
Technical Specifications
PSU 12V8WA4
Fly Back Switching Power Supplier
REV 1.0

Rev.Data	Description	Author	Approval
1.0 29/04/17	First Edition	M. Guelfo	Pippo Anastasi

Revision history:

1.0:

– first edition: technical specifications

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1 Introduction

This document describes a 8W continuous universal input, single output power supply capable of delivering as peak up to 10W.

The purpose of the following project is the design of an external insulated switching power supply to be used in a fridge to power a small air fan.

Starting from the electrical and environment requirements, the development will consider the following constraints in order of importance:

- Mechanical constraints
- Efficiency constraints

Finally the device will be submitted to the a certification lab in order to produce all the required compatibility test reports and safety marks.

2 Document target

This document aims the target of contain all the technical details of the activity.

1 Power Supply Specification

○ *Input*

- Voltage range 100-240 VAC (2 Wire – no P.E.)
- Frequency 50/60 Hz
- No-load Input Power 250 mW (@ 230 VAC)

○ *Output*

- Voltage 12 V DC
- Output voltage Tolerance $\pm 10\%$
- max Output Ripple Voltage 250 mV 20 MHz bandwidth
- Output Current 667 mA
- max impulse Output Current 833 mA
- Continuous Output Power 8 W
- Peak Output Power 10 W

○ *Efficiency*

- Full Load 73 % Average POUT, 25 °C (230Vac)

○ *Environmental*

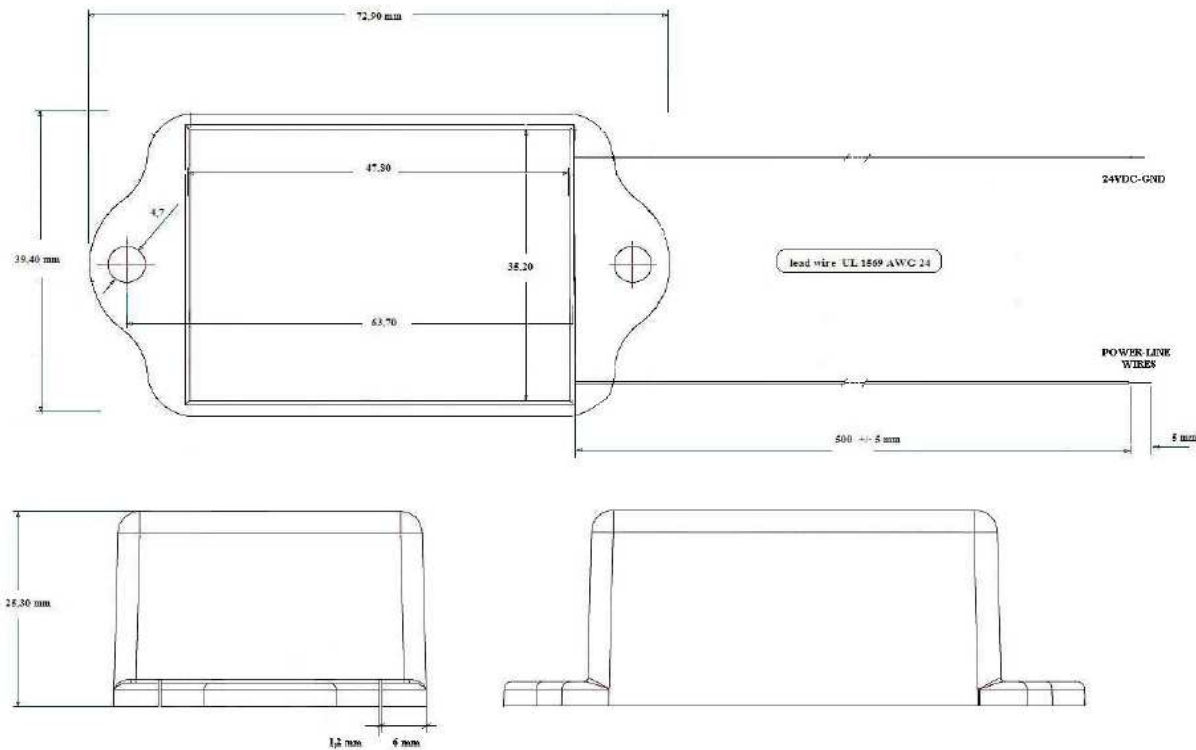
- Conducted EMI Meets CISPR22B / EN55022B
- Safety Designed to meet IEC950, UL1950 Class II
- *Ambient Temperature* 0°C +45°C Open frame, sea level
- *MTBF at 25°C* 100.000 hrs
- All the materials and processes involved in the supplying of this power supply will follow the vigent ROHS normative.

