

**10 WATT
TO
60 WATT
EXTERNAL POWER SUPPLIES**

**COMPACT POWER SUPPLIES
DESIGNED FOR
NOTEBOOK COMPUTERS,
BATTERY CHARGERS,
PRINTERS, ETC.**

LIEN ENGINEERING, INC.

7940 Arjons Drive • San Diego, California 92126 U.S.A. • Phone: (619) 695-1070 • FAX: (619) 695-6501



LIEN ENGINEERING, INC.

Desktop Power Adaptors

**10 TO 60 WATT SINGLE and DUAL OUTPUT
SWITCHING DESKTOP POWER ADAPTORS**



FEATURES:

- Auto Selecting, Full Range 90 - 260 VAC Input
- Compact size
- Proven High Reliability Design
- High Efficiency
- UL, CSA, TUV Approved
- On Board EMI/RFI Filtering - Meets FCC Class B
- Reliable MOS-FET designs

For over 25 years, Lien Engineering, Inc. has been producing innovative Power Conversion and Enclosure Products for Large and Small Computers, Computer Peripherals, Medical, Communications, and other Industrial requirements.

LIEN ENGINEERING, INC.

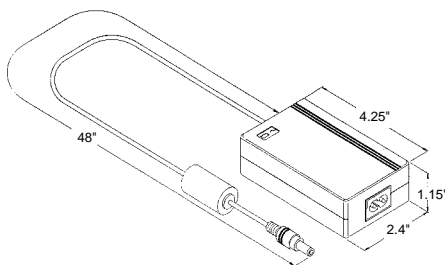
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DESKTOP POWER ADAPTORS

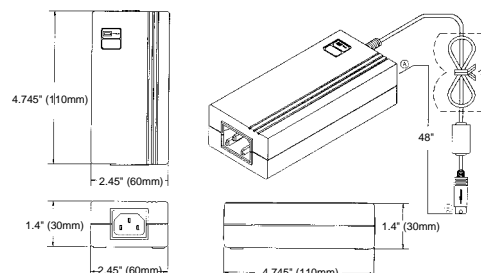
Lien Engineering, Inc. is proud to present our line of external power adaptors. They provide a universal, auto-sensing, auto-switching capability with a 10W to 60W power range and a minimum load of 0A in a small package. They have overload, overvoltage and short circuit protection with automatic recovery, coupled with a Mean Time Between Failure of 100,000 POH at maximum operating temperature and a typical efficiency range of 70% to 85%. A variety of output options, including voltages and connectors, give a nearly limitless range of applications. Our external units have been certified by all of the major industry safety organizations, including the ability to modify some models to comply with the UL544 specifications. Given Lien Engineering, Inc.'s record of over 25 years of building the most reliable, smallest power supplies in a timely manner, you can't lose when you go with a Lien Engineering, Inc. Desktop Power Adaptor.

	SLIMLINE SERIES	GENERAL PURPOSE SERIES	HEAVY DUTY SERIES
DIMENSIONS	2.4"W x 4.25"L x 1.15"H	2.44"W x 4.74"L x 1.5"H	2.53"W x 5.7"L x 1.8"H
OUTPUTS	+12VDC @ 0 - 5.0A	+12VDC @ 0 - 0.4A +5VDC @ 0 - 2.5A	+24VDC @ 0 - 2A / 4A Peak
VOLTAGE REGULATION	5% Maximum	0.5% Maximum	0.5% Maximum
RIPPLE VOLTAGE (mV p-p)	100mVp-p Maximum	60mV for +5VDC 100mV for +12VDC	100mV for +5V
TEMPERATURE	Operational: 0°C to +45°C Non-operational: -45°C to +85°C	Operational: 0°C to +55°C Non-operational: -40°C to +85°C	Operational: 0°C to +55°C Non-operational: -40°C to +85°C
TYPICAL APPLICATIONS	Notebook computers, portable printers	Notebook computers, portable printers, kiosks	Desktop printers, cash registers

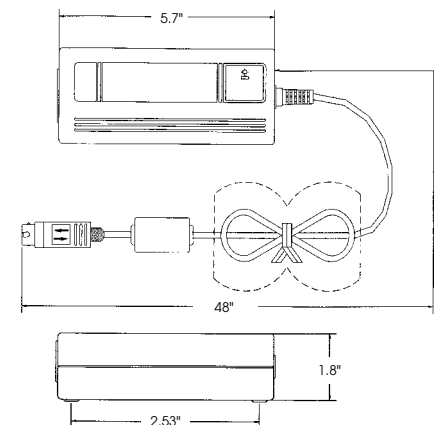
Slimline



General Purpose



Heavy Duty



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Desktop Power Adaptors

SLIMLINE SERIES 10 TO 60 WATT SINGLE and DUAL OUTPUT SWITCHING DESKTOP POWER ADAPTORS



Some of the smallest designs available today!

