2.7 Power Factor (PF)	Pi ≥ 0.9 (At 115 Vac & 230 Vac, At Full load)

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

$E_1$ =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

## 3. Output :

3.1 DC Output	Voltage	+12.0 V ± 5 %
	Current	33.34 A Max.
	Regulation	11.4 Vmin. ~ 12.0 Vtyp. ~ 12.6 Vmax.
	Ripple & Noise	120 mVp-p max.
	Total Power	400.08 W 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. (47 μF) at output connector terminals. (At nominal line voltage, full load)



## 4. Protection :

4.1 Over Voltage Protection (OVP)	Vout * 150% max., latch off. (50% Load)
4.2 Over Current Protection(OCP)	Iout * 150% max., autorecovery.
4.3 Short Circuit Protection (SCP)	Autorecovery.
4.4 Over Temperature Protection (OTP)	Shut down.

## 5. Safety requirement :

5.1 Dielectric Strength : Cut off current 10 mA

(1)	Primary to secondary	3000 Vac (RMS) for 1 minute
(2)	Primary to Frame Ground	1770 Vac (RMS) for 1 minute
※ Secondary return isolated to FG		

5.2 Insulation resistance :

(1)	Primary to secondary	10 MΩ for 500 Vdc
(2)	Primary to Frame Ground	10 MΩ for 500 Vdc
※ Secondary return isolated to FG		

5.3 Leakage Current : Less than 0.1 mA

5.4 Grounding test : < 0.1 Ω

## 6. Operation and environment performance :

6.1 Temperature range

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

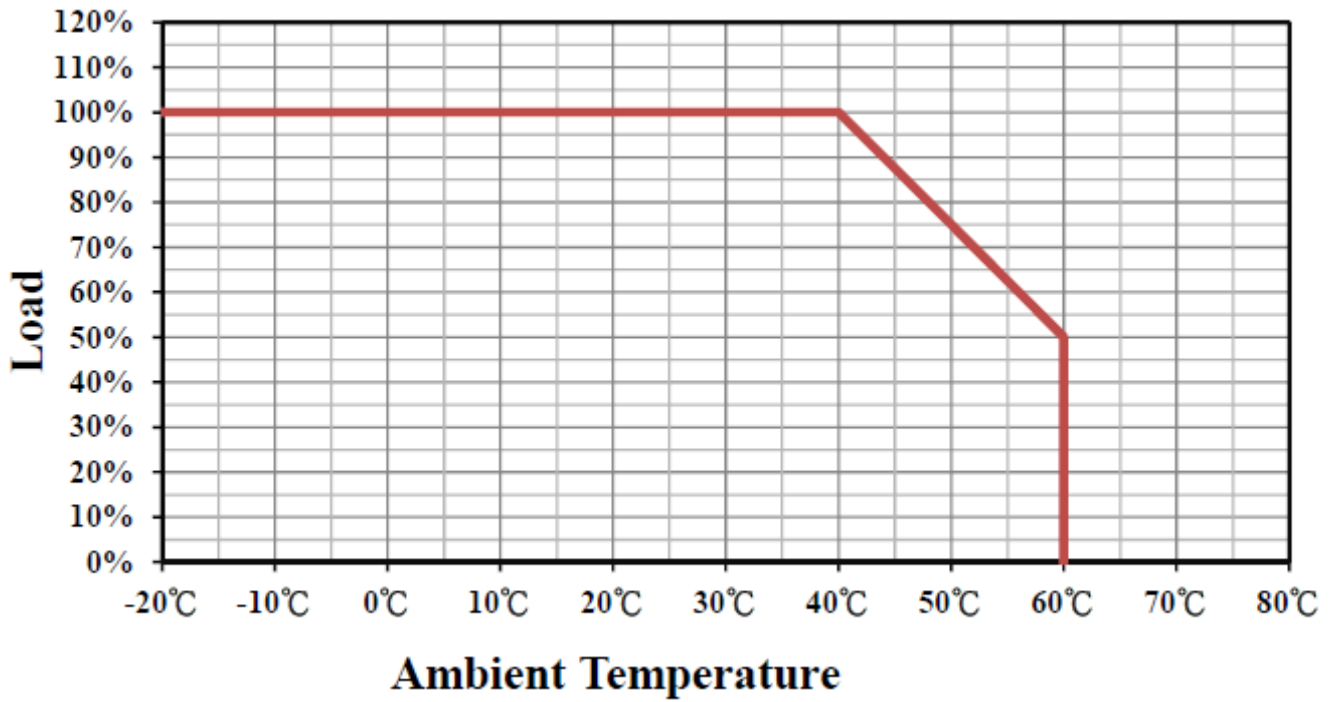
6.2 Humidity range (non-condensing)

