

APPROVAL SHEET

CUSTOMER	Schukat
CUSTOMER P/N	
DESCRIPTION	5V,9V,15V/3A;20V/4.25A
EDAC MPN	EA11031D(01)
EDAC MODEL NO FOR SAFETY	EA11031D
DATE	2021-11-25
REVISION	0

APPROVED	DESIGN	PREPARE	RoHS
蔡朝豐	盧金億	盧金億	
CONCLUSION 判定結果	APPROVED 承認	CONDITON APP'D 有條件承認	CUSTOMER'S SIGNATURE: 客戶簽章:



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SUBJECT: SCOPE OF DOCUMENT

CONTAINS :

1-0 General Description

2-0. Input Requirements

3-0. Output Requirements

4-0. Reliability

5-0. Environment

6-0. Safety

7-0. Mechanical Characteristics

1. General Description

The purpose of this document is to specify a single phase AC input switching power supply to meet the requirement of USB type C power delivery. The product is AC to DC switch mode power supply that provide variable output including **5V@3.0A or 9V@3.0A or 15V@3.0A or 20V@4.25A** output state with **85W** max DC output with variable voltage source. This Specification defines the input, output, performance characteristics, environment , noise and safety requirements.

2-0. Input Requirements

2-1. Input Voltage:

Maximum Voltage: 264Vac
Normal Voltage: 100~240Vac
Minimum Voltage: 90Vac

2-2. Input Frequency:

Maximum Frequency: 63Hz
Normal Frequency: 50~60Hz
Minimum Frequency: 47Hz

2-3. Input Current

- a. **1.8A** (Max.) @ 115Vac input with full load.
- b. **0.9A**(Max.) @ 230Vac input with full load.

2-4 Configuration

3-wire AC input (**Line ,Neutral, FG**)

2-5 Input Fuse

The hot line side of the input shall have a fuse, rating (**T3.15A/250V**)

2-6 Efficiency

Output Voltage (V)	Efficiency % (Avg)
5V	81.39%
9V	86.62%
15V	87.73%
20V	88%

At 115Vac/60Hz & 230Vac/50Hz input voltage and 25%, 50%, 75% & 100% of max output current. Meet Energy Efficiency Level VI.

2-7 Inrush Current

≅ 60A at 110 Vac

≅ 120A at 230 Vac At cold start, maximum load.

2-8 Line Regulation

This line regulation is less than $\pm 1\%$, of rated output voltage @ full load.

2-9 Hold Up Time

≅ 8.3 mSec., @ Normal line, with full load.

2-10 Rise Time

≅ 275 mSec., @ Rated AC input, with full load.

From 5V to 90% of output voltage.

2-11 Turn-ON Time

The output voltage should rise to 90% of rated output voltage in less than 3 SEC. from AC apply to 100Vac from start up.

3-0. Output Requirements

3-1. Output Voltage and Current

Output Voltage (Vdc)	Current Min.(A)	Current Max.(A)
+5.0V	0	3.0A
+9.0V	0	3.0A
+15.0V	0	3.0A
+20.0V	0	4.25A

3-2. No load and Loading Regulation

Mode	Tolerance (%)	Regulation (Vdc)
+5V	+5/ -5	4.75V~5.25V
+9V	+5/ -5	8.55V~9.45V
+15V	+5/ -5	14.25V~15.75V
+20V	+5/ -5	19V~21V

3-3. Dynamic Load Regulation

$\pm 5\%$ excursion for **50% - 100%** or **100% - 50%** load change of DC output at any frequency up to 1KHz(duty 50%)

3-4. Ripple & Noise

The power supply shall not exceed the following limits on the indicated voltage for 60Hz or 50Hz ripple, Switching frequency ripple and noise and dynamic load variations measured with a 20MHz bandwidth

Output	Ripple/Noise
+5V	100mV
+9V	180mV
+15V	300mV
+20V	360mV

Input condition : for rated voltage , Output condition : for max load

Ripple / Noise: 60Hz ripple + switching ripple and noise

Ripple & Noise are measured at the end of output cable which are added a 0.1uF ceramic capacitor and a 47uF electrolytic capacitor

3-5. Over Voltage Protection

170% Max. of rated voltage.

