

*Acopian*

Since 1957

# Power Supply Catalog 2018

We make Power Supplies in  
Every voltage from 0 volts to 30kV

AC-DC and DC-DC

3 Day Shipping Guarantees

Linear, Switching, Unregulated

5 Year Warranties

Order Factory Direct



Made in the U.S.A.



# Celebrating 50 Years of Excellence



Sarkis Acopian

Having come to the United States as an immigrant in the mid 1940s, Sarkis Acopian, founder of Acopian Technical Company, attended Lafayette College in Easton, PA. During his time at Lafayette, he was called to serve in the U.S. Army. After being honorably discharged and returning to Lafayette, he graduated in 1951, earning a bachelor's degree in mechanical engineering. After graduation, Mr. Acopian was employed by Weller Electric Corp., where he designed a power sander and a soldering gun that became two of its main products. With just a small loan to start his own company and achieve his share of the American dream, he began by designing and manufacturing the first ever solar radio, a milestone of 1957 technology. The Acopian Solar Radio was promoted as 'Revolutionary – No Batteries or Outside Electrical Plug-ins – Uses light for its source of energy.'

When Mr. Acopian needed some power supplies and couldn't obtain them quickly, he made them himself, and – realizing that other engineers were experiencing the same problem – began to advertise them for sale. Soon, Acopian was building and shipping power supplies very quickly. This evolved into our 3 Day shipping policy – "up to 5 pieces of any power supply is guaranteed to ship within 3 Days after receipt of order." As the power supply line grew, larger and more complicated power supplies were introduced, but the same philosophy was followed for these larger supplies – "up to 2 pieces of these would ship within 9 days after receipt of order." We still pride ourselves on this remarkable ability. To this day, none of our competitors can consistently match our shipping promise dates.

Mr. Acopian, an industrialist, environmentalist and humanitarian, has displayed extraordinary generosity to international, national and local non-profit agencies throughout his lifetime. His interest in ornithology resulted in establishing the Birds of Armenia Project, whose primary goal was to stimulate environmental awareness and establish a conservation ethic among the citizenry of Armenia.

Mr. Acopian's passion for higher education and the sciences is seen in his many philanthropic endeavors, which have included the Acopian Engineering Center at Lafayette College, the Acopian Center for Conservation Learning at Hawk Mountain Sanctuary and the Acopian Center for Ornithology at Muhlenberg College, as well as his endowing of the environmental education programs at the American University of Armenia and the Florida Institute of Technology. His great sense of gratitude to his adopted country played a major part in his being the largest individual donor to the World War II Memorial in Washington, DC.

In celebrating its 50<sup>th</sup> anniversary, **Acopian** continues to develop new lines of power supplies for the constantly changing needs of industry. But what will never change is our commitment to serving our valued customers with quality products, our 3-Day shipping guarantee and unsurpassed customer service.



# Acopian Promises to Ship Within Three Days

## Lawrence Berkeley National Laboratory

“Whenever I need a power supply for any project, I always check Acopian first. Your customer service is first rate, and I really like the fast, dependable shipping. The reliability of your products is an additional bonus – **they seem to last forever.**”

**Gudrun Kleist**, Engineering Associate

...and we keep that promise. For more than 40 years, Acopian has been shipping AC to DC power modules within three days after receipt of an order. During this period, the Acopian line has expanded from the original Plug-in modules to a broad range of different types of power supplies. Our unique 3-day shipping guarantee has prompted many questions. Below are some of those most often asked:

**I've seen other power supply manufacturers advertise "same-day shipment." Isn't that better than 3-day shipment?**

A typical vendor's "same-day shipment" advertisement can only be fulfilled if the power supplies you need are in stock. Otherwise, a four to six week delay is not unusual before inventory is replenished and your order is shipped.

Acopian's 3-day shipment promise applies to ALL 3 Day models (larger units ship within 9 Days) and is not dependent on the quantity in stock. We build each unit after the order for that unit is received. If an order is needed faster, often times we can ship in less than 3 days.

**What does Acopian's 3-day shipping promise mean?**

It means that power modules listed in this catalog are shipped within 3 days after we receive your order. High Voltage, Redundant, Rack Mounting, Systems and certain Switching power supplies are shipped within 9 days.

**Do options affect shipping time?**

The 230 volt input option and moisture/fungus-proofing option require two additional days. All other options do not affect shipping time.

**Has Acopian ever failed to meet this promise?**

Never.



**Is the 3-day promise affected by quantity? Suppose we need 50 or 100 pieces?**

The 3-day promise applies to orders for five or less modules. (Two or less for 9-day items). If requested, Acopian will ship five pieces of a larger order in 3 days and, with consideration of your requirement, schedule the balance. (Since each shipment is processed and priced as a separate order, for lowest prices request shipment in one lot.)

**What if I need four or five different models? Does the 3-day promise still apply?**

Yes. Guaranteed 3-day shipment applies to one model or to a combination of models.

**Do I have to ask for 3-day shipment of my order?**

3-day shipment is automatic. In fact, you must tell us if you want the shipment delayed.

**How long after you ship will I have the power supplies?**

Transportation time varies with the carrier used. Unless otherwise requested, Acopian ships small orders by UPS Ground.

**You say Acopian has never failed to meet the 3-day promise. How do you do it?**

Our facilities have been designed and equipped to meet our 3-day shipment promise. When your order is received, your power supplies are built specifically for you and shipped within three days. We do not ship from stock. (For this reason, we are unable to accept returns for credit.)

# Table of Contents

## Customized Solutions to meet your needs

Acopian has been customizing power supplies and building Power Systems for over 48 years. . . . .

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**Shipped within 9 DAYS**



## POWER SYSTEMS

Try the convenient  
**Online System Builder**  
at [www.acopian.com](http://www.acopian.com)

Any combination of power supplies can be mounted in an assembly  
that includes the operating features you require . . . . .

6-13

**Shipped within 9 DAYS**



## REDUNDANT POWER PACKAGES, AC-DC

### RACK MOUNTING, WALL MOUNTING

|  |              |
|--|--------------|
| Using two linear supplies . . . . .    | 18-19, 14-17 |
| Using two switching supplies . . . . . | 20-21, 14-17 |

### PLUGGABLE REDUNDANT SYSTEMS

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|--|--------------|
| Using two switching supplies . . . . . | 22-23, 14-17 |
|--|--------------|

### MODULAR REDUNDANT SYSTEMS

|  |              |
|--|--------------|
| Using two linear supplies . . . . .    | 24-25, 14-17 |
| Using two switching supplies . . . . . | 26-27, 14-17 |

## SWITCHING REGULATED, AC-DC

**Shipped  
within  
6 DAYS**



### MINI ENCAPSULATED - PC Board Mounting - with Screw Terminals

|  |                         |       |                  |    |  |    |
|--|-------------------------|-------|------------------|----|--|----|
| 5-48 volts<br>0.65-10 amps<br>30 & 50 watt                       | Single output . . . . . | 38-39 | Socket . . . . . | 38 | Mounting Kits (for wall mounting or DIN rail mounting) . . . . . | 77 |
| Single output . . . . .  | 38-39                   |       |                  |    |  |    |
| Socket . . . . .   | 38                      |       |                  |    |  |    |
| Mounting Kits (for wall mounting or DIN rail mounting) . . . . . | 77                      |       |                  |    |  |    |

**Shipped  
within  
3 DAYS**



### NARROW PROFILE

|  |  |       |  |       |  |    |
|--|--|-------|--|-------|--|----|
| 3.3-125 volts<br>1.3-25 amps<br>to 288 watts   | Single output (to 120 watts) . . . . . | 42-43 | Single output (to 288 watts)<br>with Power Factor Correction and Universal Input . . . . . | 44-45 | Mounting Kits (for wall mounting or DIN rail mounting) . . . . . | 91 |
| Single output (to 120 watts) . . . . .   | 42-43                                  |       |  |       |  |    |
| Single output (to 288 watts)<br>with Power Factor Correction and Universal Input . . . . . | 44-45                                  |       |  |       |  |    |
| Mounting Kits (for wall mounting or DIN rail mounting) . . . . .                           | 91                                     |       |  |       |  |    |

**Shipped  
within  
9 DAYS**



### LOW PROFILE (with Power Factor Correction and Universal Input)

|  |                         |       |                              |       |  |    |
|--|-------------------------|-------|------------------------------|-------|--|----|
| 3.3-50 volts<br>15-70 amps<br>to 720 watts                       | Single output . . . . . | 50-53 | Wide Adjust output . . . . . | 50-53 | Mounting Kits (for wall mounting or DIN rail mounting) . . . . . | 91 |
| Single output . . . . .  | 50-53                   |       |                              |       |  |    |
| Wide Adjust output . . . . .                                     | 50-53                   |       |                              |       |  |    |
| Mounting Kits (for wall mounting or DIN rail mounting) . . . . . | 91                      |       |                              |       |  |    |

**Shipped  
within  
9 DAYS**



### GOLD BOX

|  |                         |       |                              |       |  |    |
|--|-------------------------|-------|------------------------------|-------|--|----|
| 3.3-48 volts<br>8-150 amps<br>325-1200 watts                     | Single output . . . . . | 54-55 | Wide Adjust output . . . . . | 54-55 | Mounting Kits (for wall mounting or DIN rail mounting) . . . . . | 91 |
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| Mounting Kits (for wall mounting or DIN rail mounting) . . . . . | 91                      |       |                              |       |  |    |

## DC-DC CONVERTERS, REGULATED

**Shipped  
within  
3 DAYS**



5-48 Vdc in  
5-28 volts out  
0.2-2.5 amps  
6-15 watts

### MINI ENCAPSULATED - PC Board Mounting

|                                  |       |
|----------------------------------|-------|
| Single and Dual output . . . . . | 74-75 |
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### MINI ENCAPSULATED - With Screw Terminals

|  |       |
|--|-------|
| Single and Dual output . . . . .                                 | 76-77 |
| Mounting Kits (for wall mounting or DIN rail mounting) . . . . . | 77    |



18-350 Vdc in  
3.3-125 Vdc out  
1.3-25 amps  
to 288 watts

### NARROW PROFILE

|  |       |
|--|-------|
| Single output . . . . .  | 78-80 |
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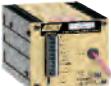
## HIGH VOLTAGE REGULATED, AC-DC & DC-DC

To 30 KV

**Shipped within...**

**...6 DAYS**

**...9 DAYS**



0-30 KV  
1-60 mA  
30-60 watts

### MODULAR

|  |       |
|--|-------|
| Single output . . . . .  | 70-73 |
| Mounting Kits (for wall mounting or DIN rail mounting) . . . . . | 91    |

### RACK MOUNTING

|                         |       |
|-------------------------|-------|
| Single output . . . . . | 68-69 |
|-------------------------|-------|

## LINEAR REGULATED, AC-DC

**Shipped  
within  
3 DAYS**



{ 1-75 volts  
0.02-2.5 amps  
0.25-15 watts }

**Shipped  
within  
3 DAYS**



{ 0-150 volts  
0.05-3.5 amps  
2-38 watts }

**Shipped  
within  
3 DAYS**



{ 0-200 volts  
0.1-32 amps  
0.6-450 watts }

**Shipped  
within  
3 DAYS**



{ 1-200 volts  
0.02-5 amps  
0.1-60 watts }

**Shipped within 9 DAYS**



{ 0-150 volts  
2.3-60 amps  
30-784 watts }

### MINI ENCAPSULATED - PC Board Mounting

|  |       |
|--|-------|
| Single output .....  | 32-33 |
| Dual output .....  | 34    |
| Sockets .....  | 34    |
| <b>MINI ENCAPSULATED - With Screw Terminals</b>              |       |
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| Mounting Kits (for wall mounting or DIN rail mounting) ..... | 77    |

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|  |       |
|--|-------|
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|--|-------|
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### PLUG-IN

|                                   |       |
|-----------------------------------|-------|
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| Wide Adjust output .....          | 84-85 |
| MIL tested .....                  | 81    |
| Sockets .....                     | 81    |
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### RACK MOUNTING

|  |              |
|--|--------------|
| Single output .....  | 28-29        |
| Dual output .....  | 28-29        |
| Wide Adjust output .....                                     | 60-61, 30-31 |
| Adjustable Current Limiting .....                            | 30-31        |
| Programmable (with a control voltage or potentiometer) ..... | 60-61        |

## UNREGULATED, AC-DC

**Shipped  
within  
3 DAYS**



{ 0 - 1000 volts  
0.02-23 amps  
0.8-560 watts }

{ 0 - 950 volts  
0.02 - 5 amps  
7 - 140 watts }

### GOLD BOX

|  |       |
|--|-------|
| Single output .....  | 56-57 |
| Wide Adjust output .....                                     | 56-57 |
| Mounting Kits (for wall mounting or DIN rail mounting) ..... | 91    |

### PLUG-IN

|                          |       |
|--------------------------|-------|
| Single output .....      | 82-83 |
| Wide Adjust output ..... | 82-83 |
| Sockets .....            | 81    |

## NEMA 4X Enclosed

We can mount many of our power supplies in NEMA enclosures. .... 35

## FIND POWER SUPPLY BY MODEL NUMBER

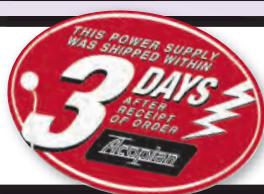
92

## Under/Overvoltage Monitors

These modules can be used with any manufacturer's power supply to control an external horn or light, or to signal your PLC if the 'target' output voltage deviates. .... 90

## Circuit Enclosure Boxes

You can now package your own circuits in the same rugged casework used for Acopian power supplies .... 89



|   |                   |
|---|-------------------|
| ORDER DIRECT FROM ACOPIAN .....                 | Inside Back Cover |
| WARRANTY .....                                  | Inside Back Cover |
| TAGGING, TEST DATA, FUNGUS PROOFING .....       | Inside Back Cover |
| <b>3-DAY AND 9-DAY SHIPPING GUARANTEE</b> ..... | 1                 |

# Need a non-standard power supply?

**We'll customize a power supply to meet your requirements.**

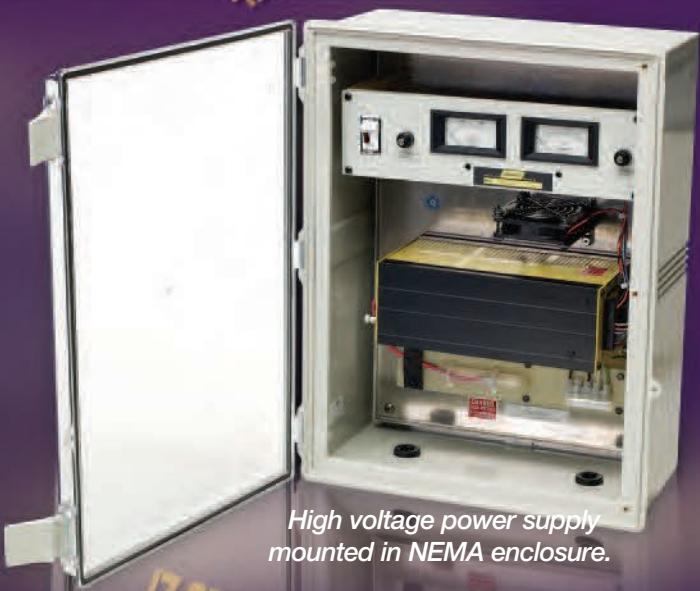
Acopian has been customizing power supplies to meet our customers' unique requirements for over 48 years. The cost is reasonable, even in small quantities. We ship them quickly – often within the same 3 working days as our standard models. And they carry the same five year warranty. Tell us your requirements, and we'll quote what we can do for you.



*Power supply with  
IEC input connector and  
circular output connector*



*Baseplate-mounting  
power supply*



*High voltage power supply  
mounted in NEMA enclosure.*

# Acopian can help you by making modifications such as these:

## These Output modifications are easily done:

Non-standard output voltages/ranges  
Capability to compensate large load line drops  
Programmable with 0-5 or 0-10V control voltage  
Programmable current control  
Capability to provide a surge current at turn-on  
Wide adjust zero-up outputs  
Modified current limiting characteristics:  
    Adjustable current limiting  
    Latching current limiting  
    Constant current limiting  
    Pulsing limiting  
Adjustable overvoltage protection  
Redundancy: N+1 or diode OR-ing  
Inhibit and enable control  
Multiple sets of fused output terminals  
Electrostatically shielded transformers  
Low noise/low ripple outputs  
Paralleling: passive or active  
Switchable polarity outputs  
Relay controlled outputs

## These Input modifications are easily done:

Special input ranges  
Selectable input voltage ranges  
DC inputs to 350V  
Logic-controlled on/off  
400 Hz input  
90-265 Vac input (Japan)  
Inhibit/enable (TTL or other level)  
AC inrush limiting  
Soft start  
Optically Isolated Control inputs

## These Operating Features are easily done:

Alarm contacts  
Monitor outputs (may be scaled)  
Input switch  
Output voltage selector switch  
LED indicators  
10-turn output controls  
Test jacks (pin or banana)  
Temperature protection (thermostat)  
Analog or digital meters  
Voltage and current monitors  
Outputs on binding posts  
Remote system AC control using SS relays  
EMI and RFI filtering/shielding  
Safety/interlock switches

## These Mechanical modifications are easily done:

Input/output connector(s) instead of  
    screw terminals  
Customer specified connectors  
Flying lead connections  
Output cables  
Line cord (hard-wired or IEC with detachable cord)  
Mounting flanges added  
Clips for DIN rail mounting added  
Changed case dimension  
Special case to fit available space  
Mounting in NEMA enclosure  
Fan cooling  
Handles/rubber feet added  
Custom painted  
Rack heights from 1<sup>3/4</sup>" to 12<sup>1/4</sup>"  
Pluggable modules

**Or we can build a Power System  
that will meet your requirements.  
See next page.**

# Power Supply Systems

Any way YOU want!



**The next 7 pages detail for you:**

- The unlimited variety Acopian can make!
- How easy it is to order Power Systems Online!
- Acopian's 9 Day Shipping Promise for Systems!
- Why Acopian warranties its Systems for 5 years!

Since 1964, Acopian has been building Power Supply Systems for customers including Lockheed Martin, Raytheon, Northrop Grumman, BAE, Westinghouse, Walt Disney, U.S. Army, U.S. Navy, Emerson, Tyco, Siemens, Chevron, University of Chicago, MIT, Honeywell, Goodrich, Harris Corp, GM and GE. Shouldn't you be choosing Acopian too?