2 Features

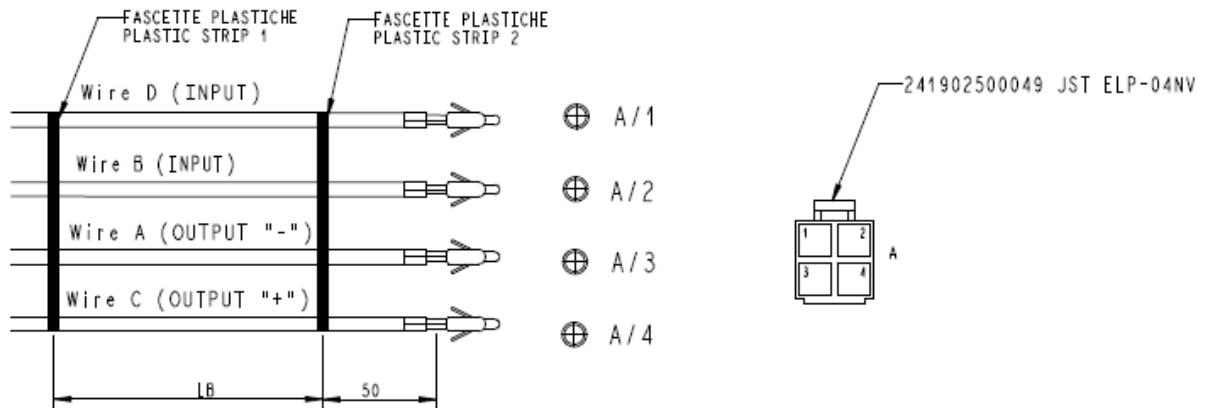
- Revolutionary control concept provides very low cost, low part count solution
- Primary side control eliminates secondary side control and opto-coupler
- Provides +/-5% CV
- Over-temperature protection
- tight tolerance (+/-5%) with hysteretic recovery for safe PCB temperature under all conditions
- Auto-restart output short circuit and open-loop protection
- **E-Shield™** winding technique dramatically reduces EMI filtering
- **EcoSmart®** – Easily meets all current international energy efficiency standards
 - China (CECP) / CEC / ENERGY STAR 1.1 / EU CoC
- No-load consumption <250 mW at 265 VAC

3 Mechanical Requirements

The following picture show the ABS plastic enclosure that hosts the PSU ultrasound sealed. In some configuration the wiring terminations can be with connector. Actually the first configuration (12V8WA4) has a 4-wires cable 150mm long outside the enclosure with 4 pin connector JST ELP-04NV (see sketch below).