FEATURES:

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- Proven High Reliability Design
- High Efficiency
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- On Board EMI/RFI Filtering - Meets FCC Class B
- Compact Size
- Reliable MOS-FET design

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SLIMLINE SERIES

SPECIFICATIONS

INPUT

INPUT VOLTAGE: 90VAC to 264VAC
47 - 63 Hz
No external jumpers or switching required
INRUSH CURRENT: <30A Peak @ 115VAC
<15A Peak @ 230VAC
INPUT CURRENT: 1A Max RMS @ 115VAC
EFFICIENCY: >75% Typical at full load
EMI FILTER: Meets FCC Class B
UL
CSA
TUV

VOLTAGE REGULATION: $\pm 5\%$ Maximum
NOISE: (mv P-P) 100mV Maximum
HOLD-UP TIME: 12ms Minimum at full load
and 115VAC nominal line
LINE REGULATION: 0.5% Maximum
PROTECTION: Foldback @ 105% to 150%
of rated output
Automatic recovery
5.6VDC $\pm 10\%$ for +5V
Continuous short circuit protection

OUTPUT

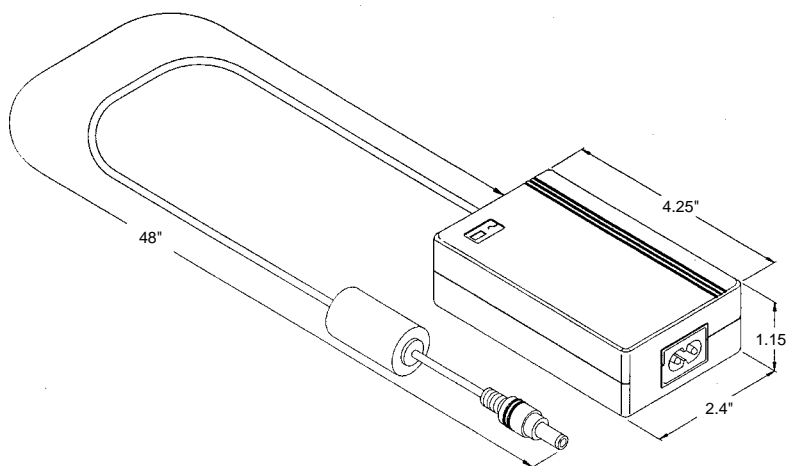
OUTPUT RATING: (Amps) +5VDC @ 0 - 3.0
+12VDC @ 0 - 3.0/5.0pk
RIPPLE & NOISE: 1% Peak to peak
maximum of all outputs
ADJUSTMENT RANGE: $\pm 10\%$ Rated output

ENVIRONMENTAL

OPERATING TEMPERATURE: 0°C to 45°C
STORAGE TEMPERATURE: -45°C to 85°C
MTBF: 100,000 POH at maximum
operating temperature

DIMENSIONS: 2.4" x 4.25" x 1.15"

MODEL	POWER	VOLTAGE	CURRENT
A71P5	60W	+5V	12.0A
A71P12	60W	+12V	5.0A
A71P15	60W	+15V	4.0A
A71P5N5	60W	+5V	6.0A
		-5V	6.0A
A71P5P12	60W	+5V	7.0A
		+12V	1.0A
A71P12N12	60W	+12V	2.5A
		-12V	2.5A



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Desktop Power Adaptors

**GP SERIES 10 TO 60 WATT SINGLE and DUAL
OUTPUT SWITCHING DESKTOP POWER ADAPTORS**



*Some of the smallest
designs available today!*

FEATURES

- Auto Selecting, Full Range 90 - 260 VAC Input
- Compact size
- Proven High Reliability Design
- High Efficiency
- UL, CSA, TUV Approved
- On Board EMI/RFI Filtering - Meets FCC Class B
- Reliable MOS-FET design