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

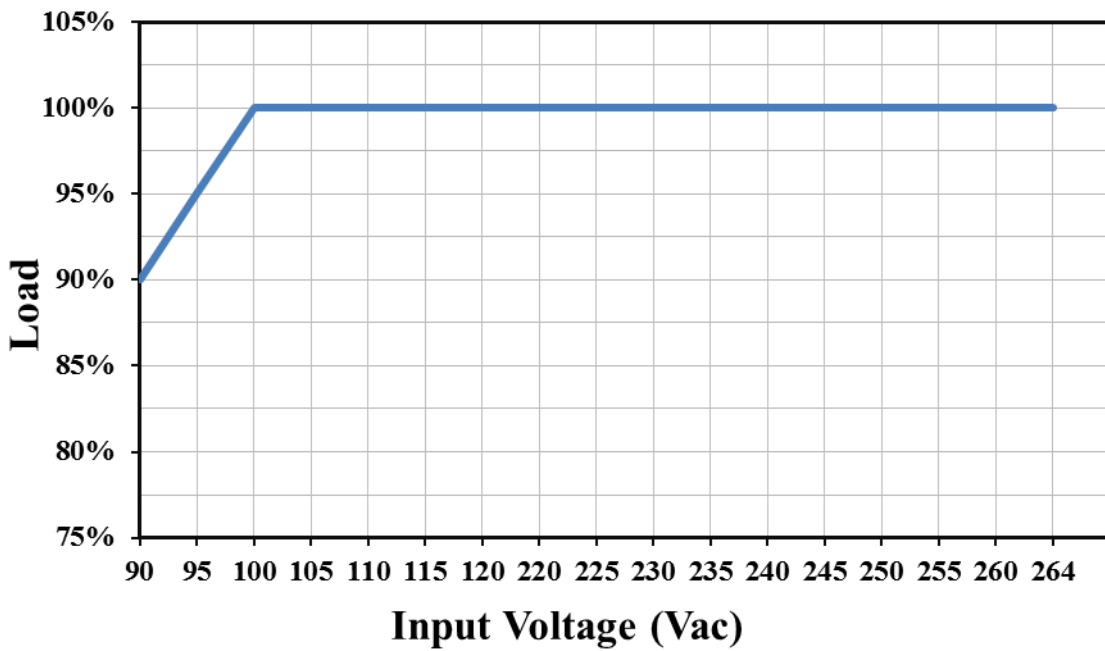
6.3 Cooling : By natural air.