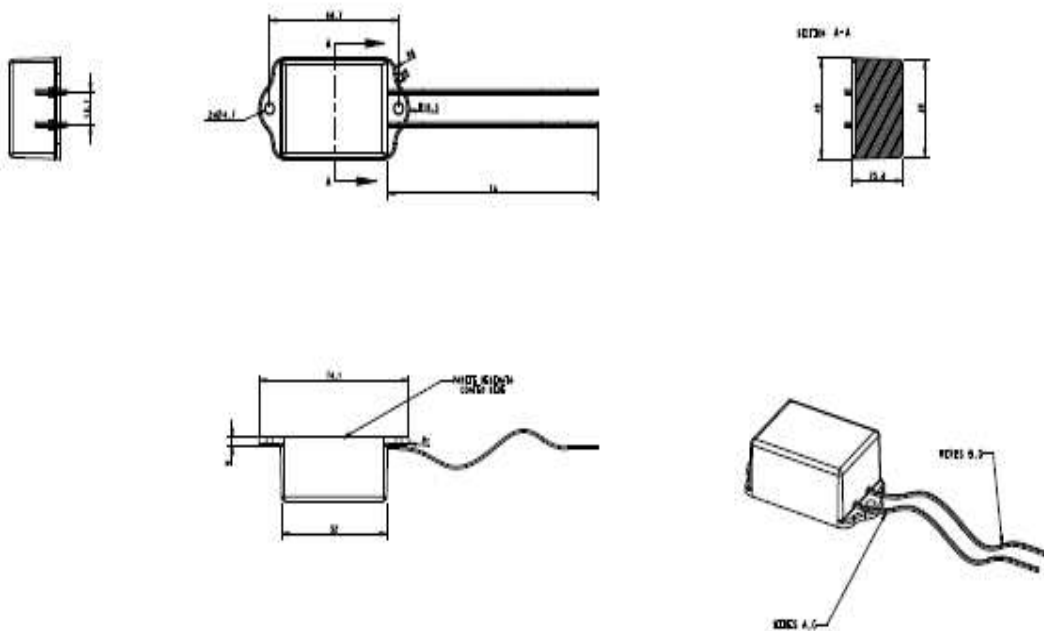
4 Cabling sketch



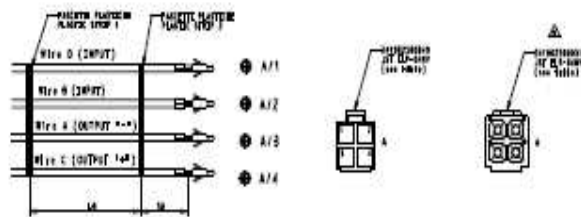
Pri. input wire	Suzhou Jinlianli Wire & Cable Co., Ltd.	1569	300V, 105°C, Min. 24AWG	UL	UL E228191
Insulated tube on pri. Input wire	Shenzhen Woer Heat-Shrinkable Material Co., Ltd.	RSFR-H	VW-1, 125°C	UL	UL E203950
Sec. output wire	Suzhou Jinlianli Wire & Cable Co., Ltd.	1569	300V, 105°C, Min. 24AWG	UL	UL E228191

Cabling designed for the 12V8WA4 PSU module.

5 Assembly drawing



Wire	Color	Section	Derivation	Wire Specification
a	Black (00)	0.5	020-4	M20-020
b	Green (11)	0.5	020-4	M20-020
c	Red (22)	0.5	020-4	M20-020
d	Blue (33)	0.5	020-4	M20-020



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6 Efficiency Requirements

The efficiency is higher than 70%.

7 CE – EN60335.2.24 – UL1310

The power supply will pass through a certification lab in order to produce the necessary conformity test reports for CE, the EN60335.2.24 and UL1310 normative.

Based on the collected information we will release the following test reports:

CEN55014-1 , CEN55014-2 , CEN61000-3-2 , CEN61000-3-3
simulating a load based on a resistor of 18 Ohm .

8 Certificate of Compliance

The following products have been tested by us with the listed standards and found in compliance with the council LVD directive 2006/95/EC as last amended by EEC Directive 93/68/EEC.

It is possible to use CE marking to demonstrate the compliance with this LVD Directive.

No.: ACSS1212220

Test Standards:

EN 60335-1: 2012 Safety of household and similar electrical appliances

EN 60335-2-24: 2010 Part 2: Particular requirements for refrigerating appliances, ice-cream appliances and ice-makers.