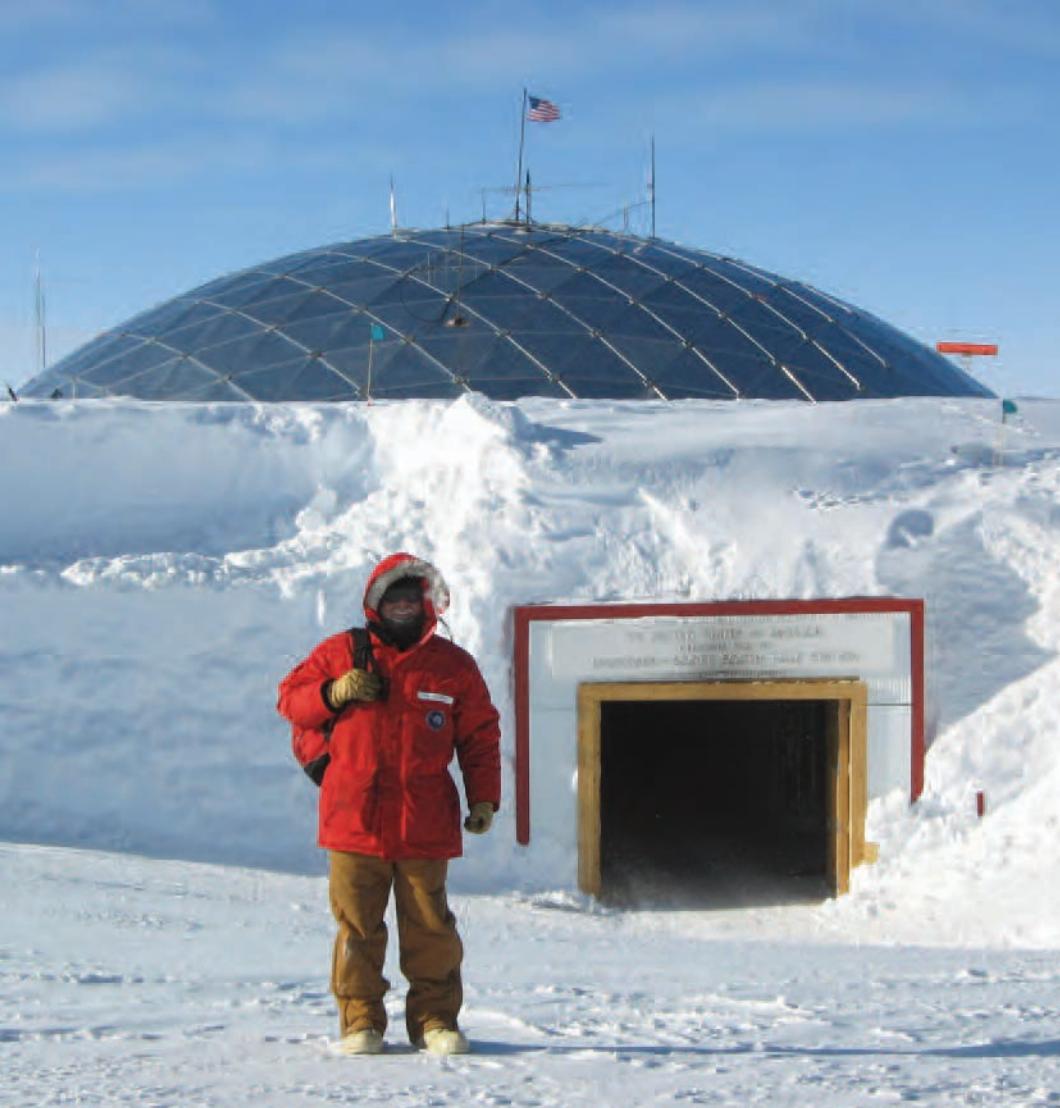


PHOTO COURTESY OF THE ICECUBE PROJECT

*"At Project IceCube, it's absolutely critical to have a good power supply. The ice must be as pure and clear as possible. If the power to the ice top sensor system were to fail, we would risk the tank water freezing without being controlled, resulting in bubbles and impurities, and very much reducing the quality of ice and quality of information that we can see with our detectors. We chose Acopian power supplies to power our pumping and degassing systems because of their reputation for reliability. The people at Acopian met all of our highly demanding specifications and, despite very little time until our window to ship to the Pole, they met our schedule. We were 100% satisfied."*

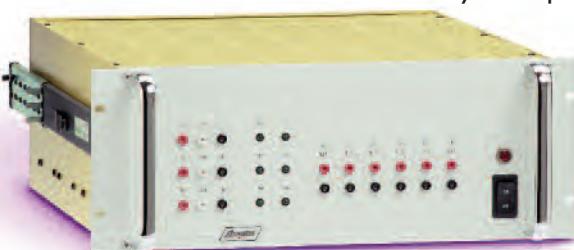
**Jim Baccus**  
**Cable System Manager**  
**Project IceCube**

*(the international high-energy neutrino observatory being built and installed in the ice below South Pole Station)*

## The world's most demanding environments demand Acopian power systems.

Design your own Acopian power system online with the System Builder at [www.acopian.com](http://www.acopian.com). Simply enter your requirements, and you'll receive a quotation for fully wired multiple-output power systems, without the need for you to prepare mechanical layouts or search through a power supply catalog.

Each system will be completely wired, tested and shipped within 9 days after receipt of the order. Choose Acopian – the power supplies of choice for the world's leading engineers.



ALL ACOPIAN POWER SUPPLIES  
MADE IN U.S.A.



Acopian Technical Company

**I-800-523-9478 • [www.acopian.com](http://www.acopian.com)**

# **Building your own Power Supply System is so simple anyone can do it...with Acopian's Online System Builder!**

[www.acopian.com](http://www.acopian.com)

Once Online, click here. Then...  
Simply 'check' or fill in ~~/~~whichever items you require.

**Acopian** **Power Supplies** **Shipped Within 3 Days**

Contact an Engineer Tech Talk News Testimonials About Us Contact Us Why Acopian?

Find a Power Supply **Build a Custom Power System** Enter DC Voltage **GO** Enter Model# **GO**

## Acopian Power System Builder

[MORE INFO] [PHOTOS]

Simply 'check' or fill in whichever items you require. Since the possibilities are endless, use the 'Notes/special instructions' sections for anything not covered in the System Builder.

Choose up to 30 outputs

How Many Outputs Do You Need For Your System? 2

Switching Linear Unregulated Overvoltage Protection Remote Sensing

Output 1:  volts dc,  amps

Output 2:  volts dc,  amps

Physical Form: 19" Wide rack

19" Wide Rack:  Maximum height  Maximum depth

handles on front panel  
 chassis slides:  
 adjustable from 16" to 22" long  
 adjustable from 20" to 26" long (standard size)  
 specify length:  (uncommon sizes may require more than 9 days)  
 Acopian can select appropriate length  
 Leave top and bottom open for ventilation and accessibility  
 Install top and bottom perforated covers

Systems of unusual size or shape (other than 19" wide, or more than 7" high) may require more than 9 days.

These are your choices:  

- 19" Wide rack
- 24" Wide rack
- Custom width rack
- Wall mounting
- Benchtop
- Not sure
- Make me a 'special' Power Supply  
(I don't want a Power System)

**Input connections:**

- [screw terminals](#) (this is standard)
- [terminal strip cover](#)
- [IEC connector with 6' line cord](#)
- [hardwired line cord](#)

**Output connections:**

- [screw terminals](#)
- [terminal strip cover](#)
- [connector](#)
- [D-subminiature](#)
- [circular](#)
- [Acopian can select \(and provide mate\)](#)
- [use this type:](#)

**Notes/special instructions:****Input power switch with 'on' indicator:**

- [on front panel \(this is standard\)](#)
- [on rear panel.](#)
- [I don't need a power switch.](#)



When Northrop Grumman engineers needed a system with output setting precision better than 1%, they turned to Acopian. A digital voltmeter and ammeter permit setting and monitoring the four outputs of this system to three digit accuracy. **Acopian shipped it within 9 Days of receiving the order.** And as is true of all Acopian systems, it shipped with a 5 year warranty.

# Next!

## Let us know if you want Redundancy in your Acopian Power System.

**Acopian**

**Power Supplies**  
Shipped Within 3 Days

My Account Cart Checkout

Contact an Engineer Tech Talk News Testimonials About Us Contact Us Why Acopian?

Find a Power Supply Build a Custom Power System Enter DC Voltage GO Enter Model # GO

Would you like Redundant\* outputs?

\* Two power supplies for each output. If one fails, the other will continue to provide an uninterrupted output.

Notes/special instructions:

Input voltage:

Acopian Redundant Power Package style (primary/backup)  
N+1 (current sharing)  
Redundancy not required

With the near endless kinds of features, types and parts we can accommodate in Acopian Power Systems, we only included the most standard ones in the System Builder, so every section comes with a "Notes/special instructions" block. What can we do for you?

See page 13 for a partial list of features not included in our System Builder.

Two identical linearly regulated power supplies with their outputs connected in parallel provide a 48 Vdc 15A redundant output with line and load regulation better than  $\pm 0.05\%$ , and output ripple of less than 1 mV rms, 3 mV p-p. For AC redundancy, each supply can be fed from a different power source, and each has failure alarm contacts for remote monitoring of operating status. Because each supply is physically separate, one supply can be quickly and easily removed from the rack while the other continues to provide uninterrupted power to the load. **This system was shipped within 9 days and carries Acopian's 5 year warranty.**



**Metering:**[analog \(this is standard\)](#) digital meters not required Voltmeter

If there is more than one output:

 Dedicated voltmeters (each output has its own voltmeter) Switchable voltmeter (multiple outputs share one meter. A switch is used to change which output will display on the meter.) Ammeter

If there is more than one output:

 Dedicated ammeters (each output has its own ammeter) Switchable ammeter (multiple outputs share one meter. A switch is used to change which output will display on the meter.)

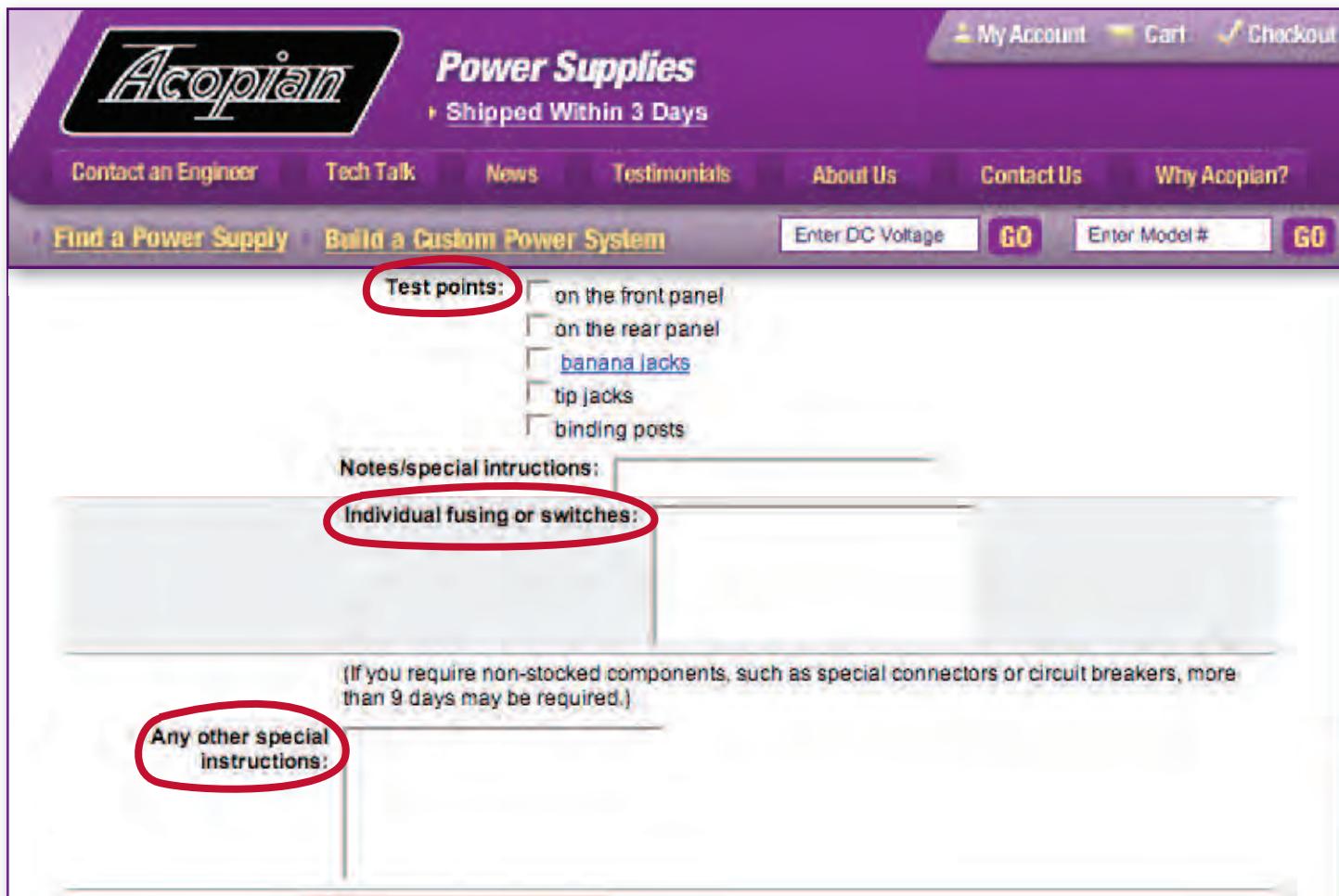
(If you only require meters for certain outputs, indicate this here.)

**Output Indicators:** 'Output Present' LED green red 'Output Not Present' red neon lamp**Output adjustment:** Front Panel screwdriver slot with shaft lock knob Rear Panel screwdriver slot(s) shaft lock required.[holes in panel to access adjustments on power supplies would be adequate](#)**Contacts:**[SPDT, to control external alarm or circuitry](#) isolated set for each output one set of connections which switches if any output is not present. contacts not required

Responding to a customer's critical need, Acopian was able to ship this system in less than the 9 days we had guaranteed to meet or beat. It has front panel voltage and current controls for each of its three outputs, and a voltmeter and ammeter that may be switched to check all output settings. It also has the unusual capability of being operable with either a 208 VAC 3-phase input or 230 VAC single phase, and came with Acopian's 5 year warranty.

## Lastly!

Indicate other special features or instructions you would like in your Acopian Multi-Output Power System.



**Acopian** Power Supplies  
Shipped Within 3 Days

Contact an Engineer Tech Talk News Testimonials About Us Contact Us Why Acopian?

Find a Power Supply Build a Custom Power System Enter DC Voltage GO Enter Model # GO

**Test points:**  on the front panel  
 on the rear panel  
 banana jacks  
 tip jacks  
 binding posts

**Notes/special instructions:** Individual fusing or switches:

(If you require non-stocked components, such as special connectors or circuit breakers, more than 9 days may be required.)

**Any other special instructions:**

Then... [Click Here to Submit Your 'System'](#)

Your System Builder information is immediately transferred to Acopian via e-mail (you will receive a copy).

### Quote!

An engineer will review your information and assign a unique Acopian model number. A quote that includes price, lead-time and a full description of the proposed System will then be e-mailed to you.

# Acopian Power Systems can also include such features as:

## Output Features:

Capability to compensate large load line drops  
Programmable with 0-5 or 0-10V control voltage  
Programmable current control  
Capability to provide a surge current at turn-on  
Wide adjust zero-up outputs  
Modified current limiting characteristics:  
    Adjustable current limiting  
    Latching current limiting  
    Constant current limiting  
    Pulsing limiting  
Adjustable overvoltage protection  
Inhibit and enable control  
Multiple sets of fused output terminals  
Electrostatically shielded transformers  
Low noise/low ripple outputs  
Paralleling: passive or active  
Switchable polarity outputs  
Relay controlled outputs

## Input Features:

Selectable input voltage ranges  
Logic-controlled turn-on  
400 Hz input  
90-265 Vac input (Japan)  
Optically isolated control inputs  
Two AC inputs (for redundancy)

## Operating Features:

Monitor outputs (may be scaled)  
10-turn output controls  
Temperature protection (thermostat)  
Voltage and current monitors  
Outputs on binding posts  
Remote system AC control using SS relays  
EMI and RFI filtering/shielding  
Safety/interlock switches

## Mechanical Features:

Customer specified connectors  
Flying lead connections  
Output cables  
Mounting flanges added  
Special case to fit available space  
Mounting in NEMA enclosure  
Fan cooling  
Custom painted  
Pluggable modules

**Power Systems by**

*Acopian*



**The possibilities are infinite!**



**Use the Online System Builder or Call Acopian  
at 1-800-523-9478 and discuss your requirements  
with an applications engineer. We'll do the rest.**

# Need Ultra-Reliability?

*Redundant Power Packages and Systems  
have two power supplies for each output.  
If one fails, you're still operating.*



*Wall Mounting  
Redundant Power Package*



*Modular Redundant System  
(May be mounted on a DIN rail,  
wall, chassis or cabinet frame)*



*Pluggable  
Redundant  
Power Package*



*Rack Mounting  
Redundant Power Package*



*Customized Redundant Systems  
(Built to your requirements)*

# Use Redundant Power

*If none of our standard models  
meets your requirements,  
we'll build you one that does.  
(See pages 6-14)*

## **284 standard models (see pages 16-27), each shipped within 9 Days**

Our standard models have outputs from 5 to 125 volts, and up to 1200 watts. Each is fully wired, tested and shipped within 9 days after receiving your order. All that's left for you to do is to connect it to input power and your load.

## **We can customize Redundants for you**

If no standard model meets your needs, we can customize a model for you, or design a 'special' for your unique requirements. We frequently design 'specials' with outputs as high as 3600 watts.

## **Various configurations to fit the available space**

Acopian manufactures redundants in three form factors: rack mounting (some with power supplies that plug in from the front), wall mounting and modular. If you need something different, speak with one of our engineers. We can design a form that meets your requirements.

## **Proven designs since 1973**

There are numerous considerations that go into the design of a good redundant system. (Can the power supplies compensate the voltage drops of the isolation diodes? Is the regulation maintained after the diodes? Is the output stable?) Acopian has been manufacturing a standard line of redundants since 1973. We have the expertise to build redundants that are extremely reliable, provide high performance and are easy to use.

## **Five Year Warranty**

Obviously, the reliability of a redundant system is dependent upon the reliability of the power supplies it uses. We build our supplies so you can operate them reliably for many years, which is why all Acopian Redundants come with an unsurpassed, full 5 year warranty. Our customers have told us about Acopian supplies that have remained in use for 30 years and more.