The output voltage shall be shutdown and Latch off mode when OVP occurred.

3-6. Over Current Protection

110~150% of rated output current.

The adapter can withstand continuous short at DC output and no damage.

3-7. Short Circuit Protection

The adapter can withstand continuous short at DC output and no damage.

It will enter into normal condition if the fault condition is removed.

3-8. Stability

2% Max. at constant load with constant input (after **30 minutes** of operation).

3-9. Temperature Rise

Less than 52°C on top/bottom case at normal AC input & 100% load of DC output at environment temperature 25°C.

3-10. Drop-out (Power Line Disturbance)

Output voltage shall remain within the specified regulation range, through the absence of a line input during 1/2 cycle, at full load and normal AC line input

3-11. Voltage Isolation

The DC ground will be isolated from the AC neutral and AC line.

3-12. No Load Power Including LED

No Load Power Consumption with USB Type C no connection $\leq 0.1W$

3-13. Limited Power Source

100W Max. of output power.

The output voltage shall be shutdown and no damage when LPS occurred, It will enter into normal condition if the fault condition is removed.

3-14. Audible Noise

The EUT audible noises should not be higher than the environment 10dB @ 110/60Hz and 220V/50Hz, the microphone is 10 centimeter from the EUT

4-0. Reliability

4-1. MTBF (MIL-HDBK-217F)

The power supply shall be designed and produced to have a mean time between failures (MTBF) of 100,000 at 25 degree C .

5-0. Environment

5-1 Temperature

- a. Operating : 0 to 40 °C
- b. Storage : -20 to 85 °C

5-2 Humidity

- a. Operating : 10 to 90 %
- b. Storage: 5 to 90 %

5-3 Altitude

From sea level to 5,000Meter (operation) and 5,000Meter (non operation)

6-0. Safety

6-1. Hi-Pot Test

3000 Vac, 10mA 3 Sec. between primary and secondary circuit

6-2. Insulation Test

500Vdc, 3 Sec. between primary and secondary circuit

IR should \geq 100 M Ω .

6-3. Leakage Current

\leq 750 μ A, at 240Vac/50 Hz

6-4. Safety

UL, CUL, TUV, CB, UKCA, CE, FCC, CCC, RCM

6-5. EMS

Items	Specification	Reference
ESD	Contact: \pm 4KV	IEC 61000-4-2
	Air: \pm 8KV	
RS	Frequency: 80~1000MHz Field Strength: 3V/M \cdot 80% AM(1KHz)	IEC 61000-4-3
EFT	1.0 KV on input AC power ports.	IEC 61000-4-4
SURGE	Line to Line: \pm 1KV (peak)	IEC 61000-4-5
	Line to F.G : \pm 2KV (peak)	

6-6. EMI

Comply with Standards
CISPR 32, EN 55032, Class B
FCC PART 15 Class B

7-0. Mechanical Characteristics

7-1. Physical Size : 137mm(L) * 59mm (W) * 34mm (H)

