

# LEX1416

**Customer** :

**Part Name** : **AC ADAPTER**

**Description** : **15Volts / 4.3Amps**

**Model No.** : **LEX1416**

**Customer P / N** :

**Product P / N** :

**Issued Date** : **08/03/2010**

**Version** : **1.0**

**Issued Stamp** :

**Customer's Approval Signature**

<b>Customer's Approval Signature</b>	

**ENIX ENERGIES :**

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**64.5W**  
Switching Power Adapter  
**SPECIFICATION**

**Model No.** : **LEX1416**

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**Description** : **15V olts / 4.3Amps**

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**Version** : **1.0**

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**Date** : **08/03/2010**

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<b>Approved</b>	<b>Checked</b>	<b>Prepared</b>



## ■ Approval Documents/Spec. Revised Records

- Customer :
- Model No. : LEX1416
- Original Documents Content : Spec.   9   Pages

Revised Records : No.	Date (mm/dd/yyyy)	Description ( Before / After )	Page(s) Revised	Revised By (Adapter/Customer)	Remark
1	08/20/2009	ISSUE			1.0

## 1. Feature :

- ◆ **Input** : **Universal 100 ~ 240 Vac / 47 ~ 63 Hz Input, without any slide switch.**
- ◆ **Output** : **+15V / 0~4.3A**
- ◆ **Case Dimension** : **108(L) \*46(W) \* 32(H) mm**
- ◆ **Efficiency** : **Eff (av)  $\geq$  87%**
- ◆ **Safety** : **UL / CUL / GS / PSE / BSMI / CB**
- ◆ **EMI** : **CE / FCC Class B ; Conduction & Radiation Met.**
- ◆ **Protection** : **OVP (Over Voltage Protection) 、 SCP (Short Circuit Protection) 、 OCP (Over Current Protection)**
- ◆ **High frequency design , less power consumption.**
- ◆ **Suitable for usage at Telecommunication, Computer, Industrial Controller, & OA System.**
- ◆ **Meet CEC Specification .**

## 2. Input :

<b>2.1 Voltage</b>	<b>Universal 100~240Vac, single phase</b>
<b>2.2 Frequency</b>	<b>47 ~ 63 Hz</b>
<b>2.3 Current</b>	<b>1.4A Max.</b>
<b>2.4 Inrush Current</b>	<b>30A Max. / 100Vac ; 60A Max. / 230Vac (Cold Start At 25 °C , Full Load)</b>
<b>2.5 Efficiency</b>	<b>Eff (av) <math>\geq</math> 87% (At 115 Vac &amp; 230 Vac)</b>
<b>2.6 Power Consumption</b>	<b>Pi <math>\leq</math> 0.5 W ( At 230Vac &amp; No Load)</b>

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

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 :

<b>3.1 DC Output</b>	<b>Voltage</b>	<b>+15.00V <math>\pm</math> 5%</b>
	<b>Current</b>	<b>4.3A Max.</b>
	<b>Regulation</b>	<b>14.25Vmin. ~ 15.0Vtyp. ~ 15.75Vmax.</b>
	<b>Ripple &amp; Noise</b>	<b>200 mV Max.</b>
	<b>Total Power</b>	<b>64.5W Max.</b>

**Remark : For ripple & noise measurement, use a 20MHz bandwidth frequency oscilloscope, and add a 0.1 $\mu$ F multilayer Cap. and a Low ESR Electrolytic Cap. (10  $\mu$ F) at output connector terminals. (At nominal line voltage, Full Load)**

#### 4. Protection :

4.1 Over Voltage Protection (OVP)	V out *(110%~150%)
4.2 Short Circuit Protection (SCP)	Automatic recovery after short-circuit fault being removed
4.3 Over Current Protection(OCP)	I out *(102%~170%)