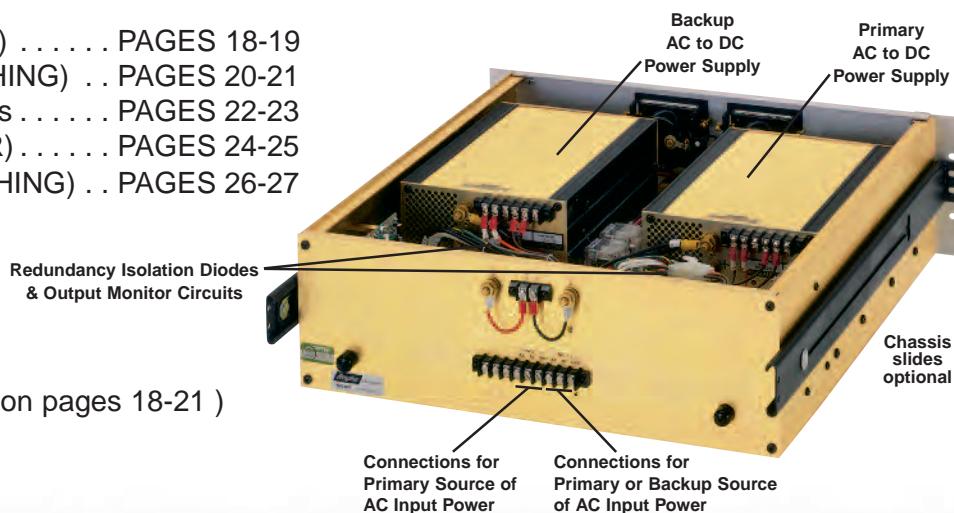
## REDUNDANT POWER PACKAGES and MODULAR REDUNDANT SYSTEMS (Rack Mounting, Wall Mounting & Pluggable)

(Three separate modules)

- Redundant Power Packages (LINEAR) . . . . . PAGES 18-19
- Redundant Power Packages (SWITCHING) . . PAGES 20-21
- Pluggable Redundant Power Packages . . . . . PAGES 22-23
- Modular Redundant Systems (LINEAR) . . . . . PAGES 24-25
- Modular Redundant Systems (SWITCHING) . . PAGES 26-27

### AC-DC single output

- Shipped Within 9 Days
- U.L. Recognized (Power Packages on pages 18-21 )
- Five Year Warranty



**Applications:** Redundant Power should be considered for any equipment where the highest attainable reliability is essential, and an unexpected loss of power would be disastrous. Such applications include communications systems (both voice and data types), computer systems (volatile memory systems in particular), process controls, utility and municipal systems, and security/safety alarm systems.

**Output Redundancy:** Each Redundant Power Package or Modular Redundant System contains two identical power supplies with their outputs interconnected through a diode switching arrangement that will detect any fault condition, isolate it from the system output, and pass only the output of the other supply with no interruption of output power during the transition.

**Input Redundancy:** All Acopian Redundant Power Packages or Modular Redundant Systems may be operated with only one AC power source. However, two isolated sets of AC input connections are provided, so that two independent sources of AC input power may be used, to obtain the additional benefit of input power redundancy. By feeding one input through a battery-backup power source (UPS), DC output power will be maintained even if both AC power sources should fail.

**Serviceability:** A defective power supply can be rapidly and safely changed while the other supply continues to furnish uninterrupted power to the load. All input, output and alarm-contact connections are at the rear of the assembly for Rack Mounting models or on the front for Wall Mounting models or Modular Systems. For Rack Mounting models, the chassis slides and handles options are recommended for applications where it is desired to service the Redundant Power Package without removing it from the rack.

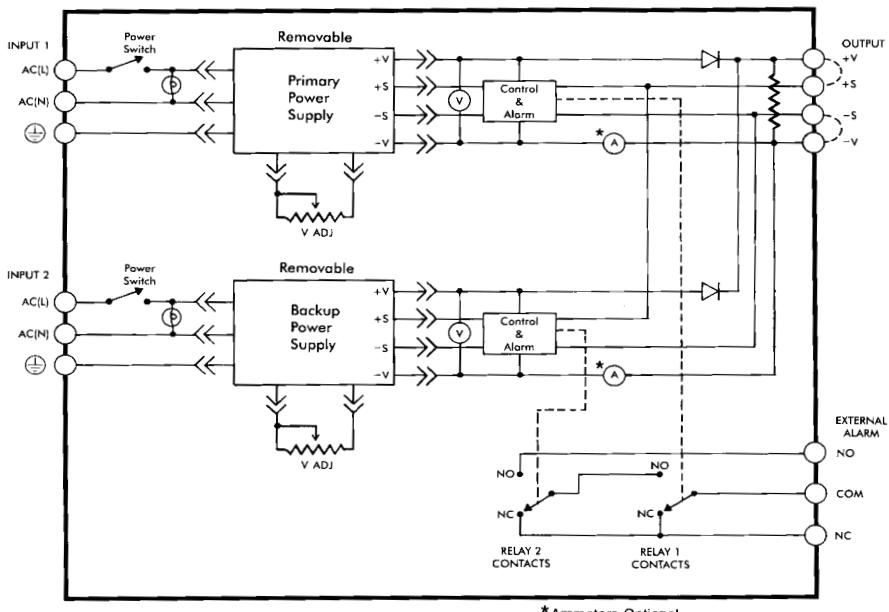
**Operation:** The output voltage of the primary supply is set approximately 0.2 volt higher than that of the backup supply. Under this condition, the backup supply's diode is not forward biased; only the primary supply delivers current to the load. If the output voltage of the primary supply decreases by more than 0.2 volt, the situation is reversed and only the backup supply delivers load current. There is no interruption of output power during the transition.

**Monitoring Circuitry:** Acopian Redundants contain two voltage monitoring circuits with relays, the contacts of which are available to control external failure alarms or other circuitry. The contact wiring of the two relays is connected in cascade, to simulate a single set of Form C contacts which switches if the output voltage of either power supply decreases by more than 2.0 volts from the nominal rating (3.0 volts for Linear models with outputs over 49 volts; 4.0 volts for Switching models with outputs over 49 volts).

**Overvoltage Protection:** Automatic recovery. Each power supply contains an overvoltage protection circuit, to assure that neither power supply output will significantly exceed the nominal output voltage rating under any condition, including incorrect application and misadjustment.

## Simplified Diagram for Redundant Power Packages

(see page 23 for Simplified Diagram of the Pluggable Redundant Power Packages or page 25 for Simplified Diagram of the Modular Redundant Systems)



### SPECIFICATIONS (for all Redundant Power Packages & Modular Redundant Systems)

**Input Voltage:** (A separate set of AC input terminals is provided for each power supply, so that if two sources of AC input power are available, one may be used for each supply and so reduce the possibility of output dropout due to loss of input power.)

**Linear (all models):** 105-125 VAC, 50-400 Hz, single phase.

**Switching (Redundant Power Packages):** 90-132 VAC, 49-61 Hz, single phase.

For models R24W7, RWL24W7, R28W7, RWL28W7, R48W7 and RWL48W7, the use of 30A lines is recommended.

When operating on 50 Hz input, derate output by 5%.

**Switching (Pluggable Redundant Power Packages):** 90-265 VAC, 49-420 Hz, single phase.

**Switching (Modular Redundant Systems):** 90-265 VAC, 49-420 Hz, single phase.

**Remote Voltage Sensing:** Provision for sensing the output voltage across the load, so that drops in the load lines are compensated, is a standard feature.

#### Output Voltage:

Normal mode: Nominal voltage shown in tables.

Backup mode: 0.2 volt less than nominal voltage shown in tables.

#### Output Regulation:

Line:  $\pm 0.05\%$

Load:  $\pm 0.05\%$  (Dynamic regulation - does not include 0.2 volt shift which occurs during switchover to lower-set backup supply.)

#### Load Protection:

**Overload/Short Circuit Protection:** Foldback current limiting with automatic recovery (Switching Modular Redundant Systems and Pluggable Redundant Power Packages have current limiting with automatic recovery).

**Polarity:** Output is floating; either positive or negative output terminal may be grounded or floated up to 300 volts above ground.

#### Output Monitoring:

**Redundant Power Packages:** A separate voltmeter for each output (standard). Ammeters available; see Options.

**Modular Redundant Systems:** 'Output Present' LED for each power supply is located on the Integration Module. ('Output Present' green LEDs are also located on each power supply (DC on) on the Switching Regulated Modular Redundant Systems.)

**Alarm Relay Contact Ratings:** 120 VAC, 8A/60 Vdc, 1A. (To comply with SELV requirements, limit switched voltage to 60Vdc/42 VAC.)

**Temperature Coefficient:** 0.02%/°C (Typical).

#### Ambient Operating Temperature:

**Linear:** -20 to +71°C.

**Switching:** 0 to +71°C.

#### Storage Temperature:

**Linear:** -55 to +85°C.

**Switching:** -40 to +85°C.

**Terminal Strip Cover:** Clips on.

# LINEAR REGULATED REDUNDANT POWER PACKAGES

## Rack Mounting & Wall Mounting

AC-DC  
single output

- Shipped Within 9 Days
- All Models U.L. Recognized
- Five Year Warranty

An Acopian Redundant Power Package is installed by simply connecting the AC input and DC output terminals. All wiring (including isolation diodes, output monitor circuits, switches, meters, adjustments and connectors) has been done for you.



### OPTIONS

Add option suffixes in alphabetical order.  
Example: R5H16AH-230.

**Ammeters:** One for each output. For models in case sizes 3R14 and 317R18 two volt/ammeters, each with switch, are substituted for the standard voltmeters. Add suffix "A" to model number and \$120.00 to price.

**Audible Alarms:** Piercing whistle alerts personnel to a voltage lower than normal. Front panel mounted, one for each power supply. When this option is included and the alarm contacts are also used, meeting SELV levels requires that the input voltages be no greater than 125 VAC. To order, add suffix "K" to model number and \$90.00 to price.

**Separate Alarm Contacts for each Power Supply:** If a power supply's output is incorrect, using two alarms permits remotely identifying that power supply. Each contact set is Form C (SPDT). To order, add suffix "R" to model number and \$35.00 to price. (Cannot combine "K" and "R" options on Wall Mounting units.)

**Handles** (for Rack Mounting models): Add suffix "H" to model number and \$30.00 to price.

**Chassis Slides** (for Rack Mounting models): For racks having rear mounting rails spaced 20" to 26" behind the front panel. To order, add suffix "S" to model number and \$90.00 to price.

**230 Volt Input:** For operation on inputs of 210-250 VAC, 50-400 Hz. To order, add suffix "-230" to model number and \$75.00 to price.

Requires two additional days.

### Linear Regulated REDUNDANT POWER PACKAGES

| Nominal Output Voltage | Adjust Range ±V | Output Current Amps. at |      |      | Ripple mV RMS | Rack Mounting Models |         |       | Wall Mounting Models |            |        |
|------------------------|-----------------|-------------------------|------|------|---------------|----------------------|---------|-------|----------------------|------------|--------|
|                        |                 | 40°C                    | 55°C | 71°C |               | (\$)                 | Price   | Model | Case Size            | (\$)       | Model  |
| 5                      | .5              | 2.6                     | 2.5  | 2.4  | 1             | 1245                 | R5N8X   | 3R14  | 1575                 | RWL5N8X    | 317R18 |
| 5                      | .5              | 5.3                     | 4.4  | 3.5  | 1             | 1355                 | R5M6    | 5R14  | 1690                 | RWL5M6     | 517R18 |
| 5                      | .5              | 11                      | 9.3  | 7.5  | 1             | 1470                 | R5M13   | 5R18  | 1800                 | RWL5M13X   | 517R20 |
| 5                      | .5              | 21                      | 17   | 14   | 1             | 1690                 | R5H11   | 7R18  | 2020                 | RWL5H11    | 719R20 |
| 5                      | .5              | 28                      | 23   | 19   | 1             | 1920                 | R5H16   | 7R20  | 2250                 | RWL5H16    | 719R25 |
| 12                     | .5              | 1.5                     | 1.5  | 1.5  | 1             | 1245                 | R12N8X  | 3R14  | 1575                 | RWL12N8X   | 317R18 |
| 12                     | .5              | 3.5                     | 3    | 2.5  | 1             | 1355                 | R12M6   | 5R14  | 1690                 | RWL12M6    | 517R18 |
| 12                     | .5              | 8                       | 7.5  | 7    | 1             | 1470                 | R12M13  | 5R18  | 1800                 | RWL12M13X  | 517R20 |
| 12                     | .5              | 16                      | 13.8 | 11.2 | 1             | 1690                 | R12H11  | 7R18  | 2020                 | RWL12H11   | 719R20 |
| 12                     | .5              | 20                      | 17   | 14.2 | 1             | 1920                 | R12H16  | 7R20  | 2250                 | RWL12H16   | 719R25 |
| 15                     | .5              | 1.5                     | 1.5  | 1.5  | 1             | 1245                 | R15N8X  | 3R14  | 1575                 | RWL15N8X   | 317R18 |
| 15                     | .5              | 4                       | 3.8  | 3.6  | 1             | 1355                 | R15M9   | 5R14  | 1690                 | RWL15M9    | 517R18 |
| 15                     | .5              | 6.5                     | 6    | 5.5  | 1             | 1470                 | R15M13  | 5R18  | 1800                 | RWL15M13X  | 517R20 |
| 15                     | .5              | 14.7                    | 12.5 | 10.3 | 1             | 1690                 | R15H11  | 7R18  | 2020                 | RWL15H11   | 719R20 |
| 15                     | .5              | 18.7                    | 16   | 13.3 | 1             | 1920                 | R15H16  | 7R20  | 2250                 | RWL15H16   | 719R25 |
| 24                     | .5              | .9                      | .9   | .9   | 1             | 1245                 | R24N8X  | 3R14  | 1575                 | RWL24N8X   | 317R18 |
| 24                     | .5              | 3                       | 2.7  | 2.4  | 1             | 1355                 | R24M9   | 5R14  | 1690                 | RWL24M9    | 517R18 |
| 24                     | .5              | 5                       | 5    | 5    | 1             | 1470                 | R24M13  | 5R18  | 1800                 | RWL24M13X  | 517R20 |
| 24                     | .5              | 11.7                    | 10.2 | 8.7  | 1             | 1690                 | R24H11  | 7R18  | 2020                 | RWL24H11   | 719R20 |
| 24                     | .5              | 14.7                    | 12.7 | 10.7 | 1             | 1920                 | R24H16  | 7R20  | 2250                 | RWL24H16   | 719R25 |
| 28                     | .5              | 1                       | 1    | 1    | 1             | 1245                 | R28N8X  | 3R14  | 1575                 | RWL28N8X   | 317R18 |
| 28                     | .5              | 2.7                     | 2.6  | 2.5  | 1             | 1355                 | R28M9   | 5R14  | 1690                 | RWL28M9    | 517R18 |
| 28                     | .5              | 5                       | 5    | 5    | 1             | 1470                 | R28M13  | 5R18  | 1800                 | RWL28M13X  | 517R20 |
| 28                     | .5              | 10.5                    | 9.2  | 8    | 1             | 1690                 | R28H11  | 7R18  | 2020                 | RWL28H11   | 719R20 |
| 28                     | .5              | 14                      | 12   | 10   | 1             | 1920                 | R28H16  | 7R20  | 2250                 | RWL28H16   | 719R25 |
| 48                     | .5              | .4                      | .4   | .4   | 1             | 1280                 | R48N8T  | 3R14  | 1620                 | RWL48N8T   | 317R18 |
| 48                     | .5              | 1.6                     | 1.4  | 1.2  | 1             | 1410                 | R48M9   | 5R14  | 1735                 | RWL48M9    | 517R18 |
| 48                     | .5              | 3                       | 3    | 3    | 1             | 1520                 | R48M13  | 5R18  | 1850                 | RWL48M13X  | 517R20 |
| 48                     | .5              | 6                       | 5    | 4    | 1             | 1750                 | R48H11  | 7R18  | 2080                 | RWL48H11   | 719R20 |
| 48                     | .5              | 8.5                     | 7.2  | 5.5  | 1             | 2070                 | R48H16  | 7R20  | 2405                 | RWL48H16   | 719R25 |
| 60                     | 1               | .25                     | .25  | .25  | 1             | 1315                 | R60N8T  | 3R14  | 1650                 | RWL60N8T   | 317R18 |
| 60                     | 1               | 1                       | .9   | .8   | 1             | 1440                 | R60M9   | 5R14  | 1770                 | RWL60M9    | 517R18 |
| 60                     | 1               | 2.5                     | 2.1  | 1.7  | 1             | 1550                 | R60M13  | 5R18  | 1885                 | RWL60M13X  | 517R20 |
| 60                     | 1               | 5                       | 4.1  | 3.3  | 1             | 1780                 | R60H11  | 7R18  | 2115                 | RWL60H11   | 719R20 |
| 60                     | 1               | 7                       | 5.8  | 4.6  | 1             | 2080                 | R60H16  | 7R20  | 2420                 | RWL60H16   | 719R25 |
| 120                    | 1               | .12                     | .12  | .12  | 1             | 1335                 | R120N8T | 3R14  | 1670                 | RWL120N8T  | 317R18 |
| 120                    | 1               | .5                      | .5   | .4   | 1             | 1470                 | R120M6  | 5R14  | 1800                 | RWL120M6   | 517R18 |
| 120                    | 1               | 1.2                     | 1.1  | 1    | 1             | 1580                 | R120M13 | 5R18  | 1925                 | RWL120M13X | 517R20 |
| 120                    | 1               | 2.5                     | 2    | 1.6  | 1             | 1820                 | R120H11 | 7R18  | 2160                 | RWL120H11  | 719R20 |
| 120                    | 1               | 3.5                     | 2.9  | 2.3  | 1             | 2130                 | R120H16 | 7R20  | 2475                 | RWL120H16  | 719R25 |
| 125                    | 1               | .12                     | .12  | .12  | 1             | 1360                 | R125N8T | 3R14  | 1695                 | RWL125N8T  | 317R18 |
| 125                    | 1               | .4                      | .4   | .4   | 1             | 1490                 | R125M6  | 5R14  | 1820                 | RWL125M6   | 517R18 |
| 125                    | 1               | 1.2                     | 1.1  | 1    | 1             | 1605                 | R125M13 | 5R18  | 1945                 | RWL125M13X | 517R20 |
| 125                    | 1               | 2.4                     | 1.9  | 1.5  | 1             | 1846                 | R125H11 | 7R18  | 2185                 | RWL125H11  | 719R20 |
| 125                    | 1               | 3.4                     | 2.8  | 2.3  | 1             | 2160                 | R125H16 | 7R20  | 2495                 | RWL125H16  | 719R25 |

## Wall Mounting



### CASE SIZES:

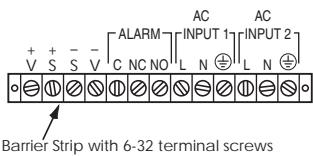
#### Rack Mounting:

|      |                                      |
|------|--------------------------------------|
| 3R14 | 3½" x 19" panel, 14½" deep. (15 lb.) |
| 5R14 | 5¼" x 19" panel, 14½" deep. (23 lb.) |
| 5R18 | 5¼" x 19" panel, 17½" deep. (29 lb.) |
| 7R18 | 7" x 19" panel, 18½" deep. (50 lb.)  |
| 7R20 | 7" x 19" panel, 20½" deep. (64 lb.)  |

Wall Mounting: See page 21.