7-2. Enclosure material : 94V-0 minimum

7-3. Vibration Test

The vibration frequencies are set at 20Hz, with total amplitude of 1.5mm

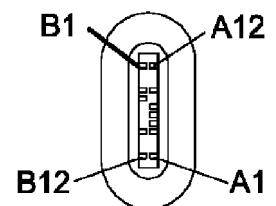
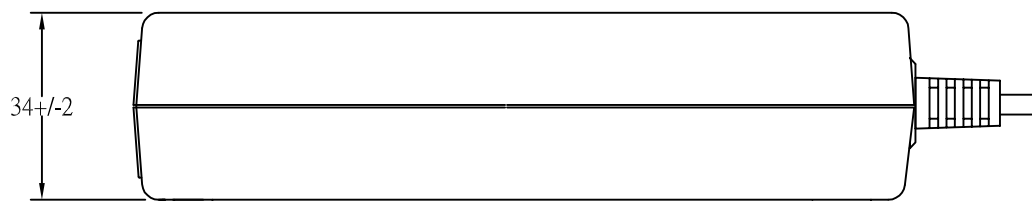
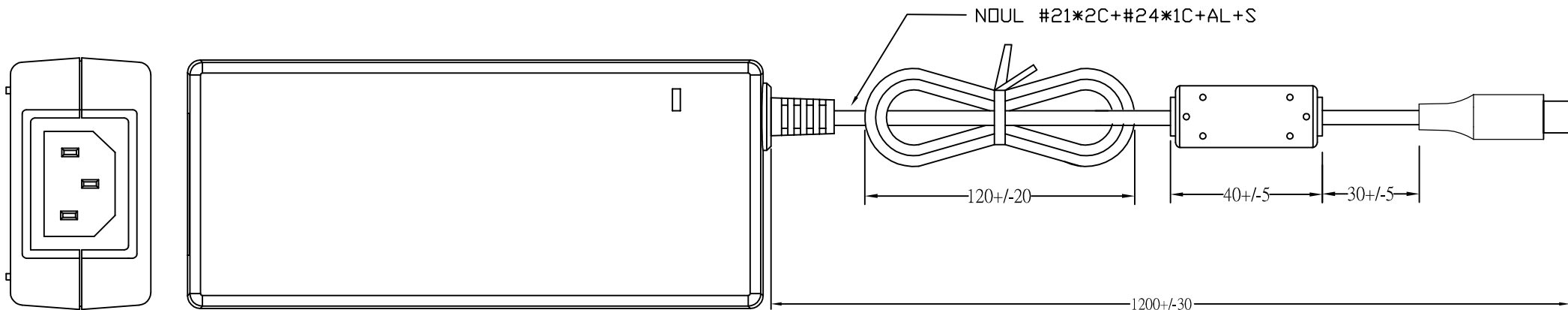
Along the 3 directions namely X-Y-Z. The each direction should be vibrated for 60 minutes, after testing no abnormal electrical or mechanical should occur.

7-4. Drop Test (Referencing to CSA C22.2 No.950/UL1950/UL1310/EN62368)

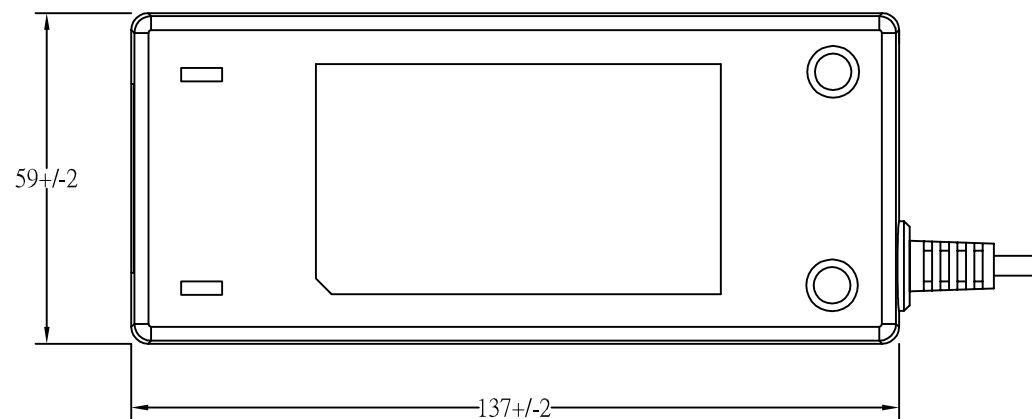
Products shall be dropped from a height of 1000 mm onto a horizontal surface consists of hardwood at 13mm thick, mounted on two layers of plywood each 19mm to 20mm thick, all supported on a concrete or equivalent non-resilient

floor. Upon conclusion of test, the equipment need not be operational.

7-5. Net Weight (Reference) : 600 grams



A4,A9,B4,B9:V+
A1,A12,B1,B12,Shell:GND
A5:CC1



EDAC POWER ELECTRONICS CO., LTD.				APPROVED
MODEL	EA11031D(01)	UNIT	mm	DESIGNED
color	BLACK	SCALE		CHECK
cus.		DATE	2021-11-25	DRAWING L.J.YU

3.5

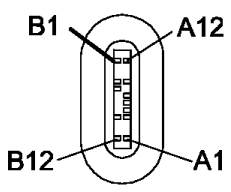
EDAC EDACPOWER ELEC.