**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 latch.

#### 5. Safety 、 EMI and EMC Requirement :

##### 5.1 Safety Requirement

a. Safety : UL / CUL / GS / PSE / BSMI / CB

b. Dielectric Strength : 10mA Max. Cut off current

(1)	Primary to Secondary	1800V ac for 1 Minute
(2)	Primary to Frame Ground	1500V ac for 1 Minute

c. Insulation Resistance :

(1)	Primary to Secondary	10 M OHMS for 500Vdc
(2)	Primary to Frame Ground	10 M OHMS for 500Vdc

5.2 EMI Requirement : CE / FCC Class B ; Conduction & Radiation Met.

5.3 Leakage Current : Less than 3.5mA

5.4 Gr ounding Test : Resistance 0.1ohm Max. @ 25A

#### 6. Operation and Environment Performance :

##### 6.1 T emperature Range

Operating	+ 0°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 : Should operate without fan.

7. M.T.B.F. : 50,000 Hrs.( At 25°C , By MIL-HDBK-217F )

**8.Mechanical :**

**8.1 Weight : 248 g Typical**

**8.2 Cable Type : Black UL1185 18AWG  
( Wire + Plug )**

**Plug : Jack 2Pin**

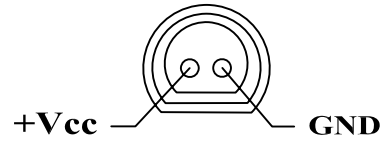
**Cable Drawing No. : ADT-1489**

**8.3 Cable Length : 1500mm**

**8.4 Case Dimension : 108mm(L)\*46mm(W)\*32mm(H)**

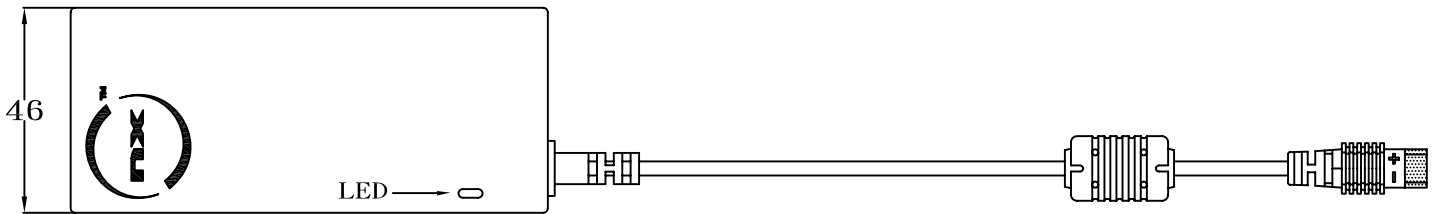
**8.5 Material Flammability : UL 94V-0**