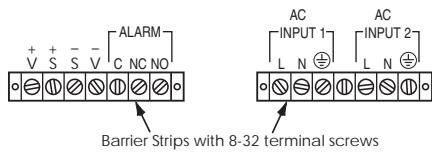
#### CONNECTIONS FOR CASE SIZES

3R14, 317R18, 5R14, 5R18, 517R18 and 517R20:



#### CONNECTIONS FOR CASE SIZES

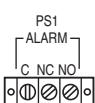
7R18, 7R20, 719R20, and 719R25:



#### Additional CONNECTIONS for "R" Option:

Separate Alarm Contacts for each Power Supply

(Note: Connections for 'ALARM' in above drawings become connections for 'PS2 ALARM')



**Acopian**

## PARALLELABLE "SEMSYSTEM" POWER SUPPLIES

### LINEAR REGULATED

Two units connected in parallel function the same as a Redundant Power Package.



(Handles optional)

SHIPPED WITHIN 9 DAYS

FIVE YEAR WARRANTY

ALL MODELS U.L. RECOGNIZED

Each supply contains a voltmeter, isolation diodes, a voltage monitor circuit providing contacts for control of an external alarm (or built-in audible alarm) and overvoltage protection circuit, so that two paralleled units are functionally equivalent to a Redundant Power Package. All connections are by means of a Jones connector (mate provided), so that one supply may be quickly, easily and safely installed in or removed from the rack while another provides uninterrupted power to the load. For a redundant system, order two units.

**Specifications:** Same as shown under SPECIFICATIONS on page 17 for Linear Redundant Power Packages.

**Case Size:** 5¼" x 19" panel, 16½" deep. (53 lbs.)

To allow for mating connector and radius of wiring, mounting space should be at least 20" deep.

### PARALLELABLE "SEMSYSTEM" POWER SUPPLIES

#### Linear Regulated

For a redundant system, order two units.

| Nominal Output Voltage | Adjust Range $\pm V$ | Output Current Amps. at |      | Ripple mV RMS | (\$ Price | Model   | Case Size |
|------------------------|----------------------|-------------------------|------|---------------|-----------|---------|-----------|
|                        |                      | 40°C                    | 55°C |               |           |         |           |
| 5                      | .5                   | 55                      | 43   | 1             | 1245      | R5PH17  | 5R17      |
| 12                     | .5                   | 41                      | 32   | 1             | 1245      | R12PH17 | 5R17      |
| 15                     | .5                   | 37                      | 29   | 1             | 1245      | R15PH17 | 5R17      |
| 24                     | .5                   | 28                      | 22   | 1             | 1245      | R24PH17 | 5R17      |
| 28                     | .5                   | 27                      | 21   | 1             | 1245      | R28PH17 | 5R17      |
| 48                     | .5                   | 15                      | 12   | 1             | 1245      | R48P17  | 5R17      |

### OPTIONS

Add option suffixes in alphabetical order.

**Ammeter:** Add suffix letter "A" to model number and \$60.00 to unit price.

**Handles:** Add suffix "H" to model number and \$30.00 to unit price.

**Audible Alarm:** Whistle alerts personnel to voltage lower than normal. Front panel mounted. Units with this option do not have provision for control of an external alarm. Add suffix "K" to model number and \$45.00 to unit price.

**230 Volt Input:** For operation on inputs of 210-250 VAC, 50-400 Hz. To order, add suffix "-230" to model number and \$40.00 to unit price. Requires two additional days.

# SWITCHING REGULATED REDUNDANT POWER PACKAGES

## Rack Mounting & Wall Mounting

### AC-DC *single output*

- Shipped Within 9 Days
- All Models U.L. Recognized
- Five Year Warranty

An Acopian Redundant Power Package is installed by simply connecting the AC input and DC output terminals. All wiring (including isolation diodes, output monitor circuits, switches, meters, adjustments and connectors) has been done for you.

### OPTIONS

Add option suffixes in alphabetical order.  
Example: R12W6AH-230.

**Ammeters:** One for each output. Add suffix letter "A" to model number and \$120 to price.

**Audible Alarms:** Piercing whistle alerts personnel if the power supply's output deviates by more than 2 volts from the nominal rating. Front panel mounted, one for each power supply. When this option is included and the alarm contacts are also used, meeting SELV levels requires that the input voltages be no greater than 125 VAC. To order, add suffix "K" to model number and \$90.00 to price.

**Separate Alarm Contacts for each Power Supply:** If a power supply's output is incorrect, using two alarms permits remotely identifying that power supply. Each contact set is Form C (SPDT). To order, add suffix "R" to model number and \$35.00 to price. (Cannot combine "K" and "R" options on Wall Mounting units.)

**Handles** (for Rack Mounting models): Add suffix "H" to model number and \$30.00 to price.

**Chassis Slides** (for Rack Mounting models): For racks having rear mounting rails spaced 20" to 26" behind the front panel. To order, add suffix "S" to model number and \$90.00 to price.

**230 Volt Input:** For operation on inputs of 180-264 VAC, 49-61 Hz. To order, add suffix "-230" to model number and \$100.00 to price. Requires two additional days.

### Rack Mounting



For Specifications and other information, see pages 16 & 17.

### Rack Mounting Case Sizes:

**5RW16** 5 $\frac{1}{4}$ " x 19" panel, 16 $\frac{13}{16}$ " deep. (21 lb.)

**5RW18** 5 $\frac{1}{4}$ " x 19" panel, 18 $\frac{13}{16}$ " deep. (27 lb.)

**5RW22** 5 $\frac{1}{4}$ " x 19" panel, 22 $\frac{13}{16}$ " deep. (32 lb.)

**Wall Mounting Case Sizes:** See page 21.

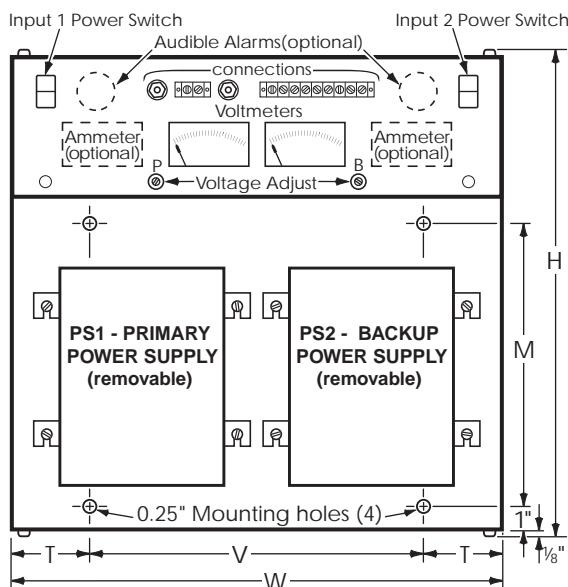
### Switching Regulated REDUNDANT POWER PACKAGES

| Nominal Output Voltage | Adjust Range $\pm$ V | Output Current Amps. at |      |      | Ripple mV (@ 25 MHz BW) |     | Rack Mounting Models |       |           | Wall Mounting Models |         |           |
|------------------------|----------------------|-------------------------|------|------|-------------------------|-----|----------------------|-------|-----------|----------------------|---------|-----------|
|                        |                      | 40°C                    | 55°C | 71°C | RMS                     | P-P | (\$)                 | Model | Case Size | (\$)                 | Model   | Case Size |
| 12                     | .5                   | 26                      | 22   | 18   | 15                      | 100 | 2250                 | R12W6 | 5RW16     | 2550                 | RWL12W6 | 519RW15   |
| 12                     | .5                   | 41                      | 35   | 28   | 15                      | 100 | 2665                 | R12W9 | 5RW18     | 2995                 | RWL12W9 | 519RW18   |
| 12                     | .5                   | 61                      | 52   | 42   | 15                      | 100 | 3125                 | R12G7 | 5RW22     | 3455                 | RWL12G7 | 522RW17   |
| 15                     | .5                   | 21                      | 18   | 15   | 15                      | 100 | 2250                 | R15W6 | 5RW16     | 2550                 | RWL15W6 | 519RW15   |
| 15                     | .5                   | 33                      | 28   | 23   | 15                      | 100 | 2665                 | R15W9 | 5RW18     | 2995                 | RWL15W9 | 519RW18   |
| 15                     | .5                   | 49                      | 42   | 34   | 15                      | 100 | 3125                 | R15G7 | 5RW22     | 3455                 | RWL15G7 | 522RW17   |
| 24                     | .5                   | 15                      | 13   | 11   | 15                      | 100 | 2250                 | R24W6 | 5RW16     | 2550                 | RWL24W6 | 519RW15   |
| 24                     | .5                   | 24                      | 21   | 17   | 15                      | 100 | 2665                 | R24W9 | 5RW18     | 2995                 | RWL24W9 | 519RW18   |
| 24                     | .5                   | 36                      | 31   | 25   | 15                      | 100 | 3125                 | R24G7 | 5RW22     | 3455                 | RWL24G7 | 522RW17   |
| 24                     | .5                   | 50                      | 42   | 35   | 15                      | 100 | 3340                 | R24W7 | 5RW22     | 3680                 | RWL24W7 | 522RW17   |
| 28                     | .5                   | 13                      | 11   | 9    | 15                      | 100 | 2250                 | R28W6 | 5RW16     | 2550                 | RWL28W6 | 519RW15   |
| 28                     | .5                   | 20                      | 17   | 14   | 15                      | 100 | 2665                 | R28W9 | 5RW18     | 2995                 | RWL28W9 | 519RW18   |
| 28                     | .5                   | 30                      | 26   | 21   | 15                      | 100 | 3125                 | R28G7 | 5RW22     | 3455                 | RWL28G7 | 522RW17   |
| 28                     | .5                   | 42                      | 35   | 29   | 15                      | 100 | 3340                 | R28W7 | 5RW22     | 3680                 | RWL28W7 | 522RW17   |
| 48                     | .5                   | 8                       | 7    | 5    | 25                      | 150 | 2250                 | R48W6 | 5RW16     | 2550                 | RWL48W6 | 519RW15   |
| 48                     | .5                   | 12                      | 10   | 8    | 25                      | 150 | 2665                 | R48W9 | 5RW18     | 2995                 | RWL48W9 | 519RW18   |
| 48                     | .5                   | 19                      | 16   | 13   | 25                      | 150 | 3125                 | R48G7 | 5RW22     | 3455                 | RWL48G7 | 522RW17   |
| 48                     | .5                   | 25                      | 21   | 17   | 25                      | 150 | 3340                 | R48W7 | 5RW22     | 3680                 | RWL48W7 | 522RW17   |

## Wall Mounting



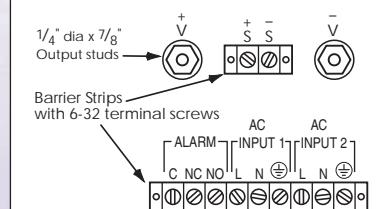
### Wall Mounting Case Sizes:



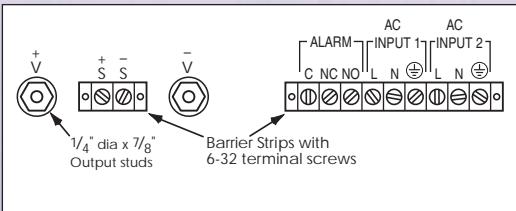
| Case Size | H    | W   | M  | V   | T  | Depth | Approx. Weight |
|-----------|------|-----|----|-----|----|-------|----------------|
| 317R18    | 18½" | 17  | 11 | 14  | 1½ | 4½    | 18 lb.         |
| 517R18    | 18½" | 17  | 11 | 14  | 1½ | 6     | 22-26 lb.      |
| 517R20    | 20½" | 17  | 13 | 13  | 2  | 6     | 34 lb.         |
| 519RW15   | 15½" | 19  | 8  | 13  | 3  | 6½    | 24 lb.         |
| 519RW18   | 18½" | 19  | 11 | 13  | 3  | 6½    | 27 lb.         |
| 522RW17   | 17½" | 22½ | 10 | 16½ | 3  | 6½    | 33 lb.         |
| 719R20    | 20½" | 19  | 13 | 13  | 3  | 7¾    | 58 lb.         |
| 719R25    | 25½" | 19  | 18 | 13  | 3  | 7¾    | 70 lb.         |

### CONNECTIONS:

#### RACK MOUNTING



#### WALL MOUNTING



Additional CONNECTIONS for "R" Option:  
Separate Alarm Contacts for each Power Supply

(Note: Connections for 'ALARM' in above drawings  
become connections for 'PS2 ALARM')



# SWITCHING REGULATED **PLUGGABLE REDUNDANT POWER PACKAGES** **(Power Factor Correction and Universal Input)**

AC-DC

*single output*

- Shipped Within 9 Days
- Five Year Warranty

**Extremely high overall reliability** results from connecting two power sources so that one will continue to provide power to their load even if the other becomes inoperative. Acopian Redundant Power Packages have all the wiring done for you - not only isolation diodes, but also switches, meters, adjustments and output monitor circuits. All you need to do is connect the input and output terminals.

**System Description:** These models are functionally identical to the other Redundant Power Packages, but have the added advantage that a power supply can literally be changed in seconds.

## OPTIONS

Add option suffixes in alphabetical order.  
Example: R24WP8XAHKS.

**Ammeters:** One for each output. Add suffix letter "A" to model number and \$120.00 to price.

**Audible Alarms:** Front panel mounted, one for each power supply. Piercing whistle alerts personnel if the power supply's output deviates by more than 2 volts from the nominal rating (4 volts for 50 to 125 volt models). When this option is included and the alarm contacts are also used, meeting SELV levels requires that the input voltages be no greater than 125 VAC. To order, add suffix "K" to model number and \$90.00 to price.

**Separate Alarm Contacts for each Power Supply:** If a power supply's output is incorrect, using two alarms permits remotely identifying that power supply. Each contact set is Form C (SPDT). To order, add suffix "R" to model number and \$35.00 to price.

**Handles:** Add suffix "H" to model number and \$30.00 to price.

**Chassis Slides:** For racks having rear mounting rails spaced 20" to 26" behind the front panel. To order, add suffix "S" to model number and \$90.00 to price.



Two Voltmeters (standard)  
Two Ammeters (optional)  
Audible Alarms (optional)  
Handles (optional)

For more Specifications and information, see pages 16 & 17.

## SPECIFICATIONS

**Input Voltage:** 90-265 VAC, 49-420 Hz, single phase.  
(A separate set of AC input terminals is provided for each power supply, so that if two sources of AC input power are available, one may be used for each supply and so reduce the possibility of output dropout due to loss of input power.)

**Power Factor:** 0.99 typical at 115 VAC, 60Hz and full load.  
Complies with EN61000-3-2.

**Drift:**  $\pm 0.1\%$  typical over 8 hours, after 30 minute warmup.

**Inrush Current:** Cold start, (theristor limiter) 20A peak @115 VAC; 40A peak @ 230 VAC.

**Startup Time:** 800 mS typical.

**Remote Sensing:** Compensates up to 0.5 volt drop per output line (1 volt for 50 to 125 volt models), within the limits of the output voltage adjustment range.

**Holdup Time:** 16 mS minimum.

**Transient Response:** 300  $\mu$ S to return to  $\pm 1\%$  of output setting. Maximum of  $\pm 3\%$  output excursion following a load step change from 50% to 100%.

**Switching Frequency:** 100 kHz (Typical).

**Isolation:** Input to output, input to case; 500 VAC.  
Output to case; 300 VAC

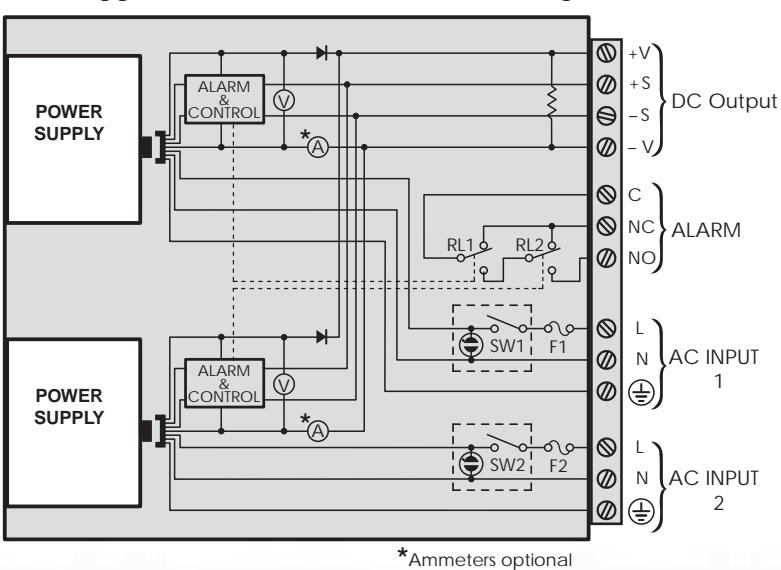
**Thermal Protection:** Thermostat, self-resetting.

**Cooling:** Forced-air cooled; air enters front of system and exits from top.

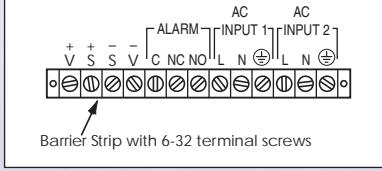
**CASE SIZE:** 5RP13 5 $\frac{1}{4}$ " x 19" panel, 12 $\frac{3}{4}$ " deep. (14 lb. 4 oz.)