AC ADAPTER 电源适配器

MODEL 型号: EA11031D

AC INPUT 输入: 100-240Vac, 2.5A, 50-60Hz

DC OUTPUT 输出: 5.0V \equiv 3.0A 15.0W
 or 9.0V \equiv 3.0A 27.0W
 or 15.0V \equiv 3.0A 45.0W
 or 20.0V \equiv 4.25A 85.0W



A4,A9,B4,B9:V+
 A1,A12,B1,B12,Shell:GND
 A5:CC1

CAUTION 注意
 FOR INDOOR USE ONLY 室内产品使用
 I.T.E. USE ONLY

DATE CODE:

21	22	23			1	2	3	4	5
1	2	3	4	5	6	7	8	9	0

出厂日期



制造商: 翌胜电子股份有限公司
 EDACPOWER 11-2FL., No. 150, Jian Yi Rd., Chung Ho District, New Taipei City, Taiwan, R.O.C.

13128 C3 MADE IN CHINA 中国制造

71

41

P/N.: 3128
 Background: Black color
 Character: Silver color
 Unit: mm

105mm

Bedienungsanleitung für EDAC Tisch- und Steckernetzteile



Bestimmungsgemäßer Gebrauch

- Dieses Netzteil ist für die Versorgung von Niederspannungsverbrauchern entwickelt worden und erfüllt die Anforderungen der RoHS (2011/65/EG, 215/863/EG), Niederspannungsrichtlinie (2014/35/EU) und der EMV-Richtlinie (2014/30/EU).

Sicherheits-Hinweise

- Bitte die Bedienungsanleitung vor Inbetriebnahme lesen!
- Vor der Inbetriebnahme sollten Sie die Netzspannung und die am Netzgerät angegebene Eingangsspannung sowie die Spannung und Polarität des Ausgangsstromes und die Leistung des anzuschließenden Gerätes vergleichen. Beides sollte mit den Anforderungen übereinstimmen.
- Im Betrieb ist eine Gehäuseerwärmung normal und unbedenklich. Allerdings sollte es nicht abgedeckt und in der Nähe von Heizkörpern oder unter direkter Sonneneinstrahlung betrieben werden.
- Arbeiten Sie nie mit dem Netzadapter, wenn er offen ist oder einen schadhafte Netzanschluss oder ein beschädigtes (zerrissenes/zerbrochenes) Gehäuse hat. Mögliche Lebensgefahr!
- Überprüfen Sie regelmäßig die mechanische Sicherheit des Geräts z.B. auf Beschädigung des Gehäuses.
- Öffnen Sie niemals das Gerät. Es enthält keine Servicebauteile.
- Reparaturen dürfen nur von einem Techniker ausgeführt werden. Bei eigenmächtigen Änderungen oder Reparaturen am Gerät erlischt die Garantie.
- Vor Spritzwasser und Feuchtigkeit schützen.

Bedienung

- Setzen Sie bei Netzteilen mit wechselbarem Eingangsclip den benötigten Clip für den vorhandenen Netzanschluss ein.
- Prüfen Sie bei Netzteilen mit wechselbaren Ausgangssteckern vor Inbetriebnahme die richtige Auswahl und Polarität je nach Anwendung.
- Die LED Betriebsanzeige leuchtet (sofern vorhanden) auch ohne angeschlossenes Endgerät, sobald das Netzteil mit der Netzspannung verbunden ist.

Pflege

- Zum Reinigen dürfen Sie keinerlei Reinigungsmittel verwenden. Ausschließlich mit einem trockenen Tuch abwischen.

Hinweis

- Wird das Netzteil nicht in industriellen Anwendungen verwendet, sondern einem Endverbraucher mit dem zugehörigen Endgerät zugänglich gemacht, müssen ERP 2019/1782 relevante Daten im Handbuch des Endgerätes aufgeführt werden.