**8.6 External Apperance : As drawing below ( Scale → mm )**

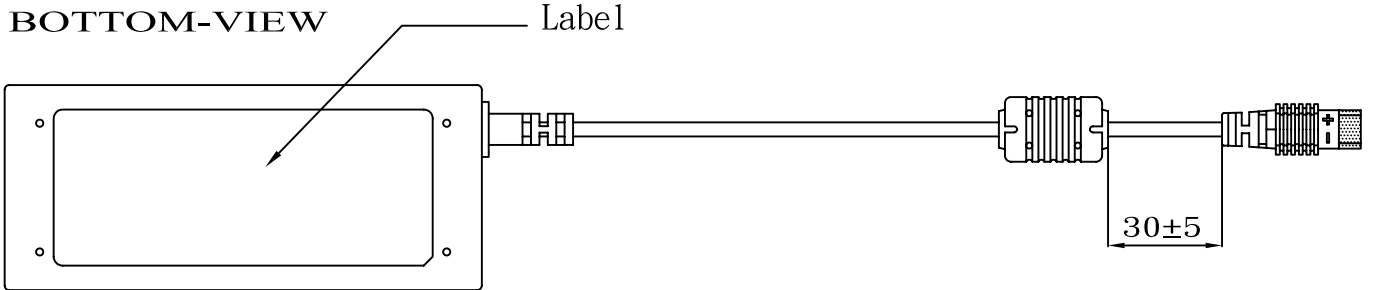


**Output Cable Plug Pin Assignment**

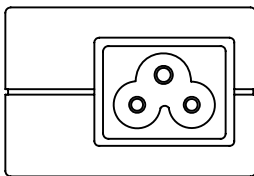
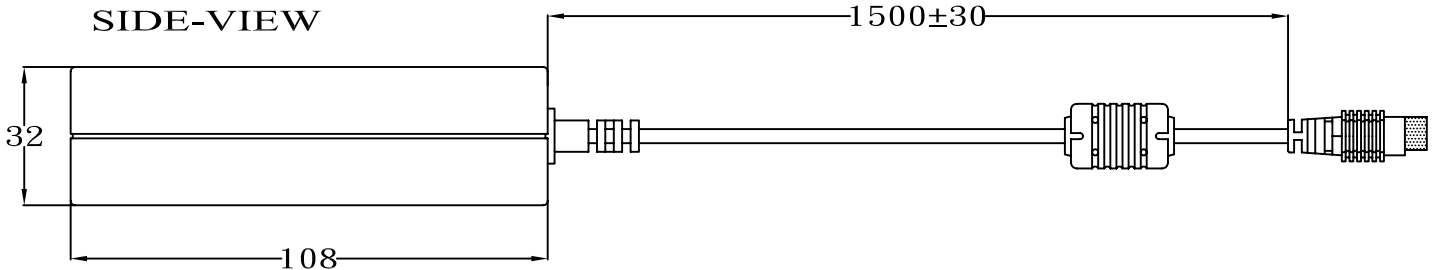
**TOP-VIEW**



**BOTTOM-VIEW**



**SIDE-VIEW**



**FRONT-VIEW**

8.9 Spec. Label Materials : Art Paper Label ( White Gloss )  
Color : White Background with Black Printing  
Label Dimension : 44mm(H)\*20mm(W)

100%



300%



Gen code label  
Barcode equal to 3 66076 6 420640  
N0 Commande :  
Code Fournisseur:ABFJUI420A

**Label Part No. :9443017940**

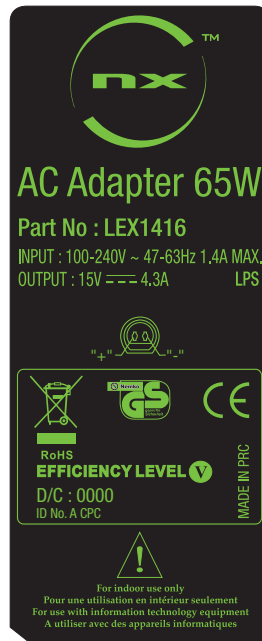
100%



PANTONE 368C



PANTONE PROCESS BLACK C





## A. Line Regulation Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
90Vac / 50 % Load	14.25V ~ 15.75V	14.753V	15.125V	14.985V
115Vac / 50 % Load	14.25V ~ 15.75V	14.765V	15.122V	14.985V
132Vac / 50 % Load	14.25V ~ 15.75V	14.752V	15.120V	14.982V
180Vac / 50 % Load	14.25V ~ 15.75V	14.751V	15.120V	14.982V
230Vac / 50 % Load	14.25V ~ 15.75V	14.763V	15.118V	14.980V
264Vac / 50 % Load	14.25V ~ 15.75V	14.743V	15.118V	14.980V

## B. Efficiency Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac	87 % Min..	87.16%	87.25%	87.53%
230Vac	87 % Min.	87.08%	87.12%	87.28%

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

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

## C. Load Regulation Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 0 % Load	14.25V ~ 15.75V	14.964V	15.260V	15.182V
115Vac / 50 % Load	14.25V ~ 15.75V	14.765V	15.122V	14.985V
115Vac / 100 % Load	14.25V ~ 15.75V	14.543V	14.982V	14.765V
230Vac / 0 % Load	14.25V ~ 15.75V	14.964V	15.262V	15.185V
230Vac / 50 % Load	14.25V ~ 15.75V	14.763V	15.118V	14.980V
230Vac / 100 % Load	14.25V ~ 15.75V	14.543V	14.980V	14.983V