**Simplified Diagram for  
Pluggable Redundant Power Packages**

| Nominal Output Voltage | Adjust Range $\pm V$ | Output Current Amps. at |      |      | Ripple mV (@ 25 MHz BW) | (\$) | Model    | Case Size |
|------------------------|----------------------|-------------------------|------|------|-------------------------|------|----------|-----------|
|                        |                      | 40°C                    | 55°C | 71°C |                         |      |          |           |
| 3.3                    | .5                   | 15.4                    | 13   | 10.7 | 10                      | 50   | R3.3WP8X | 5RP13     |
| 3.3                    | .5                   | 24                      | 20.5 | 16.8 | 10                      | 50   | R3.3WP8  | 5RP13     |
| 5                      | .5                   | 15.4                    | 13   | 10.7 | 10                      | 50   | R5WP8X   | 5RP13     |
| 5                      | .5                   | 24                      | 20.5 | 16.8 | 10                      | 50   | R5WP8    | 5RP13     |
| 6                      | .5                   | 15                      | 12.6 | 10.5 | 10                      | 50   | R6WP8X   | 5RP13     |
| 6                      | .5                   | 23                      | 19.5 | 16.8 | 10                      | 50   | R6WP8    | 5RP13     |
| 7                      | .5                   | 14.7                    | 12.4 | 10.3 | 10                      | 50   | R7WP8X   | 5RP13     |
| 7                      | .5                   | 23                      | 19.5 | 16.1 | 10                      | 50   | R7WP8    | 5RP13     |
| 8                      | .5                   | 14.4                    | 12   | 10   | 15                      | 100  | R8WP8X   | 5RP13     |
| 8                      | .5                   | 23                      | 19.5 | 16.1 | 15                      | 100  | R8WP8    | 5RP13     |
| 9                      | .5                   | 14.1                    | 12   | 9.8  | 15                      | 100  | R9WP8X   | 5RP13     |
| 9                      | .5                   | 22                      | 18.7 | 15.4 | 15                      | 100  | R9WP8    | 5RP13     |
| 10                     | .5                   | 13.5                    | 11.5 | 9.5  | 15                      | 100  | R10WP8X  | 5RP13     |
| 10                     | .5                   | 21                      | 18.5 | 15   | 15                      | 100  | R10WP8   | 5RP13     |
| 12                     | .5                   | 12.3                    | 10.5 | 8.6  | 15                      | 100  | R12WP8X  | 5RP13     |
| 12                     | .5                   | 20                      | 17   | 14   | 15                      | 100  | R12WP8   | 5RP13     |
| 13                     | .5                   | 11.3                    | 9.7  | 7.9  | 15                      | 100  | R13WP8X  | 5RP13     |
| 13                     | .5                   | 18.4                    | 15.7 | 12.9 | 15                      | 100  | R13WP8   | 5RP13     |
| 14                     | .5                   | 10.9                    | 9.3  | 7.6  | 15                      | 100  | R14WP8X  | 5RP13     |
| 14                     | .5                   | 17.6                    | 15   | 12.3 | 15                      | 100  | R14WP8   | 5RP13     |
| 15                     | .5                   | 10.2                    | 8.7  | 7.1  | 15                      | 100  | R15WP8X  | 5RP13     |
| 15                     | .5                   | 16.5                    | 14   | 11.5 | 15                      | 100  | R15WP8   | 5RP13     |
| 18                     | .5                   | 8.5                     | 7.2  | 5.9  | 15                      | 100  | R18WP8X  | 5RP13     |
| 18                     | .5                   | 13.7                    | 11.6 | 9.5  | 15                      | 100  | R18WP8   | 5RP13     |
| 20                     | .5                   | 7.6                     | 6.5  | 5.3  | 15                      | 100  | R20WP8X  | 5RP13     |
| 20                     | .5                   | 12.7                    | 10.7 | 8.8  | 15                      | 100  | R20WP8   | 5RP13     |
| 24                     | .5                   | 7.2                     | 6.1  | 5    | 15                      | 100  | R24WP8X  | 5RP13     |
| 24                     | .5                   | 11.5                    | 9.8  | 8    | 15                      | 100  | R24WP8   | 5RP13     |
| 25                     | .5                   | 6.6                     | 5.6  | 4.6  | 15                      | 100  | R25WP8X  | 5RP13     |
| 25                     | .5                   | 10.6                    | 9    | 7.4  | 15                      | 100  | R25WP8   | 5RP13     |
| 28                     | .5                   | 5.9                     | 5    | 4.1  | 15                      | 100  | R28WP8X  | 5RP13     |
| 28                     | .5                   | 9.5                     | 8.1  | 6.7  | 15                      | 100  | R28WP8   | 5RP13     |
| 30                     | .5                   | 5.6                     | 4.8  | 4    | 25                      | 150  | R30WP8X  | 5RP13     |
| 30                     | .5                   | 8.7                     | 7.4  | 6.1  | 25                      | 150  | R30WP8   | 5RP13     |
| 32                     | .5                   | 5.2                     | 4.5  | 3.7  | 25                      | 150  | R32WP8X  | 5RP13     |
| 32                     | .5                   | 8.3                     | 7    | 5.8  | 25                      | 150  | R32WP8   | 5RP13     |
| 36                     | .5                   | 4.7                     | 4    | 3.3  | 25                      | 150  | R36WP8X  | 5RP13     |
| 36                     | .5                   | 7.7                     | 6.5  | 5.4  | 25                      | 150  | R36WP8   | 5RP13     |
| 40                     | .5                   | 4.2                     | 3.6  | 3    | 25                      | 150  | R40WP8X  | 5RP13     |
| 40                     | .5                   | 6.8                     | 5.8  | 4.8  | 25                      | 150  | R40WP8   | 5RP13     |
| 48                     | .5                   | 3.5                     | 3    | 2.5  | 25                      | 150  | R48WP8X  | 5RP13     |
| 48                     | .5                   | 5.7                     | 4.9  | 4    | 25                      | 150  | R48WP8   | 5RP13     |
| 50                     | 1                    | 3.3                     | 2.8  | 2.3  | 50                      | 150  | R50WP8X  | 5RP13     |
| 50                     | 1                    | 5                       | 4.3  | 3.5  | 50                      | 150  | R50WP8   | 5RP13     |
| 55                     | 1                    | 3                       | 2.5  | 2.1  | 50                      | 150  | R55WP8X  | 5RP13     |
| 55                     | 1                    | 4.5                     | 3.8  | 3.1  | 50                      | 150  | R55WP8   | 5RP13     |
| 60                     | 1                    | 2.8                     | 2.3  | 1.9  | 50                      | 150  | R60WP8X  | 5RP13     |
| 60                     | 1                    | 4.2                     | 3.5  | 2.9  | 50                      | 150  | R60WP8   | 5RP13     |
| 70                     | 1                    | 2.4                     | 2    | 1.7  | 67                      | 200  | R70WP8X  | 5RP13     |
| 70                     | 1                    | 3.6                     | 3.1  | 2.5  | 67                      | 200  | R70WP8   | 5RP13     |
| 75                     | 1                    | 2.2                     | 1.8  | 1.5  | 67                      | 200  | R75WP8X  | 5RP13     |
| 75                     | 1                    | 3.3                     | 2.8  | 2.3  | 67                      | 200  | R75WP8   | 5RP13     |
| 80                     | 1                    | 2.1                     | 1.7  | 1.4  | 67                      | 200  | R80WP8X  | 5RP13     |
| 80                     | 1                    | 3.1                     | 2.6  | 2.2  | 67                      | 200  | R80WP8   | 5RP13     |
| 90                     | 1                    | 1.8                     | 1.5  | 1.3  | 100                     | 300  | R90WP8X  | 5RP13     |
| 90                     | 1                    | 2.8                     | 2.4  | 2    | 100                     | 300  | R90WP8   | 5RP13     |
| 100                    | 1                    | 1.7                     | 1.4  | 1.2  | 150                     | 450  | R100WP8X | 5RP13     |
| 100                    | 1                    | 2.5                     | 2.1  | 1.8  | 150                     | 450  | R100WP8  | 5RP13     |
| 110                    | 1                    | 1.5                     | 1.3  | 1.1  | 150                     | 450  | R110WP8X | 5RP13     |
| 110                    | 1                    | 2.3                     | 1.9  | 1.6  | 150                     | 450  | R110WP8  | 5RP13     |
| 120                    | 1                    | 1.4                     | 1.2  | 1    | 150                     | 450  | R120WP8X | 5RP13     |
| 120                    | 1                    | 2.1                     | 1.8  | 1.5  | 150                     | 450  | R120WP8  | 5RP13     |
| 125                    | 1                    | 1.3                     | 1.1  | 0.9  | 150                     | 450  | R125WP8X | 5RP13     |
| 125                    | 1                    | 2                       | 1.7  | 1.4  | 150                     | 450  | R125WP8  | 5RP13     |

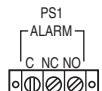


**CONNECTIONS:**



**Additional CONNECTIONS for "R" Option:  
Separate Alarm Contacts for each Power Supply**

**(Note: Connections for 'ALARM' in the above drawing  
become connections for 'PS2 ALARM')**



# LINEAR REGULATED MODULAR REDUNDANT SYSTEMS

AC-DC  
*single output*

- Shipped Within 9 Days
- Five Year Warranty



**These systems have the versatility to be mounted in a wide variety of ways** - within a system cabinet, on a DIN rail or to a wall. Another benefit is that the three modules need not be mounted together, so that if a control panel is crowded, just the Integration Module may be mounted there and the power supplies mounted elsewhere.

For Specifications and other information, see pages 16 & 17.

**System Description:** Each Modular Redundant DC Power System consists of three units: two identical power supplies connected to an Integration Module by 24" long cables. The Integration Module includes the diodes for isolating the power supply outputs, AC input switches, input fuses, LED 'output present' indicators, failure alarm circuits, and the umbilical cables which plug into the power supplies. Connections for the AC inputs, redundant DC output and failure alarm relays are on a screw terminal strip.

**Mounting:** Each module has threaded mounting holes which permit mounting to a chassis, cabinet wall or bracket, or they may be used on a test bench or tabletop. To mount from the power supply side of the mounting surface or for DIN rail mounting, use an Accessory Mounting Kit (see page 25).

**Interconnection:** The Integration Module has two 24 inch long cables.

## OPTIONS

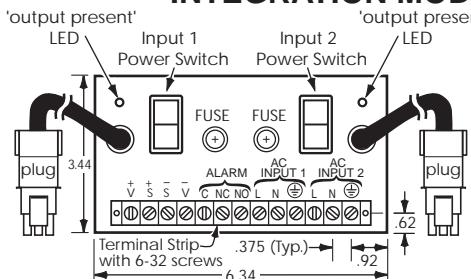
**Cable lengths:** Although 24" is standard, any other length from 12" to 60" may be ordered as an option. To order, add suffix "C??" to model number and \$60.00 to price. Replace the "???" with the cable length desired. For example, if you are ordering Model RM24M9 with 4 foot (48") cables, the model number would be RM24M9C48, and the price would be \$995.00+\$60.00=\$1055.00.

**230 Volt Input:** All models can be alternately furnished for operation on inputs of 210-250 VAC, 50-400 Hz. To order, add suffix "-230" to model number and \$80.00 to price. The "-230" option requires two additional days.

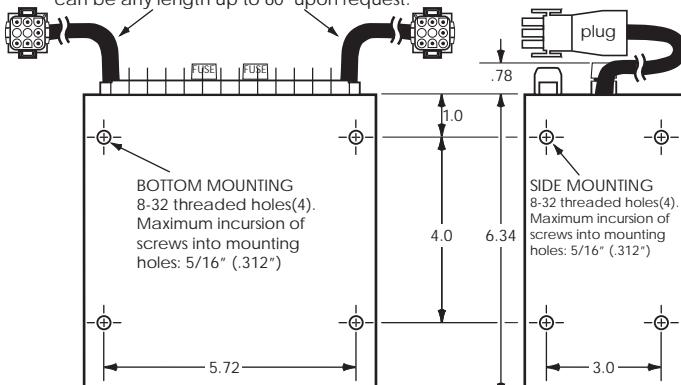
## Linear Regulated MODULAR REDUNDANT SYSTEMS

| Nominal Output Voltage | Adjust Range $\pm V$ | Output Current Amps. at |      |      | Ripple mV RMS | (\$)<br>Price | Model    | Case sizes         |                    |
|------------------------|----------------------|-------------------------|------|------|---------------|---------------|----------|--------------------|--------------------|
|                        |                      | 40°C                    | 55°C | 71°C |               |               |          | Integration Module | Power Supplies (2) |
| 5                      | .5                   | 2.6                     | 2.5  | 2.4  | 1             | 980           | RM5N8X   | RM6                | CN8H               |
| 5                      | .5                   | 5.3                     | 4.4  | 3.5  | 1             | 1080          | RM5M6    | RM6                | CM6                |
| 5                      | .5                   | 11                      | 9.3  | 7.5  | 1             | 1195          | RM5M13   | RM6                | CM13               |
| 5                      | .5                   | 21                      | 17   | 14   | 1             | 1420          | RM5H11   | RM6                | CH11               |
| 12                     | .5                   | 1.5                     | 1.5  | 1.5  | 1             | 980           | RM12N8X  | RM6                | CN8H               |
| 12                     | .5                   | 3.5                     | 3    | 2.5  | 1             | 1080          | RM12M6   | RM6                | CM6                |
| 12                     | .5                   | 8                       | 7.5  | 7    | 1             | 1195          | RM12M13  | RM6                | CM13               |
| 12                     | .5                   | 16                      | 13.8 | 11.2 | 1             | 1420          | RM12H11  | RM6                | CH11               |
| 12                     | .5                   | 20                      | 17   | 14.2 | 1             | 1640          | RM12H16  | RM6                | CH16               |
| 15                     | .5                   | 1.5                     | 1.5  | 1.5  | 1             | 980           | RM15N8X  | RM6                | CN8H               |
| 15                     | .5                   | 4                       | 3.8  | 3.6  | 1             | 1080          | RM15M9   | RM6                | CM9                |
| 15                     | .5                   | 6.5                     | 6    | 5.5  | 1             | 1195          | RM15M13  | RM6                | CM13               |
| 15                     | .5                   | 14.7                    | 12.5 | 10.3 | 1             | 1420          | RM15H11  | RM6                | CH11               |
| 15                     | .5                   | 18.7                    | 16   | 13.3 | 1             | 1640          | RM15H16  | RM6                | CH16               |
| 24                     | .5                   | .9                      | .9   | .9   | 1             | 980           | RM24N8X  | RM6                | CN8H               |
| 24                     | .5                   | 3                       | 2.7  | 2.4  | 1             | 1080          | RM24M9   | RM6                | CM9                |
| 24                     | .5                   | 5                       | 5    | 5    | 1             | 1195          | RM24M13  | RM6                | CM13               |
| 24                     | .5                   | 11.7                    | 10.2 | 8.7  | 1             | 1420          | RM24H11  | RM6                | CH11               |
| 24                     | .5                   | 14.7                    | 12.7 | 10.7 | 1             | 1640          | RM24H16  | RM6                | CH16               |
| 28                     | .5                   | 1                       | 1    | 1    | 1             | 980           | RM28N8X  | RM6                | CN8H               |
| 28                     | .5                   | 2.7                     | 2.6  | 2.5  | 1             | 1080          | RM28M9   | RM6                | CM9                |
| 28                     | .5                   | 5                       | 5    | 5    | 1             | 1195          | RM28M13  | RM6                | CM13               |
| 28                     | .5                   | 10.5                    | 9.2  | 8    | 1             | 1420          | RM28H11  | RM6                | CH11               |
| 28                     | .5                   | 14                      | 12   | 10   | 1             | 1640          | RM28H16  | RM6                | CH16               |
| 48                     | .5                   | .4                      | .4   | .4   | 1             | 1015          | RM48N8T  | RM6                | CN8T               |
| 48                     | .5                   | 1.6                     | 1.4  | 1.2  | 1             | 1125          | RM48M9   | RM6                | CM9                |
| 48                     | .5                   | 3                       | 3    | 3    | 1             | 1250          | RM48M13  | RM6                | CM13               |
| 48                     | .5                   | 6                       | 5    | 4    | 1             | 1470          | RM48H11  | RM6                | CH11               |
| 48                     | .5                   | 8.5                     | 7.2  | 5.5  | 1             | 1790          | RM48H16  | RM6                | CH16               |
| 60                     | 1                    | .25                     | .25  | .25  | 1             | 1050          | RM60N8T  | RM6                | CN8T               |
| 60                     | 1                    | 1                       | .9   | .8   | 1             | 1150          | RM60M9   | RM6                | CM9                |
| 60                     | 1                    | 2.5                     | 2.1  | 1.7  | 1             | 1280          | RM60M13  | RM6                | CM13               |
| 60                     | 1                    | 5                       | 4.1  | 3.3  | 1             | 1510          | RM60H11  | RM6                | CH11               |
| 60                     | 1                    | 7                       | 5.8  | 4.6  | 1             | 1800          | RM60H16  | RM6                | CH16               |
| 120                    | 1                    | .12                     | .12  | .12  | 1             | 1070          | RM120N8T | RM6                | CN8T               |
| 120                    | 1                    | .5                      | .5   | .4   | 1             | 1195          | RM120M6  | RM6                | CM6                |
| 120                    | 1                    | 1.2                     | 1.1  | 1    | 1             | 1320          | RM120M13 | RM6                | CM13               |
| 120                    | 1                    | 2.5                     | 2    | 1.6  | 1             | 1550          | RM120H11 | RM6                | CH11               |
| 120                    | 1                    | 3.5                     | 2.9  | 2.3  | 1             | 1850          | RM120H16 | RM6                | CH16               |
| 125                    | 1                    | .12                     | .12  | .12  | 1             | 1090          | RM125N8T | RM6                | CN8T               |
| 125                    | 1                    | .4                      | .4   | .4   | 1             | 1200          | RM125M6  | RM6                | CM6                |
| 125                    | 1                    | 1.2                     | 1.1  | 1    | 1             | 1340          | RM125M13 | RM6                | CM13               |
| 125                    | 1                    | 2.4                     | 1.9  | 1.5  | 1             | 1570          | RM125H11 | RM6                | CH11               |
| 125                    | 1                    | 3.4                     | 2.8  | 2.3  | 1             | 1880          | RM125H16 | RM6                | CH16               |

## INTEGRATION MODULE



Cables (2): Standard length is 24", but can be any length up to 60" upon request.



**Case Size RM6**  
Approx. Weight: 2 lb. 8 oz.

## ACCESSORY MOUNTING KITS

### FOR WALL MOUNTING (See page 91 for illustration.)

These kits provide a way of mounting power supplies on a wall or panel when the other side of the mounting surface is inaccessible. Each kit consists of four aluminum brackets and four machine screws for fastening them to the power supply, effectively adding mounting flanges to the power supply.

For case sizes RM6, CM6, CM9, CM13, CH11, CH16  
GB8 Mounting Kit (#8-32 mounting holes) . . . . \$10

For case size CN8T

NP6 Mounting Kit (#6-32 mounting holes) . . . . \$10  
For case size CN8H

NP6L Mounting Kit (#6-32 mounting holes) . . . . \$10  
Model NP6L consists of two brackets 1.5" long and  
two 2.5" long brackets (to extend beyond heat sink).

### FOR DIN RAIL MOUNTING (See page 91 for illustration.)

#### For Rear Mounting

GR35DIN Mounting Kit . . . . \$15.00

Fits on case sizes RM6, CM6, CM9.

(Can be used, but not recommended, on case size CM13.)

NPR35DIN Mounting Kit . . . . \$15.00

Fits on case sizes CN8H, CN8T.

#### For Horizontal Mounting

CH35DIN Mounting Kit . . . . \$15.00

Fits on case size RM6.

GH35DIN Mounting Kit . . . . \$15.00

Fits on case sizes CM6, CM9, CM13.

NPH35DIN Mounting Kit . . . . \$15.00

Fits on case sizes CN8H, CN8T.

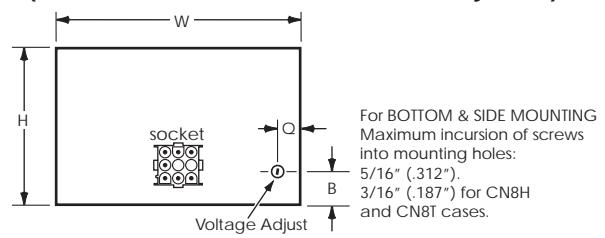
#### For Vertical Mounting

NPV35DIN Mounting Kit . . . . \$15.00

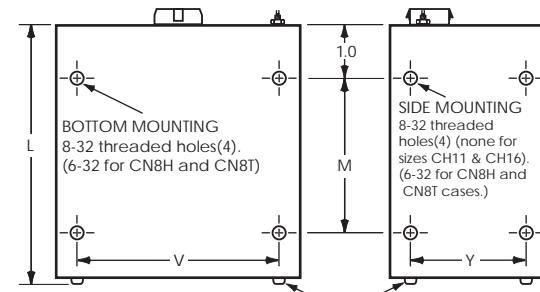
Fits on case sizes CN8H, CN8T.