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GP SERIES SPECIFICATIONS

INPUT

INPUT VOLTAGE: 90VAC to 264VAC
47 - 63 Hz

No external jumpers or switching required

INRUSH CURRENT: <30A Peak @ 115VAC
<15A Peak @ 230VAC

INPUT CURRENT: 1A Max RMS @ 115VAC

EFFICIENCY: >75% Typical at full load

EMI FILTER: Meets FCC Class B
UL
CSA
TUV

NOISE: (mv P-P) 60mV for +5VDC
100mV for +12VDC

HOLD-UP TIME: 12ms Minimum at full load
and 115VAC nominal line

LINE REGULATION: 0.5% Maximum

PROTECTION: Foldback @ 105% to 150% of
rated output
Automatic recovery
5.6VDC \pm 10% for +5V
Continuous short circuit
protection

OUTPUT

OUTPUT RATING: (Amps) +5VDC @ 0 - 2.5
+12VDC @ 0 - 0.4

RIPPLE & NOISE: 1% Peak to peak
maximum of all
outputs

ADJUSTMENT RANGE: \pm 10% Rated output

VOLTAGE REGULATION: \pm 0.5% Maximum

ENVIRONMENTAL

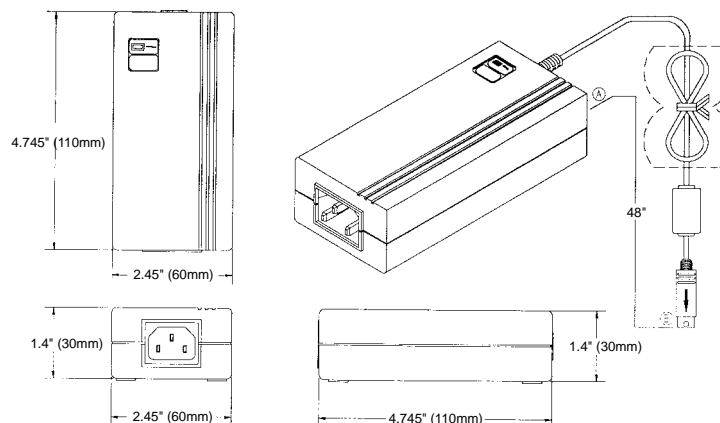
OPERATING TEMPERATURE: 0°C to 45°C

STORAGE TEMPERATURE: -40°C to 85°C

MTBF: 100,000 POH at maximum
operating temperature

DIMENSIONS: 2.44" x 4.74" x 1.5"

MODEL	POWER	VOLTAGE	CURRENT
A25P5	60W	+5V	12.0A
A25P12	60W	+12V	5.0A
A25P15	60W	+15V	4.0A
A25P5N5	60W	+5V -5V	6.0A 6.0A
A25P5P12	60W	+5V +12V	7.0A 1.0A
A25P12N12	60W	+12V -12V	2.5A 2.5A



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Desktop Power Adaptors

HD SERIES 10 TO 60 WATT SINGLE and DUAL OUTPUT SWITCHING DESKTOP POWER ADAPTORS



*Some of the smallest
designs available today!*

FEATURES

- Auto Selecting, Full Range 90 - 260 VAC Input
- Proven High Reliability Design
- High Efficiency
- UL, CSA, TUV Approved
- On Board EMI/RFI Filtering - Meets FCC Class B
- Compact Size
- Reliable MOS-FET design

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HD SERIES SPECIFICATIONS

INPUT

INPUT VOLTAGE: 85VAC to 264VAC
47 - 63 Hz
No external jumpers or switching required
INRUSH CURRENT: <30A Peak @ 115VAC
<15A Peak @ 230VAC
INPUT CURRENT: 1A Max RMS @ 115VAC
EFFICIENCY: >75% Typical at full load
EMI FILTER: Meets FCC Class B
UL
CSA
TUV

NOISE: (mv P-P) 100mV for +5V
HOLD-UP TIME: 12ms Minimum at full load
and 115VAC nominal line
LINE REGULATION: 0.5% Maximum
PROTECTION: Foldback @ 105% to 150% of
rated output
Automatic recovery
5.6VDC \pm 10% for +5V
Continuous short circuit
protection