## D. Ripple & Noise Test

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	200mVpp Max.	128mVpp	120mVpp	126mVpp
230Vac / 100 % Load	200mVpp Max.	115mVpp	108mVpp	118mVpp

## E. Inrush Current

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	30A Max	26A	24.5A	28.2A
230Vac / 100 % Load	60A Max	49A	52.6A	57.6A

## F. Over Current Protection

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
115Vac / 100 % Load	Iout*(102%~170%)	119% 135%		121%
230Vac / 100 % Load	Iout*(102%~170%)	125%	142%	126%

## 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(No Load)

Test Result :

Test condition	Spec.	Reading 1	Reading 2	Reading 3
230Vac / 0 % Load	$\leq 0.5$ W	0.2W 0.22W		0.26W

## CEC (Level 5 ) TEST REPORT

- A. Model Number : LEX1416 ( 15V / 4.3A )
- B. DC Power Cord : EU
- C. Dimension (L\*W\*H) : 108(L) \* 46(W) \* 32(H) mm
- D. Average Efficiency : 87% min.
- E. NO Load Power Consumption : 0.5W max.
- F. Testing Dequpment :
- a. AC Power Source : " Zentech " 2700M-10
- b. Electronic Load : " PRODIGIT " 3311C
- c. Power Meter : " Zentech " 2100
- d. Digital Meter : " FLUKE " 45
- G. AC Input Voltage : 115Vac/60Hz

Load Conditions Reported Quantity	100%* I <sub>0</sub>	75%* I <sub>0</sub>	50%* I <sub>0</sub>	25%* I <sub>0</sub>	0%* I <sub>0</sub>
Rms Output Current(mA)	4300mA	3225mA	2150mA	1075mA	0mA
Rms Output Voltage(V)	14.543V	14.663V	14.765V	14.868V	14.964V
Active Output Power(W)	62.53W	47.29W	31.74W	15.98W	0.00W
Rms Input Voltage(V)	115V	115V	115V	115V	115V
Rms Input Current(A)	1.244A	0.989A	0.720A	0.390A	0.018A
Rms Input Power(W)	72.60W	54.20W	36.30W	18.20W	0.01W
Voltage T.H.D.(%)	0.16%	0.13%	0.12%	0.12%	0.12%
True Power Factor	0.505	0.467	0.434	0.402	0.005
Power Consumed by UUT(W)	10.07W	6.91W	4.56W	2.22W	0.01W
Efficiency	86.14%	87.25%	87.45%	87.82%	*
Average Efficiency	87.16%				*

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

Load Conditions Reported Quantity	100%* I <sub>0</sub>	75%* I <sub>0</sub>	50%* I <sub>0</sub>	25%* I <sub>0</sub>	0%* I <sub>0</sub>
Rms Output Current(mA)	4300mA	3225mA	2150mA	1075mA	0mA
Rms Output Voltage(V)	14.543V	14.655V	14.763V	14.861V	14.964V
Active Output Power(W)	62.53W	47.26W	31.74W	15.98W	0.00W
Rms Input Voltage(V)	230V	230V	230V	230V	230V
Rms Input Current(A)	0.711A	0.547A	0.382A	0.212A	0.034A
Rms Input Power(W)	71.90W	54.30W	35.90W	18.60W	0.20W
Voltage T.H.D.(%)	0.17%	0.15%	0.13%	0.12%	0.12%
True Power Factor	0.440	0.429	0.407	0.379	0.025
Power Consumed by UUT(W)	9.37W	7.04W	4.16W	2.62W	0.20W
Efficiency	86.97%	87.04%	88.41%	85.89%	*
Average Efficiency	87.08%				*

Approved : \_\_\_\_\_

Tester : \_\_\_\_\_