## POWER SUPPLIES

### (Two in each Modular Redundant System)



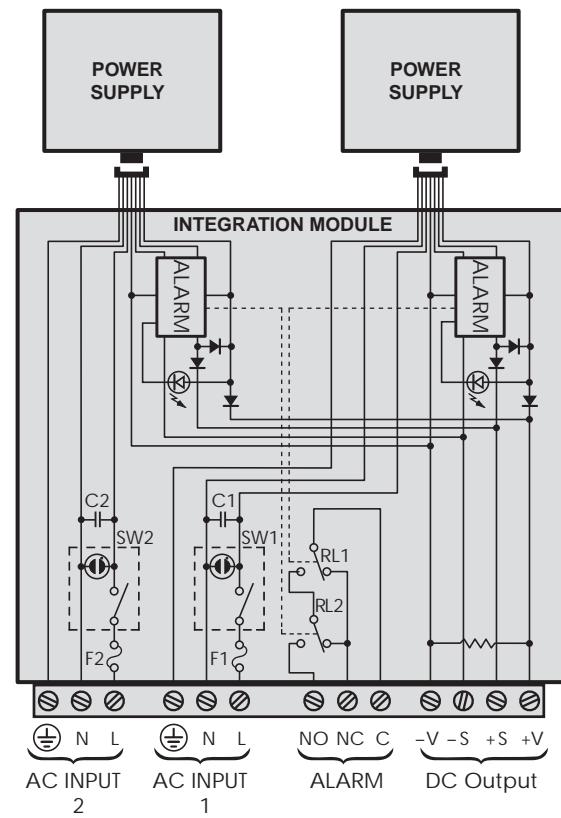
For BOTTOM & SIDE MOUNTING  
Maximum incursion of screws into mounting holes:  
5/16" (.312").  
3/16" (.187") for CN8H and CN8T cases.



For REAR MOUNTING, remove original screws(4) and use 8-32 Type F self-tapping screws. They should extend at least 5/16" (.312") into the power supply case.  
For REAR MOUNTING of CN8H and CN8T cases, remove original 6-32 screws(4). These screws may then be used for mounting, provided they extend at least 1/4" (.250") into the power supply case.

| Case Size | L     | W    | H    | M    | V    | Y    | Q    | B    | Approx. Weight |
|-----------|-------|------|------|------|------|------|------|------|----------------|
| CM6       | 6.59  | 5.12 | 3.44 | 4.0  | 4.5  | 3.0  | .5   | .75  | 4 lb. 4 oz.    |
| CM9       | 9.25  | 5.12 | 3.44 | 6.0  | 4.5  | 3.0  | .5   | .75  | 7 lb. 4 oz.    |
| CM13      | 13.25 | 5.12 | 3.44 | 10.0 | 4.5  | 3.0  | .5   | .75  | 11 lb.         |
| CH11      | 11.25 | 7.37 | 5.12 | 8.0  | 6.75 | 4.56 | 1.12 | 1.25 | 18 lb. 4 oz.   |
| CH16      | 16.00 | 7.37 | 5.12 | 11.0 | 6.75 | 4.56 | 1.12 | 1.25 | 26 lb.         |
| CN8H      | 8.47  | 4.68 | 1.68 | 5.0  | 3.12 | 1.31 | 2.87 | 1.31 | 3 lb. 14 oz.   |
| CN8T      | 8.47  | 3.84 | 1.68 | 5.0  | 3.12 | 1.31 | 2.87 | 1.31 | 3 lb. 2 oz.    |

## Simplified Diagram for Modular Redundant Systems



# SWITCHING REGULATED MODULAR REDUNDANT SYSTEMS (Power Factor Correction and Universal Input)

AC-DC  
*single output*

- Shipped Within 9 Days
- Five Year Warranty

These systems have the versatility to be mounted in a wide variety of ways - within a system cabinet, on a DIN rail or to a wall. Another benefit is that the three modules need not be mounted together, so that if a control panel is crowded, just the Integration Module may be mounted there and the power supplies mounted elsewhere.

**System Description:** Each Modular Redundant DC Power System consists of three units: two identical power supplies connected to an Integration Module by 24" long cables. The Integration Module includes the diodes for isolating the power supply outputs, AC input switches, input fuses, LED 'output present' indicators, failure alarm circuits, and the umbilical cables which plug into the power supplies. Connections for the AC inputs, redundant DC output and failure alarm relays are on a screw terminal strip.

**Mounting:** Each module has threaded mounting holes which permit mounting to a chassis, cabinet wall or bracket, or they may be used on a test bench or tabletop. To mount from the power supply side of the mounting surface or for DIN rail mounting, use an Accessory Mounting Kit (see page 27).

**Interconnection:** The Integration Module has two 24 inch long cables.

## OPTIONS

**Cable lengths:** Although 24" is standard, any other length from 12" to 60" may be ordered as an option. To order, add suffix "C??" to model number and \$60.00 to price. Replace the "???" with the cable length desired. For example, if you are ordering Model RM24WN8 with 4 foot (48") cables, the model number would be RM24WN8C48, and the price would be \$1250.00+\$60.00=\$1310.00.

Simplified Diagram for  
Modular Redundant Systems:

See page 25



For more Specifications and information, see pages 16 & 17.

## Switching Regulated MODULAR REDUNDANT SYSTEMS

| Nominal Output Voltage | Adjust Range $\pm V$ | Output Current Amps. at |      |      | Ripple mV (@ 25 MHz BW) |     | (\$)<br>Price | Model     | Case sizes         |                    |
|------------------------|----------------------|-------------------------|------|------|-------------------------|-----|---------------|-----------|--------------------|--------------------|
|                        |                      | 40°C                    | 55°C | 71°C | RMS                     | P-P |               |           | Integration Module | Power Supplies (2) |
| 3.3                    | .5                   | 15.4                    | 13   | 10.7 | 10                      | 50  | 1250          | RM3.3WN8A | RW6                | WN8A               |
| 3.3                    | .5                   | 24                      | 20.5 | 16.8 | 10                      | 50  | 1400          | RM3.3WN8  | RW6                | WN8                |
| 5                      | .5                   | 15.4                    | 13   | 10.7 | 10                      | 50  | 1250          | RM5WN8A   | RW6                | WN8A               |
| 5                      | .5                   | 24                      | 20.5 | 16.8 | 10                      | 50  | 1400          | RM5WN8    | RW6                | WN8                |
| 8                      | .5                   | 14.4                    | 12   | 10   | 15                      | 100 | 1250          | RM8WN8A   | RW6                | WN8A               |
| 8                      | .5                   | 23                      | 19.5 | 16.1 | 15                      | 100 | 1400          | RM8WN8    | RW6                | WN8                |
| 10                     | .5                   | 13.5                    | 11.5 | 9.5  | 15                      | 100 | 1250          | RM10WN8A  | RW6                | WN8A               |
| 10                     | .5                   | 21                      | 18.5 | 15   | 15                      | 100 | 1400          | RM10WN8   | RW6                | WN8                |
| 12                     | .5                   | 12.3                    | 10.5 | 8.6  | 15                      | 100 | 1250          | RM12WN8A  | RW6                | WN8A               |
| 12                     | .5                   | 20                      | 17   | 14   | 15                      | 100 | 1400          | RM12WN8   | RW6                | WN8                |
| 13                     | .5                   | 11.3                    | 9.7  | 7.9  | 15                      | 100 | 1250          | RM13WN8A  | RW6                | WN8A               |
| 13                     | .5                   | 18.4                    | 15.7 | 12.9 | 15                      | 100 | 1400          | RM13WN8   | RW6                | WN8                |
| 15                     | .5                   | 10.2                    | 8.7  | 7.1  | 15                      | 100 | 1250          | RM15WN8A  | RW6                | WN8A               |
| 15                     | .5                   | 16.5                    | 14   | 11.5 | 15                      | 100 | 1400          | RM15WN8   | RW6                | WN8                |
| 20                     | .5                   | 7.6                     | 6.5  | 5.3  | 15                      | 100 | 1250          | RM20WN8A  | RW6                | WN8A               |
| 20                     | .5                   | 12.7                    | 10.7 | 8.8  | 15                      | 100 | 1400          | RM20WN8   | RW6                | WN8                |
| 24                     | .5                   | 7.2                     | 6.1  | 5    | 15                      | 100 | 1250          | RM24WN8A  | RW6                | WN8A               |
| 24                     | .5                   | 11.5                    | 9.8  | 8    | 15                      | 100 | 1400          | RM24WN8   | RW6                | WN8                |
| 28                     | .5                   | 5.9                     | 5    | 4.1  | 15                      | 100 | 1250          | RM28WN8A  | RW6                | WN8A               |
| 28                     | .5                   | 9.5                     | 8.1  | 6.7  | 15                      | 100 | 1400          | RM28WN8   | RW6                | WN8                |
| 32                     | .5                   | 5.2                     | 4.5  | 3.7  | 25                      | 150 | 1250          | RM32WN8A  | RW6                | WN8A               |
| 32                     | .5                   | 8.3                     | 7    | 5.8  | 25                      | 150 | 1400          | RM32WN8   | RW6                | WN8                |
| 40                     | .5                   | 4.2                     | 3.6  | 3    | 25                      | 150 | 1250          | RM40WN8A  | RW6                | WN8A               |
| 40                     | .5                   | 6.8                     | 5.8  | 4.8  | 25                      | 150 | 1400          | RM40WN8   | RW6                | WN8                |
| 48                     | .5                   | 3.5                     | 3    | 2.5  | 25                      | 150 | 1250          | RM48WN8A  | RW6                | WN8A               |
| 48                     | .5                   | 5.7                     | 4.9  | 4    | 25                      | 150 | 1400          | RM48WN8   | RW6                | WN8                |
| 55                     | 1                    | 3                       | 2.5  | 2.1  | 50                      | 150 | 1250          | RM55WN8A  | RW6                | WN8A               |
| 55                     | 1                    | 4.5                     | 3.8  | 3.1  | 50                      | 150 | 1400          | RM55WN8   | RW6                | WN8                |
| 60                     | 1                    | 2.8                     | 2.3  | 1.9  | 50                      | 150 | 1250          | RM60WN8A  | RW6                | WN8A               |
| 60                     | 1                    | 4.2                     | 3.5  | 2.9  | 50                      | 150 | 1400          | RM60WN8   | RW6                | WN8                |
| 70                     | 1                    | 2.4                     | 2    | 1.7  | 67                      | 200 | 1250          | RM70WN8A  | RW6                | WN8A               |
| 70                     | 1                    | 3.6                     | 3.1  | 2.5  | 67                      | 200 | 1400          | RM70WN8   | RW6                | WN8                |
| 80                     | 1                    | 2.1                     | 1.7  | 1.4  | 67                      | 200 | 1250          | RM80WN8A  | RW6                | WN8A               |
| 80                     | 1                    | 3.1                     | 2.6  | 2.2  | 67                      | 200 | 1400          | RM80WN8   | RW6                | WN8                |
| 90                     | 1                    | 1.8                     | 1.5  | 1.3  | 100                     | 300 | 1250          | RM90WN8A  | RW6                | WN8A               |
| 90                     | 1                    | 2.8                     | 2.4  | 2    | 100                     | 300 | 1400          | RM90WN8   | RW6                | WN8                |
| 100                    | 1                    | 1.7                     | 1.4  | 1.2  | 150                     | 450 | 1250          | RM100WN8A | RW6                | WN8A               |
| 100                    | 1                    | 2.5                     | 2.1  | 1.8  | 150                     | 450 | 1400          | RM100WN8  | RW6                | WN8                |
| 110                    | 1                    | 1.5                     | 1.3  | 1.1  | 150                     | 450 | 1250          | RM110WN8A | RW6                | WN8A               |
| 110                    | 1                    | 2.3                     | 1.9  | 1.6  | 150                     | 450 | 1400          | RM110WN8  | RW6                | WN8                |
| 120                    | 1                    | 1.4                     | 1.2  | 1    | 150                     | 450 | 1250          | RM120WN8A | RW6                | WN8A               |
| 120                    | 1                    | 2.1                     | 1.8  | 1.5  | 150                     | 450 | 1400          | RM120WN8  | RW6                | WN8                |
| 125                    | 1                    | 1.3                     | 1.1  | 0.9  | 150                     | 450 | 1250          | RM125WN8A | RW6                | WN8A               |
| 125                    | 1                    | 2                       | 1.7  | 1.4  | 150                     | 450 | 1400          | RM125WN8  | RW6                | WN8A               |



single & dual tracking outputs

## Rack Mounting

LINEAR REGULATED  
AC-DC

- Shipped Within 9 Days
- All Models U.L. Recognized
- Five Year Warranty



(Meters and handles optional)

**Acopian rack-mounting power supplies** feature excellent regulation and ripple specifications in 101 models with outputs up to 150 volts and 60 amps. Metering and overvoltage protection are available as

options. These power supplies are constructed in sturdy extruded aluminum assemblies designed expressly for mounting in standard 19" wide RETMA cabinet racks. The front panels are finished in light gray enamel.

### SPECIFICATIONS

**Input Voltage:** 105-125 VAC, 50-400 Hz, single phase.

**Remote Voltage Sensing:** Provision for sensing the output voltage across the load is a standard feature.

#### Polarity:

**Single Output Models:** Output is floating; either positive or negative terminal may be grounded or floated up to 300 volts above ground.

**Dual Output Models:** Positive output, common, negative output.

#### Temperature Coefficient:

**Single Output Models:** 0.015%/°C (Typical).

**Dual Output Models:** 0.02%/°C (Typical).

#### Ambient Operating Temperature:

**Single Output Models:** -20 to +55°C.

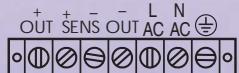
**Dual Output Models:** -10 to +55°C.

#### Storage Temperature:

**Overload/Short Circuit Protection:** Foldback current limiting with automatic recovery.

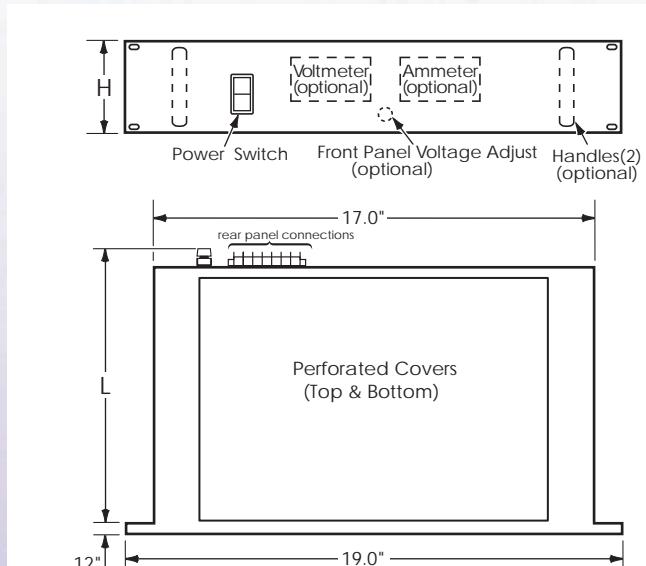
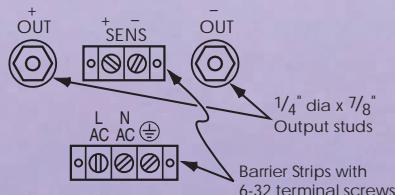
### CONNECTIONS (Single Output models):

**Case sizes**  
**3P11 and 5P12:**



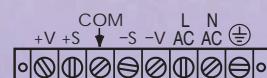
3P11 Barrier Strip with 6-32 terminal screws  
5P12 Barrier Strip with 8-32 terminal screws

**Case sizes**  
**3P17 and 5P17:**



| Case Size | H      | L         | Approx. Weight |
|-----------|--------|-----------|----------------|
| 3P11      | 3 1/2" | 10 7/8"   | 22 lb.         |
| 3P17      | 3 1/2" | 16 13/16" | 38 lb.         |
| 5P12      | 5 1/4" | 11 15/16" | 28 lb.         |
| 5P17      | 5 1/4" | 16 13/16" | 53 lb.         |