OUTPUT

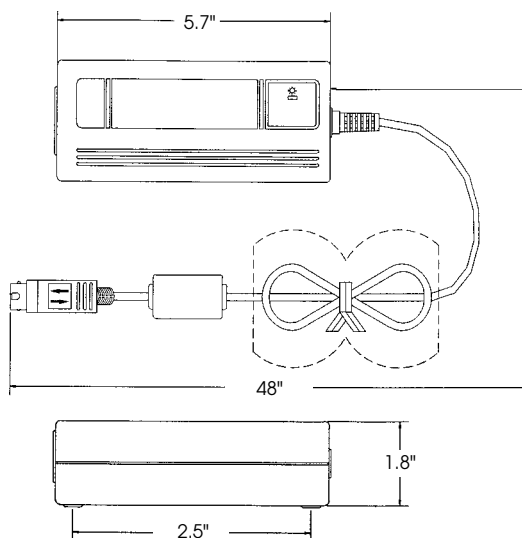
OUTPUT RATING: (Amps) +24VDC @ 0 - 2.0/
4.0pk
RIPPLE & NOISE: 1% Peak to peak
maximum of all
outputs
ADJUSTMENT RANGE: \pm 10% Rated output
VOLTAGE REGULATION: \pm 0.5% Maximum

ENVIRONMENTAL

OPERATING TEMPERATURE: 0°C to 45°C
STORAGE TEMPERATURE: -40°C to 85°C
MTBF: 100,000 POH at
maximum
operating
temperature

DIMENSIONS: 2.53" x 5.7" x 1.8"

MODEL	POWER	VOLTAGE	CURRENT
A23P5	60W	+5V	12.0A
A23P12	60W	+12V	5.0A
A23P15	60W	+15V	4.0A
A23P24	60W	+24V	2.5A
A23P5N5	60W	+5V -5V	6.0A 6.0A
A23P5P12	60W	+5V +12V	7.0A 1.0A
A23P12N12	60W	+12V -12V	2.5A 2.5A



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DC/DC Automobile Adaptors

50 WATT SINGLE and DUAL OUTPUT DC to DC AUTOMOBILE POWER ADAPTORS



FEATURES

- Compact size
- Proven High Reliability Design
- Durable Construction
- High Efficiency
- UL, CSA, TUV Approved
- On Board EMI/RFI Filtering - Meets FCC Class B
- Reliable MOS-FET design

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DC/DC AUTOMOBILE ADAPTORS

SPECIFICATIONS

INPUT

INPUT VOLTAGE: 10VDC to 18VDC
 INPUT CURRENT: 3.0 - 4.0A
 EFFICIENCY: >75% Typical at full load
 EMI FILTER: Meets FCC Class B
 UL
 CSA
 TUV

LINE REGULATION: 2% Maximum
 PROTECTION: Over current protection
 Over voltage protection
 Continuous short circuit protection

OUTPUT

OUTPUT VOLTAGE: 5VDC to 24VDC
 OUTPUT RATING: 0 - 9.0A
 RIPPLE & NOISE: 1V Peak to peak over 20MHz Bandwidth.
 ADJUSTMENT RANGE: None
 VOLTAGE REGULATION: $\pm 5\%$ Maximum
 NOISE: (mv P-P) 200mV for +24V
 HOLD-UP TIME: ≥ 15 ms Minimum at 15W load

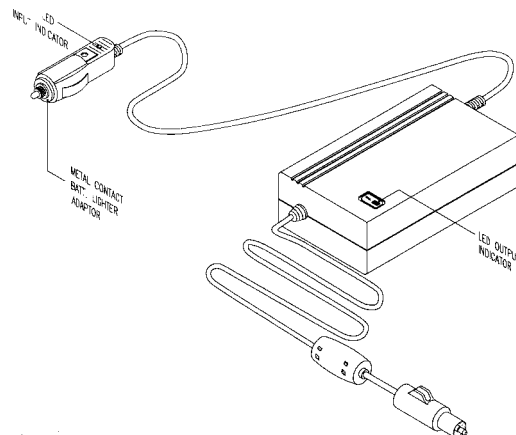
ENVIRONMENTAL

OPERATING TEMPERATURE: 0°C to 45°C
 STORAGE TEMPERATURE: -40°C to 85°C
 MTBF: 100,000 POH at maximum operating temperature

POWER INDICATOR: Green LED on top surface of case.

DIMENSIONS: 2.4" x 4.25" x 1.4"

MODEL	POWER	VOLTAGE	CURRENT
D63P5	50W	+5V	9.0A
D63P12	50W	+12V	4.0A
D63P24	50W	+24V	2.0A
D63P5N5	50W	+5V	4.5A
		-5V	4.5A
D63P5P12	50W	+5V	4.5A
		+12V	2.0A
D63P12N12	50W	+12V	2.0A
		-12V	2.0A
D63P12P24	50W	+12V	2.0A
		+24V	1.0A
D63P24N24	50W	+24V	1.0A
		-24V	1.0A



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