7. M.T.B.F. : 300,000 Hrs.(Calculated Hours at 25 °C , By Telcordia SR-332)

**8. Derating Curve :**



**9. Static Characteristics :**



## 10. Mechanical :

10.1 Weight : 1600 g Ref.

10.2 Cable type : Black UL 2464 18AWG\* 12C  
(Wire + Housing)

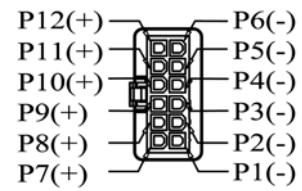
Plug : 12 PIN Housing

10.3 Cable length : 800 mm

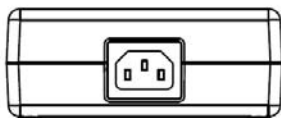
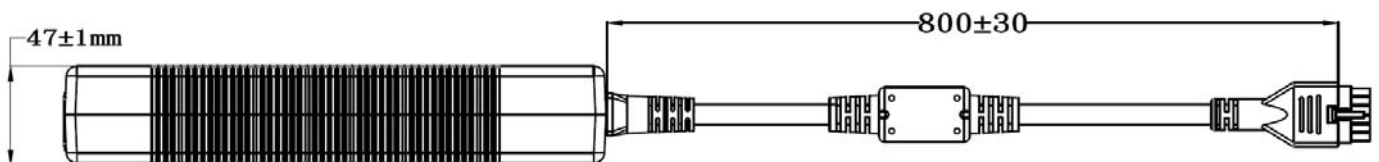
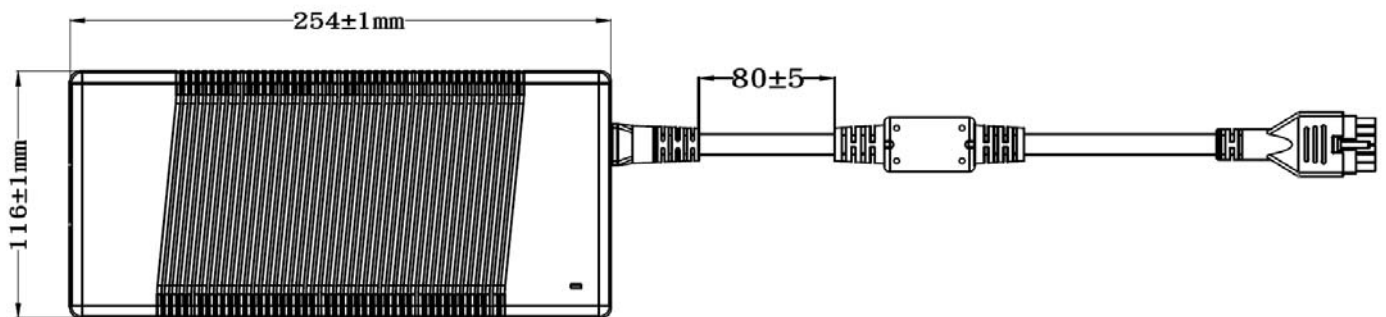
10.4 Case dimension : 254.0 (L) \* 116.0 (W) \*47.0 (H) mm ± 1 mm

10.5 Material flammability : UL 94V-0

10.6 External appearance : As drawing below ( Scale → mm )



Output Cable Plug Pin Assignment



FRONT-VIEW

## 11. Label :

- 11.1 Label materials : Metalized polyester label (silver gloss)
- 11.2 Color : Black background with silver printing
- 11.3 Label dimension : 174.5 (L) \* 68.5 (W)mm ± 0.2 mm
- 11.4 Label thickness : 75 #

100%



## ADAPTER TECH.

P12(+)	—	P6(-)
P11(+)	—	P5(-)
P10(+)	—	P4(-)
P9(+)	—	P3(-)
P8(+)	—	P2(-)
P7(+)	—	P1(-)

**AC ADAPTER 交換式電源供應器**  
**Model (型號) : ATM450A2-P120**  
**INPUT (輸入) : 100-240V ~ 50-60Hz 5.3A**  
**OUTPUT (輸出) : 12V = 33.34A 400.08W**

For use with information technology equipment only  
 Laite on Liitettävä suojakoskettimilla varustettuun pistorasiaan  
 Apparaten må tilkobles jordet stikkontakt  
 Apparaten skall anslutas till jordat uttag  
 Apparats stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord



**JET 株式会社アコン**

I/P : 100-240V AC 50-60Hz 470VA-490VA 5.3A  
 O/P : 12.0V DC 33.34A 400.08W 必ず接地接続を行ってください。

D/C:2317  
 MADE IN CHINA  
 ID NO . A  
 XXX

FC CE UK CA VI C UL US LISTED POWER SUPPLY 60JJ E225703 RoHS

R33154 RoHS

RoHS

FOR INDOOR USE ONLY

"XXX"

Label supplier's code  
 It is accurate that the number  
 of words depends on the real  
 finished product





## A. Line Regulation Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
90 Vac / 50 % Load	11.4 V ~ 12.6 V	11.9 V		
115 Vac / 50 % Load	11.4 V ~ 12.6 V	11.9 V		
132 Vac / 50 % Load	11.4 V ~ 12.6 V	11.9 V		
180 Vac / 50 % Load	11.4 V ~ 12.6 V	11.9 V		
230 Vac / 50 % Load	11.4 V ~ 12.6 V	11.9 V		
264 Vac / 50 % Load	11.4 V ~ 12.6 V	11.9 V		

## B. Efficiency Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac	88 % Min.	90.3%		
230 Vac	88 % Min.	91.0%		
230 Vac@10 % load	75 % Min.	86.7%		

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

$E_1$ =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
115 Vac / 0 % Load	11.4 V ~ 12.6 V	12.1 V		
115 Vac / 50 % Load	11.4 V ~ 12.6 V	11.9 V		
115 Vac / 100 % Load	11.4 V ~ 12.6 V	11.7 V		
230 Vac / 0 % Load	11.4 V ~ 12.6 V	12.1 V		
230 Vac / 50 % Load	11.4 V ~ 12.6 V	11.9 V		
230 Vac / 100 % Load	11.4 V ~ 12.6 V	11.7 V		