### CONNECTIONS (Dual Output models):



Barrier Strip with 6-32 terminal screws

# SINGLE OUTPUT

| Nominal Output Voltage | Adjust Range $\pm V$ | Output Current Amps. at |      | Regulation    |               | Ripple mV RMS | (\$ Price | Model   | Case Size |
|------------------------|----------------------|-------------------------|------|---------------|---------------|---------------|-----------|---------|-----------|
|                        |                      | 40°C                    | 55°C | Load $\pm \%$ | Line $\pm \%$ |               |           |         |           |
| 1.5                    | .5                   | 20                      | 20   | .005          | .005          | .25           | 625       | 1.5PT20 | 3P11      |
| 1.5                    | .5                   | 32                      | 27   | .005          | .005          | .25           | 760       | 1.5PH32 | 5P12      |
| 1.5                    | .25                  | 60                      | 47   | .05           | .05           | 1             | 1110      | 1.5PH60 | 5P17      |
| 2                      | .5                   | 20                      | 20   | .005          | .005          | .25           | 625       | 2PT20   | 3P11      |
| 2                      | .5                   | 30                      | 25   | .005          | .005          | .25           | 755       | 2PH30   | 5P12      |
| 3                      | .5                   | 20                      | 20   | .005          | .005          | .25           | 625       | 3PT20   | 3P11      |
| 3                      | .5                   | 30                      | 25   | .005          | .005          | .25           | 760       | 3PH30   | 5P12      |
| 3                      | .25                  | 60                      | 47   | .05           | .05           | 1             | 1110      | 3PH60   | 5P17      |
| 3.3                    | .5                   | 20                      | 20   | .005          | .005          | .25           | 625       | 3.3PT20 | 3P11      |
| 3.3                    | .5                   | 32                      | 27   | .005          | .005          | .25           | 760       | 3.3PH32 | 5P12      |
| 3.3                    | .25                  | 60                      | 47   | .05           | .05           | 1             | 1110      | 3.3PH60 | 5P17      |
| 5                      | .5                   | 20                      | 20   | .005          | .005          | .25           | 625       | 5PT20   | 3P11      |
| 5                      | .5                   | 32                      | 27   | .005          | .005          | .25           | 760       | 5PH32   | 5P12      |
| 5                      | .25                  | 48                      | 37   | .05           | .05           | 1             | 950       | 5PT48   | 3P17      |
| 5                      | .25                  | 60                      | 47   | .05           | .05           | 1             | 1110      | 5PH60   | 5P17      |
| 6                      | .5                   | 20                      | 20   | .005          | .005          | .25           | 625       | 6PT20   | 3P11      |
| 6                      | .5                   | 28                      | 23   | .005          | .005          | .25           | 760       | 6PH28   | 5P12      |
| 6                      | .25                  | 47                      | 36   | .05           | .05           | 1             | 950       | 6PT47   | 3P17      |
| 6                      | .25                  | 58                      | 45   | .05           | .05           | 1             | 1110      | 6PH58   | 5P17      |
| 7                      | .5                   | 20                      | 20   | .005          | .005          | .25           | 625       | 7PT20   | 3P11      |
| 8                      | .5                   | 20                      | 20   | .005          | .005          | .25           | 625       | 8PT20   | 3P11      |
| 8                      | .5                   | 28                      | 23   | .005          | .005          | .25           | 760       | 8PH28   | 5P12      |
| 8                      | .25                  | 54                      | 42   | .05           | .05           | 1             | 1110      | 8PH54   | 5P17      |
| 9                      | .5                   | 20                      | 20   | .005          | .005          | .25           | 625       | 9PT20   | 3P11      |
| 9                      | .5                   | 41                      | 32   | .05           | .05           | 1             | 950       | 9PT41   | 3P17      |
| 9                      | .5                   | 52                      | 41   | .05           | .05           | 1             | 1110      | 9PH52   | 5P17      |
| 10                     | .5                   | 20                      | 20   | .005          | .005          | .25           | 625       | 10PT20  | 3P11      |
| 10                     | .5                   | 25                      | 20   | .005          | .005          | .25           | 760       | 10PH25  | 5P12      |
| 10                     | .5                   | 50                      | 39   | .05           | .05           | 1             | 1110      | 10PH50  | 5P17      |
| 12                     | .5                   | 17                      | 17   | .005          | .005          | .25           | 625       | 12PT17  | 3P11      |
| 12                     | .5                   | 22                      | 22   | .005          | .005          | .25           | 760       | 12PH22  | 5P12      |
| 12                     | .5                   | 33                      | 26   | .05           | .05           | 1             | 950       | 12PT33  | 3P17      |
| 12                     | .5                   | 45                      | 35   | .05           | .05           | 1             | 1110      | 12PH45  | 5P17      |
| 13                     | .5                   | 16                      | 16   | .005          | .005          | .25           | 625       | 13PT16  | 3P11      |
| 13                     | .5                   | 43                      | 34   | .05           | .05           | 1             | 1110      | 13PH43  | 5P17      |
| 14                     | .5                   | 12                      | 12   | .005          | .005          | .25           | 625       | 14PT12  | 3P11      |
| 15                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 625       | 15PT10  | 3P11      |
| 15                     | .5                   | 19                      | 16   | .005          | .005          | .25           | 760       | 15PH19  | 5P12      |
| 15                     | .5                   | 25                      | 20   | .05           | .05           | 1             | 950       | 15PT25  | 3P17      |
| 15                     | .5                   | 40                      | 31   | .05           | .05           | 1             | 1110      | 15PH40  | 5P17      |
| 16                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 625       | 16PT10  | 3P11      |
| 18                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 625       | 18PT10  | 3P11      |
| 18                     | .5                   | 18                      | 15   | .005          | .005          | .25           | 760       | 18PH18  | 5P12      |
| 18                     | .5                   | 24                      | 19   | .05           | .05           | 1             | 950       | 18PT24  | 3P17      |
| 18                     | .5                   | 36                      | 28   | .05           | .05           | 1             | 1110      | 18PH36  | 5P17      |
| 20                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 625       | 20PT10  | 3P11      |
| 20                     | .5                   | 16                      | 14   | .005          | .005          | .25           | 760       | 20PH16  | 5P12      |
| 20                     | .5                   | 23                      | 18   | .05           | .05           | 1             | 950       | 20PT23  | 3P17      |
| 20                     | .5                   | 32                      | 25   | .05           | .05           | 1             | 1110      | 20PH32  | 5P17      |
| 22                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 625       | 22PT10  | 3P11      |

\*or 2 mv, whichever is greater.

| Nominal Output Voltage | Adjust Range $\pm V$ | Output Current Amps. at |      | Regulation    |               | Ripple mV RMS | (\$ Price | Model  | Case Size |
|------------------------|----------------------|-------------------------|------|---------------|---------------|---------------|-----------|--------|-----------|
|                        |                      | 40°C                    | 55°C | Load $\pm \%$ | Line $\pm \%$ |               |           |        |           |
| 24                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 625       | 24PT10 | 3P11      |
| 24                     | .5                   | 15                      | 13   | .005          | .005          | .25           | 760       | 24PH15 | 5P12      |
| 24                     | .5                   | 20                      | 16   | .05           | .05           | .25           | 950       | 24PT20 | 3P17      |
| 24                     | .5                   | 30                      | 23   | .05           | .05           | .25           | 1110      | 24PH30 | 5P17      |
| 25                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 625       | 25PT10 | 3P11      |
| 26                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 625       | 26PT10 | 3P11      |
| 28                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 625       | 28PT10 | 3P11      |
| 28                     | .5                   | 14                      | 12   | .005          | .005          | .25           | 760       | 28PH14 | 5P12      |
| 28                     | .5                   | 19                      | 15   | .05           | .05           | .25           | 950       | 28PT19 | 3P17      |
| 28                     | .5                   | 28                      | 22   | .05           | .05           | .25           | 1110      | 28PH28 | 5P17      |
| 30                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 625       | 30PT10 | 3P11      |
| 30                     | .5                   | 14                      | 12   | .005          | .005          | .25           | 760       | 30PH14 | 5P12      |
| 32                     | .5                   | 5                       | 5    | .005          | .005          | .25           | 550       | 32PT5  | 3P11      |
| 32                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 710       | 32PT10 | 5P12      |
| 34                     | .5                   | 5                       | 5    | .005          | .005          | .25           | 560       | 34PT5  | 3P11      |
| 34                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 720       | 34PT10 | 5P12      |
| 35                     | .5                   | 5                       | 5    | .005          | .005          | .25           | 570       | 35PT5  | 3P11      |
| 35                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 740       | 35PT10 | 5P12      |
| 36                     | .5                   | 5                       | 5    | .005          | .005          | .25           | 575       | 36PT5  | 3P11      |
| 36                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 750       | 36PT10 | 5P12      |
| 38                     | .5                   | 5                       | 5    | .005          | .005          | .25           | 590       | 38PT5  | 3P11      |
| 38                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 755       | 38PT10 | 5P12      |
| 40                     | .5                   | 5                       | 5    | .005          | .005          | .25           | 590       | 40PT5  | 3P11      |
| 40                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 770       | 40PT10 | 5P12      |
| 45                     | .5                   | 5                       | 5    | .005          | .005          | .25           | 600       | 45PT5  | 3P11      |
| 45                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 795       | 45PT10 | 5P12      |
| 48                     | .5                   | 5                       | 5    | .005          | .005          | .25           | 600       | 48PT5  | 3P11      |
| 48                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 795       | 48PT10 | 5P12      |
| 48                     | .5                   | 15                      | 12   | .005          | .005          | .25           | 975       | 48PT15 | 5P17      |
| 50                     | .5                   | 5                       | 5    | .005          | .005          | .25           | 600       | 50PT5  | 3P11      |
| 50                     | .5                   | 10                      | 10   | .005          | .005          | .25           | 795       | 50PT10 | 5P12      |
| 55                     | .5                   | 5                       | 3.8  | .005          | .005          | .25           | 610       | 55PT5  | 3P11      |
| 55                     | .5                   | 8                       | 6    | .005          | .005          | .25           | 810       | 55PT8  | 5P12      |
| 60                     | .5                   | 5                       | 3.8  | .005          | .005          | .25           | 615       | 60PT5  | 3P11      |
| 60                     | .5                   | 8                       | 6    | .005          | .005          | .25           | 825       | 60PT8  | 5P12      |
| 75                     | 1                    | 4                       | 3    | .01           | .01           | 1             | 625       | 75PT4  | 3P11      |
| 75                     | 1                    | 5.6                     | 4.2  | .01           | .01           | 1             | 860       | 75PT5  | 5P12      |
| 90                     | 1                    | 3.3                     | 2.5  | .01           | .01           | 1             | 640       | 90PT3  | 3P11      |
| 90                     | 1                    | 4.4                     | 3.3  | .01           | .01           | 1             | 865       | 90PT4  | 5P12      |
| 100                    | 1                    | 3                       | 2.2  | .01           | .01           | 1             | 650       | 100PT3 | 3P11      |
| 100                    | 1                    | 4                       | 3    | .01           | .01           | 1             | 880       | 100PT4 | 5P12      |
| 120                    | 1                    | 2.5                     | 1.8  | .01           | .01           | 1             | 665       | 120PT2 | 3P11      |
| 120                    | 1                    | 3.5                     | 2.6  | .01           | .01           | 1             | 890       | 120PT3 | 5P12      |
| 125                    | 1                    | 2.5                     | 1.8  | .01           | .01           | 1             | 675       | 125PT2 | 3P11      |
| 125                    | 1                    | 3.5                     | 2.6  | .01           | .01           | 1             | 905       | 125PT3 | 5P12      |
| 150                    | 1                    | 2.3                     | 1.7  | .01           | .01           | 1             | 675       | 150PT2 | 3P11      |
| 150                    | 1                    | 3                       | 2.2  | .01           | .01           | 1             | 905       | 150PT3 | 5P12      |

## OPTIONS

**EXAMPLE:** The Model 5PT20 equipped with all options is designated as the Model V5PT20AFHMP-230. (List suffix letters in alphabetical sequence.)

**Overvoltage Protection:** An internally installed and preset overvoltage protector is available. On dual output models, if either output fails, both outputs are 'crowbarred'. To order, add prefix "V" to the model number and increase price as follows:

| Outputs of             | 1.5-70V | 75-150V |
|------------------------|---------|---------|
| Case size 3P11 .....   | \$35.00 | \$45.00 |
| Other case sizes ..... | \$85.00 | \$95.00 |

**Front Panel Voltage Adjustment:** Standard models have a voltage adjustment located at the rear. A voltage control mounted on the front panel is available as an option. To order, add suffix "P" to the model number and \$15.00 to price.

**Handles:** Add suffix "H" to model number and \$30.00 to price.  
**Terminal Strip Cover:** Clips on. To order, add suffix "M" to model number and \$5.00 to price.

## Metering (Single Output Models):

**Ammeter:** Add suffix "A" to model number and \$60.00 to price.

**Voltmeter:** Add suffix "F" to model number and \$60.00 to price.

## Metering (Dual Output Models):

**Ammeters:** One for each output. Add suffix "A" to model number and \$120.00 to price. "A" and "F" options cannot be combined in one power supply.

**Voltmeters:** One for each output. Add suffix "F" to model number and \$120.00 to price. "A" and "F" options cannot be combined in one power supply.

**Voltmeter and Ammeter:** Each with switch for selecting output to be monitored. Add suffix "G" to model number and \$170.00 to price.

**230 Volt Input:** For operation on inputs of 210 to 250 VAC, 50-400 Hz. Add suffix "-230" to model number and \$40.00 to price. The "-230" option requires two additional days.

wide adjust output

## Rack Mounting

LINEAR REGULATED

AC-DC

(fixed &amp; adjustable current limiting)

- Shipped Within 9 Days
- U.L. Recognized
- Five Year Warranty

**Similar to the rack mounting power supplies listed on pages 28 and 29, but with broadened output voltage ranges.** All models may be programmed through their voltage ranges by means of external resistance. Models with adjustable current limiting have a constant-voltage/constant-current crossover characteristic, and so may be used as constant current sources.

### SPECIFICATIONS

**Input Voltage:** 105-125 VAC, 50-400 Hz, single phase.

**Regulation, Ripple (in constant voltage mode):**

Line Regulation:  $\pm 0.005\%$  or 2 mV, whichever is greater.  
Load Regulation:  $\pm 0.005\%$  or 2 mV, whichever is greater.  
Ripple: 0.25 mV rms.

**Regulation, Ripple (in constant current mode):**

Line Regulation:  $\pm 0.1\%$  or 2 mA.  
Load Regulation:  $\pm 0.2\%$  or 5 mA.  
Ripple: 0.1% rms.

**Remote Voltage Sensing:** Provision for sensing the output voltage across the load, to compensate voltage drops in output wiring, is a standard feature.

**Remote Voltage Programming:** The output voltage may be controlled by means of external resistance connected in series with the – S lead.

**Voltage Programming Coefficient:** See table.

Calibration tolerance,  $\pm 2\%$ .

**Current Limiting/Programming:** Models with fixed current limiting have a rolloff characteristic with automatic recovery. All others have current limiting with a constant-voltage/constant-current crossover characteristic.

**Polarity:** Output is floating; either positive or negative terminal may be grounded or floated up to 300 volts above ground.

**Controls:** Coarse and fine voltage adjustments, and the current limit adjustment, are located at the rear of the assembly.

**Temperature Coefficient (in constant voltage mode):**  
0.02%/°C (Typical).

**Ambient Operating Temperature:** –20 to +71°C.

**Storage Temperature:** –55 to +85°C.



(Meters and handles optional)

### OPTIONS

**Overvoltage Protection:** An internally mounted overvoltage protection circuit, set approximately 20% above the maximum output voltage rating of the supply, is available on all models. To order, add prefix "V" to the model number, and increase standard price as follows:

| Maximum output of          | 6-50V        | 100V    |
|----------------------------|--------------|---------|
| All case sizes except 5P17 | ....\$35.00  | \$45.00 |
| Case size 5P17             | .....\$85.00 |         |

**Remote Current Limiting Adjustment:** All models having numbers beginning with the letter P have a built in current limit control. Provision for control of the current limit setting by adjustment of an external resistance is available as an option. To order, add the prefix letter "E" to the model number, and add \$25.00 to the standard price.

The current limit setting is inversely related to resistance. Use a 200 ohm,  $\frac{1}{2}$  W potentiometer.

**Ammeter:** Add suffix "A" to model number and \$60.00 to price.

**Voltmeter:** Add suffix "F" to model number and \$60.00 to price.

**Handles:** Add suffix "H" to model number and \$30.00 to price.

**Terminal Strip Cover:** Clips on. To order, add suffix "M" to model number and \$5.00 to price.

**Front Panel Voltage Controls:** For voltage controls (coarse and fine) mounted on the front panel, instead of the standard screwdriver-slot adjustments at the rear, add suffix "P" to the model number and \$25.00 to price.

**Front Panel Current Limiting Control:** For adjustable current limiting models, a current limit control can be mounted on the front panel. Add suffix "Y" to the model number and \$15.00 to price.

**230 Volt Input:** For operation on inputs of 210 to 250 VAC, 50-400 Hz. Add suffix "–230" to model number and \$40.00 to price. The "–230" option requires two additional days.

# Power Supplies Programmable with a 0-10 Vdc Control Voltage

These power supplies have the broad adjustment capability required for analog instrumentation and circuitry, process controls, basic research, and similar applications.

The output voltage may be manually controlled either at the power supply or remotely, or it may be programmed with the analog output from a PLC or digital-to-analog converter.

See pages 60 and 61



| Output Voltage Range | Output Current Amps. at |      |      | Voltage Prgmg. Coeff. (Ω/V) | Case Size | Voltage Programmable Fixed Current Limiting |            | Voltage Programmable Adjust. Current Limiting |            |
|----------------------|-------------------------|------|------|-----------------------------|-----------|---|------------|---|------------|
|                      | 40°C                    | 55°C | 71°C |                             |           | Model                                       | Price (\$) | Model   | Price (\$) |
| 0-6                  | 10.0                    | 8.0  | 6.0  | 820                         | 3P11      | A06PX10                                     | 625        | P06PX10                                       | 675        |
| 0-6                  | 16.0                    | 12.8 | 9.6  | 820                         | 5P12      | A06PX16                                     | 765        | P06PX16                                       | 815        |
| 0-6*                 | 23.0                    | 18.4 | 13.8 | 820                         | 3P17      | A06PX23                                     | 950        | P06PX23                                       | 995        |
| 0-6*                 | 30.0                    | 24.0 | 18.0 | 820                         | 5P17      | A06PX30                                     | 1110       | P06PX30                                       | 1150       |
| 0-15                 | 7.0                     | 5.6  | 4.2  | 330                         | 3P11      | A015PX7                                     | 625        | P015PX7                                       | 675        |
| 0-15                 | 10.0                    | 8.0  | 6.0  | 330                         | 5P12      | A015PX10                                    | 765        | P015PX10                                      | 815        |
| 0-15*                | 13.0                    | 10.4 | 7.8  | 330                         | 3P17      | A015PX13                                    | 950        | P015PX13                                      | 995        |
| 0-30                 | 4.0                     | 3.2  | 2.4  | 160                         | 3P11      | A030PX4                                     | 625        | P030PX4                                       | 675        |
| 0-30                 | 5.0                     | 4.0  | 3.0  | 160                         | 5P12      | A030PX5                                     | 765        | P030PX5                                       | 815        |
| 0-30*                | 7.0                     | 5.6  | 4.2  | 160                         | 3P17      | A030PX7                                     | 950        | P030PX7                                       | 995        |
| 0-30*                | 9.0                     | 7.2  | 5.4  | 160                         | 5P17      | A030PX9                                     | 1110       | P030PX9                                       | 1150       |
| 0-50                 | 2.4                     | 1.9  | 1.5  | 1000                        | 3P11      | A050PX2                                     | 625        | P050PX2                                       | 675        |
| 0-50                 | 3.0                     | 2.4  | 1.8  | 1000                        | 5P12      | A050PX3                                     | 765        | P050PX3                                       | 815        |
| 0-50*                | 5.0                     | 4.0  | 3.0  | 1000                        | 5P17      | A050PX5                                     | 1110       | P050PX5                                       | 1150       |
| 0-100*               | 1.2                     | .9   | .7   | 500                         | 3P11      | A0100PX1.2                                  | 690        | P0100PX1.2                                    | 740        |
| 0-100*               | 1.5                     | 1.2  | .9   | 500                         | 5P12      | A0100PX1.5                                  | 890        | P0100PX1.5                                    | 940        |

\*Not U.L. recognized when this catalog was published.