Glow-wire test IEC 60695-2-11 at 550°C and Plastic enclosure 650°C No ignition, no flame.



11 PSU Label

P/N:12V8WA4
Input:100-240VAC 50/60 Hz Max0.2A
Ac-L:Brown Wire Ac-N:Blue Wire
Output:12VDC 667mA
V+:Red Wire V -:Black Wire






1614
 MADE IN CHINA

30.2	TABLE: Glow wire		P
Part	Test temperature (°C)	Test result	
Plastic enclosure	550	No ignition, no flame	
Transformer (T1) bobbin	650	No ignition, no flame	
Note(s): --			

12 CE-LVD compliance

Report No.: ACSS1508076
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TEST REPORT EN 60335-2-24 Safety of household and similar electrical appliances Part 2: Particular requirements for refrigerating appliances, ice-cream appliances and ice-makers	
Report Reference No.....	ACSS1508076
Tested by (name + signature)	Guo Lu
Reviewed by (name + signature).....	Ditto Yu
Approved by (name + signature)	Carolyn Kang
Date of issue.....	
Contents	Report: 87 pages, Attachment: A to C: 15 pages
Testing Laboratory	Audix Technology (Shenzhen) Co., Ltd.
Address.....	No. 6, Kefeng Rd., 52 Block Shenzhen Science & Industry Park, Nantou, Shenzhen, Guangdong, China.
Testing location/ address.....	Same as above
Applicant's name	Suzhou Duozheng Electronics Co., Ltd.
Address.....	No. 1888 Taowu Road, Taoyuan Town, Wujiang, Suzhou City, Jiangsu Province, China
Manufacturer's name	Suzhou Duozheng Electronics Co., Ltd.
Address.....	No. 1888 Taowu Road, Taoyuan Town, Wujiang, Suzhou City, Jiangsu Province, China
Test specification:	
Standard	EN 60335-2-24:2010 in conjunction with EN 60335-1:2012 + A11:2014
Test procedure.....	CE-LVD
Procedure deviation.....	N/A
Non-standard test method.....	N/A
Test Report Form No.	V1.1
Test item description	Power Supply
Trade Mark/Brand name.....	
Model/Type reference	12V8WA, 24V8WA
Ratings.....	For 12V8WA Input: 100-240V , 50/60Hz, 0.2A; Output: 12Vdc, 667mA For 24V8WA: Input: 100-240V , 50/60Hz, 0.2A; Output: 24Vdc, 330mA

TRF No. : V1.1

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13 CE-LVD compliance

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Test item particulars:	
Classification of installation and use	Built-in power supply
Supply Connection	Lead wire
Operation condition	<input checked="" type="checkbox"/> continuous <input type="checkbox"/> rated operating / resting time:
Over voltage category (OVC)	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV <input type="checkbox"/> other
Tested for IT power systems	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
IT testing, phase-phase voltage (V)	N/A
Class of equipment	<input type="checkbox"/> Class I <input checked="" type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
Pollution degree (PD)	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 <input type="checkbox"/> PD 3
IP protection class	IP20
Altitude during operation (m)	Up to 2000m
Altitude of test laboratory (m)	Up to 2000m
Mass of equipment (kg)	Approx. 0.05Kg
Maximum operation ambient	45°C (tropic climatic class)
Possible test case verdicts:	
- Test case does not apply to the test object.....	N (Not Applicable)
- Test object does meet the requirement.....	P (Pass)
- Test object does not meet the requirement.....	F (Fail)
Testing:	
Date of receipt of test item.....	May 11, 2015; Aug. 17, 2015
Date(s) of performance of tests	May 20 - Jun. 10, 2015; Aug. 21-31, 2015
General remarks:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(See Attachment #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report, a point is used as the decimal separator. List of test equipment must be kept on file and available for review.	

TRF No. : V1.1