Entsorgung

- Elektronische Altgeräte sind Wertstoffe und gehören nicht in den Hausmüll. Ist das Gerät am Ende seiner Lebensdauer, entsorgen Sie es nach den geltenden gesetzlichen Bestimmungen bei den geeigneten Sammelstellen des Entsorgungssystems. Eine Entsorgung über den Hausmüll ist untersagt.



Hersteller

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Importeur

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E-Mail: info@schukat.com
Internet: www.schukat.com
WEEE-Reg.-Nr.: DE 23942637

Stand: Mai 2020

148mm

Power Factor(W/VA)	0.221	0.408	0.446	0.463	0.463	0.456	89.56
EUT Power Consumption(W)		0.850	1.375	2.487	3.854	5.403	
Calculated Efficiency(%)		83.83	89.04	90.06	89.79	89.35	

	No Load		Active Power Values				Average
	0%	10%	25%	50%	75%	100%	
Percent of Nameplate Current	0.000	0.292	0.742	1.493	2.243	2.994	Pass
Output(A)	0.000	0.292	0.742	1.493	2.243	2.994	
Output(V)	15.124	15.095	15.055	15.085	15.115	15.145	
Active Output Power(W)	0.000	4.407	11.170	22.521	33.902	45.344	
Input Voltage(V)	230.00						
Input Frequency(Hz)	50.00						
Measured Input Current(A)	0.024	0.071	0.148	0.273	0.401	0.535	
Measured Input Power(W)	0.189	5.241	12.732	25.207	37.762	50.531	
THD(V)	0.000	0.000	0.000	0.000	0.000	0.000	
THD(A)	0.000	0.000	0.000	0.000	0.000	0.000	
Power Factor(W/VA)	0.033	0.317	0.372	0.400	0.410	0.410	
EUT Power Consumption(W)		0.834	1.562	2.686	3.860	5.187	
Calculated Efficiency(%)		84.09	87.73	89.34	89.78	89.74	

	No Load		Active Power Values				Average
	0%	10%	25%	50%	75%	100%	
Percent of Nameplate Current	0.000	0.417	1.055	2.118	3.183	4.245	Pass
Output(A)	0.000	0.417	1.055	2.118	3.183	4.245	
Output(V)	20.025	19.983	19.966	20.009	20.052	20.093	
Active Output Power(W)	0.000	8.332	21.064	42.379	63.825	85.294	
Input Voltage(V)	115.00						
Input Frequency(Hz)	60.00						
Measured Input Current(A)	0.016	0.191	0.441	0.895	0.629	0.842	
Measured Input Power(W)	0.273	9.669	23.466	47.124	71.562	96.130	
THD(V)	0.000	0.000	0.000	0.000	0.000	0.000	
THD(A)	0.000	0.000	0.000	0.000	0.000	0.000	
Power Factor(W/VA)	0.150	0.436	0.463	0.458	0.989	0.993	
EUT Power Consumption(W)		1.337	2.402	4.745	7.737	10.836	
Calculated Efficiency(%)		86.17	89.76	89.93	89.19	88.73	

	No Load		Active Power Values				Average
	0%	10%	25%	50%	75%	100%	
Percent of Nameplate Current	0.000	0.417	1.055	2.118	3.183	4.245	Pass
Output(A)	0.000	0.417	1.055	2.118	3.183	4.245	
Output(V)	20.025	19.993	19.976	20.001	20.042	20.193	
Active Output Power(W)	0.000	8.337	21.074	42.362	63.794	85.713	
Input Voltage(V)	230.00						
Input Frequency(Hz)	50.00						
Measured Input Current(A)	0.016	0.191	0.441	0.895	0.629	0.842	
Measured Input Power(W)	0.473	10.012	23.668	47.214	71.572	96.130	
THD(V)	0.000	0.000	0.000	0.000	0.000	0.000	
THD(A)	0.000	0.000	0.000	0.000	0.000	0.000	
Power Factor(W/VA)	0.150	0.436	0.463	0.458	0.989	0.993	
EUT Power Consumption(W)		1.337	2.402	4.745	7.737	10.836	
Calculated Efficiency(%)		83.27	89.04	89.72	89.13	89.16	