## D. Ripple & Noise Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100 % Load	120 mV Max.	98 mV		
230 Vac / 100 % Load	120 mV Max.	99 mV		



## E. Inrush Current

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
230 Vac / 100 % Load	150 A Max.	87 A		

## F. Over Voltage Protection

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 50 % Load	Vout * 150 % Max.	120%		
230 Vac / 50 % Load	Vout * 150 % Max.	120%		

## G. Over Current Protection

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100 % Load	Iout * 180 % Max.	118%		
230 Vac / 100 % Load	Iout * 180 % Max.	118%		

## H. Short Circuit Protection

Test Result :

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

## I. Input Power Consumption(No Load)

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 0 % Load	$\leq 0.5$ W	0.35 W		
230 Vac / 0 % Load	$\leq 0.5$ W	0.38 W		

## J. Power Factor

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115 Vac / 100 % Load	$\geq 0.9$	0.98		
230 Vac / 100 % Load	$\geq 0.9$	0.96		



## Efficiency Test Report

- A. Model Number : ATM450A2-P120 ( 12.0 V 33.34 A 400.08 W )  
 B. DC Power Cord : UL2464 18AWG\*12C, 0.8M  
 C. Average Efficiency :  
     DoE Level VI : 88% Min.  
 D. NO Load Power Consumption :  
     DoE Level VI : 0.5W Max.  
 E. Testing Equipment :  
     a. AC Power Source : " EXTECH " 6600  
     b. Electronic Load : " CHROMA " 63202  
     c. Power Meter : " YOKOGAWA " WT-210A  
     d. Digital Meter : " FLUKE " 45  
 F. AC Input Voltage : 115Vac/60Hz

Load Conditions Reported Quantity	Load Conditions					
	100% * I <sub>0</sub>	75% * I <sub>0</sub>	50% * I <sub>0</sub>	25% * I <sub>0</sub>	10% * I <sub>0</sub>	0% * I <sub>0</sub>
Rms Output Current(mA)	33340mA	25005mA	16670mA	8335mA	3334mA	0mA
Rms Output Voltage(V)	11.780V	11.880V	11.990V	12.090V	12.150V	12.180V
Active Output Power(W)	392.75W	297.06W	199.87W	100.77W	40.51W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V	115V
Rms Input Current(A)	3.871A	2.909A	1.975A	1.091A	0.533A	0.014A
Rms Input Power(W)	438.23W	327.76W	218.96W	112.41W	47.190W	0.340W
True Power Factor (PF)	0.989	0.983	0.966	0.896	0.770	0.211
Total Harmonic Distortion of the input current	7.2A%					
Power Consumed by UUT(W)	45.485W	30.701W	19.087W	11.640W	6.682W	0.340W
Active Efficiency	89.621%	90.633%	91.283%	89.645%	85.84%	*
Average Efficiency	90.30%				85.84%	*

- G. AC Input Voltage : 230Vac/50Hz

Load Conditions Reported Quantity	Load Conditions					
	100% * I <sub>0</sub>	75% * I <sub>0</sub>	50% * I <sub>0</sub>	25% * I <sub>0</sub>	10% * I <sub>0</sub>	0% * I <sub>0</sub>
Rms Output Current(mA)	33340mA	25005mA	16670mA	8335mA	3334mA	0mA
Rms Output Voltage(V)	11.780V	11.880V	11.990V	12.090V	12.150V	12.180V
Active Output Power(W)	392.75W	297.06W	199.87W	100.77W	40.51W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V	230V
Rms Input Current(A)	1.963A	1.514A	10.592A	0.633A	0.370A	0.140A
Rms Input Power(W)	431.48W	323.91W	217.45W	112.77W	46.720W	0.380W
True Power Factor (PF)	0.968	0.933	0.894	0.769	0.554	0.012
Total Harmonic Distortion of the input current	10.3A%					
Power Consumed by UUT(W)	38.735W	26.851W	17.577W	12.000W	6.212W	0.380W
Active Efficiency	91.023%	91.710%	91.917%	89.359%	86.70%	*
Average Efficiency	91.00%				86.70%	*

Tester : *Satoshi*