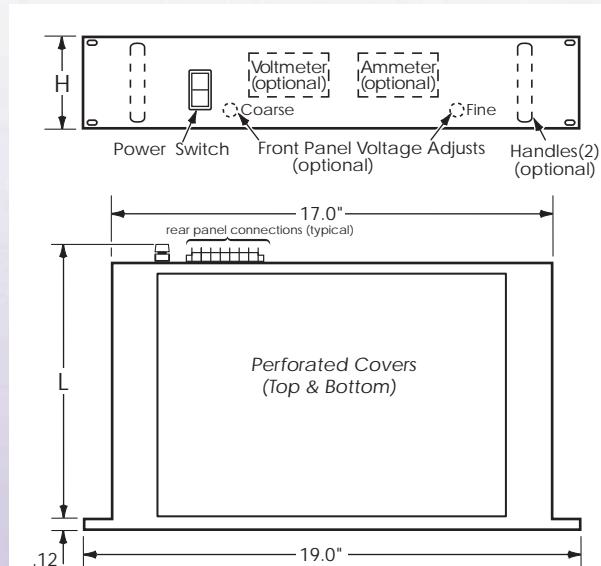
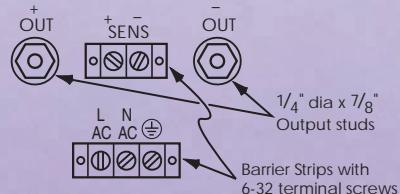
## CONNECTIONS:

### Case sizes 3P11 and 5P12:



3P11 Barrier Strip with 6-32 terminal screws  
5P12 Barrier Strip with 8-32 terminal screws

### Case sizes 3P17 and 5P17:



| Case Size | H      | L         | Approx. Weight |
|-----------|--------|-----------|----------------|
| 3P11      | 3 1/2" | 10 7/8"   | 16 lb.         |
| 3P17      | 3 1/2" | 16 13/16" | 26 lb.         |
| 5P12      | 5 1/4" | 11 15/16" | 20 lb.         |
| 5P17      | 5 1/4" | 16 13/16" | 30 lb.         |

single output

## Mini Encapsulated - PC Board mounting

LINEAR REGULATED  
AC-DC

- Shipped Within 3 Days
- All Models U.L. Recognized
- One Year Warranty

**Conserve space with mini-modules** as small as 2.3" x 1.8" x 1.0". Models with outputs ranging from 1 to 75 volts, and from 30 mA to 2.5 amps are available. All feature excellent regulation and ripple parameters, and are short circuit protected.

### STANDARD FEATURES

- May be used in series
- No derating or heat sinking required
- Short circuit protected
- Small, lightweight

### SPECIFICATIONS

**Input Voltage:** 105-125 VAC, 47 to 420 Hz, single phase.

**Output Voltage Setting:** Output is factory preset to within  $\pm 2\%$  (1 to 9 volt models) or  $\pm 1\%$  (10 to 75 volt models) of the nominal output voltage.

**T/C terminal (Output Voltage Trim Adjustment):** The T/C terminal can be used to trim the output more precisely to the nominal voltage rating by connecting an external resistor from the T/C terminal to either the + or - terminal.

**Polarity:** Output is floating. Either positive or negative terminal may be grounded.

**Ambient Operating Temperature:** -20 to +71°C. No derating required.

**Storage Temperature:** -55 to +85°C.

**Temperature Coefficient:** From 9 to 75 volts, typically 0.015%/°C; 1 to 8 volts, 0.03%/°C.

**Impedance:** 0.07 ohms at 1 kHz and 0.2 ohms at 10 kHz (approx.).

**Weight:**  
7 oz. (Case size ES-10)  
13 oz. (Case size EL-10)  
1 lb. 3 oz. (Case size EL-13)  
1 lb. 15 oz. (Case size EL-20)

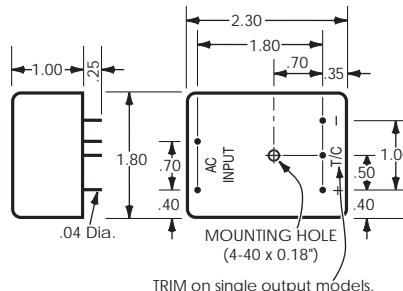
**Mounting:** May be mounted on printed circuit board or in socket (see page 34).

### OPTIONS

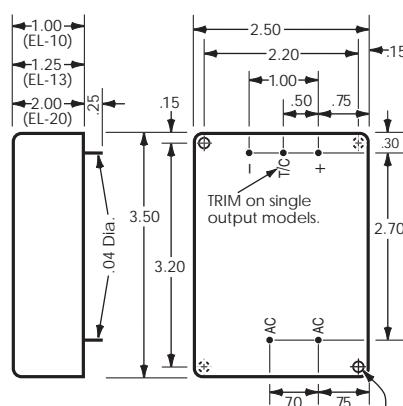
**230 Volt Input:** All models can be alternately furnished for operation on an input of 210 to 250 VAC, 47-420 Hz. To order, add suffix "-230" to model number and \$10.00 to price. Requires two additional days.



Rugged encapsulated construction and generously derated components assure years of reliable operation. PC Board mounting mini-modules are also available with dual outputs - see page 34.



Case Size ES-10



Case Sizes EL-10, EL-13, and EL-20

# SINGLE OUTPUT, FOR PC BOARD MOUNTING

(For Mini Encapsulated power supplies with higher wattage outputs than those shown below, see pages 38-39.)

| Nominal Output Voltage | Output Current Amps. | Regulation |         | Ripple mV RMS | (\$) | Model   | Case Size |
|------------------------|----------------------|------------|---------|---------------|------|---------|-----------|
|                        |                      | Load ±%    | Line ±% |               |      |         |           |
| 1                      | .250                 | .1         | .05     | 0.5           | 80   | 1E25    | ES-10     |
| 1                      | .500                 | .2         | .05     | 1             | 100  | 1E50A   | EL-10     |
| 1.5                    | .250                 | .1         | .05     | 0.5           | 80   | 1.5E25  | ES-10     |
| 1.5                    | .500                 | .2         | .05     | 1             | 100  | 1.5E50A | EL-10     |
| 1.5                    | 1.0                  | .3         | .05     | 1             | 130  | 1.5E100 | EL-13     |
| 1.5                    | 2.5                  | .3         | .05     | 1             | 170  | 1.5E250 | EL-20     |
| 2                      | .200                 | .1         | .05     | 0.5           | 80   | 2E20    | ES-10     |
| 2                      | .400                 | .2         | .05     | 1             | 100  | 2E40A   | EL-10     |
| 3                      | .250                 | .1         | .05     | 0.5           | 80   | 3E25    | ES-10     |
| 3                      | .500                 | .2         | .05     | 1             | 100  | 3E50A   | EL-10     |
| 3.3                    | .250                 | .05        | .05     | 0.5           | 80   | 3.3E25  | ES-10     |
| 3.3                    | .500                 | .1         | .05     | 1             | 100  | 3.3E50A | EL-10     |
| 3.3                    | 1.0                  | .3         | .05     | 1             | 130  | 3.3E100 | EL-13     |
| 3.3                    | 2.0                  | .3         | .05     | 1             | 155  | 3.3E200 | EL-20     |
| 4                      | .200                 | .05        | .05     | 0.5           | 80   | 4E20    | ES-10     |
| 4                      | .400                 | .1         | .05     | 1             | 100  | 4E40A   | EL-10     |
| 5                      | .250                 | .05        | .05     | 0.5           | 80   | 5E25    | ES-10     |
| 5                      | .500                 | .1         | .05     | 1             | 95   | 5E50A   | EL-10     |
| 5                      | 1.0                  | .15        | .05     | 1             | 115  | 5E100   | EL-13     |
| 5                      | 1.5                  | .15        | .05     | 1             | 130  | 5E150   | EL-13     |
| 5                      | 2.0                  | .15        | .05     | 1             | 155  | 5E200   | EL-20     |
| 5                      | 2.5                  | .15        | .05     | 1             | 170  | 5E250   | EL-20     |
| 6                      | .200                 | .05        | .05     | 0.5           | 80   | 6E20    | ES-10     |
| 6                      | .400                 | .1         | .05     | 1             | 100  | 6E40A   | EL-10     |
| 6                      | .550                 | .2         | .05     | 1             | 120  | 6E55    | EL-10     |
| 6                      | 1.0                  | .2         | .05     | 1             | 140  | 6E100   | EL-13     |
| 6                      | 1.75                 | .15        | .05     | 1             | 165  | 6E175   | EL-20     |
| 7                      | .170                 | .05        | .05     | 0.5           | 80   | 7E17    | ES-10     |
| 7                      | .340                 | .1         | .05     | 1             | 100  | 7E34A   | EL-10     |
| 7                      | .450                 | .2         | .05     | 1             | 120  | 7E45    | EL-10     |
| 7                      | .900                 | .2         | .05     | 1             | 140  | 7E90    | EL-13     |
| 7                      | 1.15                 | .15        | .05     | 1             | 165  | 7E115   | EL-20     |
| 8                      | .150                 | .05        | .05     | 0.5           | 80   | 8E15    | ES-10     |
| 8                      | .300                 | .1         | .05     | 1             | 100  | 8E30A   | EL-10     |
| 8                      | .700                 | .2         | .05     | 1             | 140  | 8E70    | EL-13     |
| 8                      | 1.1                  | .15        | .05     | 1             | 165  | 8E110   | EL-20     |
| 9                      | .130                 | .05        | .05     | 0.5           | 80   | 9E13    | ES-10     |
| 9                      | .260                 | .1         | .05     | 1             | 100  | 9E26A   | EL-10     |
| 9                      | .450                 | .15        | .05     | 1             | 120  | 9E45    | EL-10     |
| 9                      | .850                 | .15        | .05     | 1             | 140  | 9E85    | EL-13     |
| 9                      | 1.5                  | .15        | .05     | 1             | 170  | 9E150   | EL-20     |
| 10                     | .120                 | .02        | .02     | 0.5           | 70   | 10E12   | ES-10     |
| 10                     | .240                 | .05        | .05     | 1             | 100  | 10E24A  | EL-10     |
| 10                     | .400                 | .15        | .05     | 1             | 120  | 10E40   | EL-10     |
| 10                     | .750                 | .15        | .05     | 1             | 140  | 10E75   | EL-13     |
| 10                     | 1.2                  | .1         | .05     | 1             | 170  | 10E120  | EL-20     |
| 11                     | .110                 | .02        | .02     | 0.5           | 80   | 11E11   | ES-10     |
| 11                     | .220                 | .05        | .05     | 1             | 100  | 11E22A  | EL-10     |
| 11                     | .350                 | .15        | .05     | 1             | 120  | 11E35   | EL-10     |
| 11                     | .600                 | .15        | .05     | 1             | 140  | 11E60   | EL-13     |
| 11                     | 1.0                  | .1         | .05     | 1             | 170  | 11E100  | EL-20     |
| 12                     | .100                 | .02        | .02     | 0.5           | 70   | 12E10   | ES-10     |
| 12                     | .150                 | .05        | .05     | 0.5           | 90   | 12E15   | ES-10     |
| 12                     | .200                 | .05        | .05     | 1             | 100  | 12E20A  | EL-10     |
| 12                     | .400                 | .1         | .05     | 1             | 120  | 12E40   | EL-10     |
| 12                     | .700                 | .1         | .05     | 1             | 145  | 12E70   | EL-13     |
| 12                     | 1.2                  | .15        | .05     | 1             | 170  | 12E120  | EL-20     |
| 13                     | .100                 | .02        | .02     | 0.5           | 80   | 13E10   | ES-10     |
| 13                     | .200                 | .05        | .05     | 1             | 100  | 13E20A  | EL-10     |
| 13                     | .350                 | .1         | .05     | 1             | 120  | 13E35   | EL-10     |
| 13                     | 1.0                  | .1         | .05     | 1             | 170  | 13E100  | EL-20     |
| 14                     | .100                 | .02        | .02     | 0.5           | 80   | 14E10   | ES-10     |
| 14                     | .200                 | .05        | .05     | 1             | 100  | 14E20A  | EL-10     |
| 14                     | .300                 | .1         | .05     | 1             | 120  | 14E30   | EL-10     |
| 14                     | .500                 | .1         | .05     | 1             | 140  | 14E50   | EL-13     |
| 14                     | 1.0                  | .1         | .05     | 1             | 170  | 14E100  | EL-20     |
| 15                     | .100                 | .02        | .02     | 0.5           | 70   | 15E10   | ES-10     |
| 15                     | .150                 | .05        | .05     | 0.5           | 90   | 15E15   | ES-10     |
| 15                     | .200                 | .05        | .05     | 1             | 100  | 15E20A  | EL-10     |
| 15                     | .400                 | .1         | .05     | 1             | 120  | 15E40   | EL-10     |
| 15                     | .600                 | .1         | .05     | 1             | 140  | 15E60   | EL-13     |
| 15                     | 1.0                  | .1         | .05     | 1             | 170  | 15E100  | EL-20     |
| 16                     | .080                 | .02        | .02     | 0.5           | 80   | 16E08   | ES-10     |
| 16                     | .160                 | .05        | .05     | 1             | 100  | 16E16A  | EL-10     |
| 16                     | .350                 | .1         | .05     | 1             | 125  | 16E35   | EL-10     |
| 16                     | .500                 | .1         | .05     | 1             | 145  | 16E50   | EL-13     |
| 16                     | .900                 | .1         | .05     | 1             | 170  | 16E90   | EL-20     |
| 17                     | .070                 | .02        | .02     | 0.5           | 80   | 17E07   | ES-10     |
| 17                     | .140                 | .05        | .05     | 1             | 100  | 17E14A  | EL-10     |
| 17                     | .450                 | .1         | .05     | 1             | 145  | 17E45   | EL-13     |
| 17                     | .750                 | .1         | .05     | 1             | 170  | 17E75   | EL-20     |

| Nominal Output Voltage | Output Current Amps. | Regulation |         | Ripple mV RMS | (\$) | Model  | Case Size |
|------------------------|----------------------|------------|---------|---------------|------|--------|-----------|
|                        |                      | Load ±%    | Line ±% |               |      |        |           |
| 18                     | .060                 | .02        | .02     | 0.5           | 70   | 18E06  | ES-10     |
| 18                     | .120                 | .05        | .05     | 1             | 100  | 18E12A | EL-10     |
| 18                     | .270                 | .1         | .05     | 1             | 120  | 18E27  | EL-10     |
| 18                     | .400                 | .1         | .05     | 1             | 140  | 18E40  | EL-13     |
| 18                     | .550                 | .1         | .05     | 1             | 165  | 18E55  | EL-20     |
| 19                     | .060                 | .02        | .02     | 0.5           | 80   | 19E06  | ES-10     |
| 19                     | .120                 | .05        | .05     | 1             | 100  | 19E12A | EL-10     |
| 19                     | .250                 | .1         | .05     | 1             | 120  | 19E25  | EL-10     |
| 19                     | .400                 | .1         | .05     | 1             | 140  | 19E40  | EL-13     |
| 19                     | .700                 | .1         | .05     | 1             | 170  | 19E70  | EL-20     |
| 20                     | .060                 | .02        | .02     | 0.5           | 80   | 20E06  | ES-10     |
| 20                     | .120                 | .05        | .05     | 1             | 100  | 20E12A | EL-10     |
| 20                     | .200                 | .1         | .05     | 1             | 120  | 20E20  | EL-10     |
| 20                     | .400                 | .1         | .05     | 1             | 140  | 20E40  | EL-13     |
| 20                     | .700                 | .1         | .05     | 1             | 170  | 20E70  | EL-20     |
| 21                     | .060                 | .02        | .02     | 0.5           | 80   | 21E06  | ES-10     |
| 21                     | .120                 | .05        | .05     | 1             | 100  | 21E12A | EL-10     |
| 21                     | .175                 | .1         | .05     | 1             | 120  | 21E18  | EL-10     |
| 21                     | .375                 | .1         | .05     | 1             | 140  | 21E38  | EL-13     |
| 21                     | .600                 | .1         | .05     | 1             | 165  | 21E60  | EL-20     |
| 22                     | .050                 | .02        | .02     | 0.5           | 80   | 22E05  | ES-10     |
| 22                     | .100                 | .05        | .05     | 1             | 100  | 22E10A | EL-10     |
| 22                     | .150                 | .1         | .05     | 1             | 120  | 22E15  | EL-10     |
| 22                     | .300                 | .1         | .05     | 1             | 140  | 22E30  | EL-13     |
| 22                     | .500                 | .1         | .05     | 1             | 165  | 22E50  | EL-20     |
| 23                     | .050                 | .02        | .02     | 0.5           | 80   | 23E05  | ES-10     |
| 23                     | .100                 | .05        | .05     | 1             | 100  | 23E10A | EL-10     |
| 23                     | .200                 | .1         | .05     | 1             | 120  | 23E20  | EL-10     |
| 23                     | .300                 | .1         | .05     | 1             | 140  | 23E30  | EL-13     |
| 23                     | .600                 | .1         | .05     | 1             | 170  | 23E60  | EL-20     |
| 24                     | .050                 | .02        | .02     | 0.5           | 70   | 24E05  | ES-10     |
| 24                     | .100                 | .05        | .05     | 1             | 100  | 24E10A | EL-10     |
| 24                     | .200                 | .1         | .05     | 1             | 120  | 24E20  | EL-10     |
| 24                     | .350                 | .1         | .05     | 1             | 145  | 24E35  | EL-13     |
| 24                     | .600                 | .1         | .05     | 1             | 170  | 24E60  | EL-20     |
| 25                     | .050                 | .02        | .02     | 0.5           | 80   | 25E05  | ES-10     |
| 25                     | .100                 | .05        | .05     | 1             | 100  | 25E10A | EL-10     |
| 25                     | .190                 | .1         | .05     | 1             | 120  | 25E19  | EL-10     |
| 25                     | .325                 | .1         | .05     | 1             | 145  | 25E33  | EL-13     |
| 25                     | .550                 | .1         | .05     | 1             | 170  | 25E55  | EL-20     |
| 26                     | .040                 | .02        | .02     | 0.5           | 80   | 26E04  | ES-10     |
| 26                     | .080                 | .05        | .05     | 1             | 100  | 26E08A | EL-10     |
| 26                     | .170                 | .1         | .05     | 1             | 120  | 26E17  | EL-10     |
| 26                     | .300                 | .1         | .05     | 1             | 140  | 26E30  | EL-13     |
| 26                     | .450                 | .1         | .05     | 1             | 165  | 26E45  | EL-20     |
| 27                     | .040                 | .02        | .02     | 0.5           | 80   | 27E04  | ES-10     |
| 27                     | .080                 | .05        | .05     | 1             | 100  | 27E08A | EL-10     |
| 27                     | .160                 | .1         | .05     | 1             | 120  | 27E16  | EL-10     |
| 27                     | .300                 | .1         | .05     | 1             | 140  | 27E30  | EL-13     |
| 27                     | .500                 | .1         | .05     | 1             | 170  | 27E50  | EL-20     |
| 28                     | .040                 | .02        | .02     | 0.5           | 70   | 28E04  | ES-10     |
| 28                     | .080                 | .05        | .05     | 1             | 100  | 28E08A | EL-10     |
| 28                     | .150                 | .1         | .05     | 1             | 120  | 28E15  | EL-10     |
| 28                     | .300                 | .1         | .05     | 1             | 145  | 28E30  | EL-13     |
| 28                     | .500                 | .1         | .05     | 1             | 170  | 28E50  | EL-20     |
| 30                     | .080                 | .02        | .02     | 1             | 105  | 30E08A | EL-13     |
| 32                     | .070                 | .02        | .02     | 1             | 105  | 32E07A | EL-13     |
| 34                     | .060                 | .02        | .02     | 1             | 105  | 34E06A | EL-13     |
| 35                     | .050                 | .02        | .02     | 1             | 105  | 35E05A | EL-13     |
| 36                     | .050                 | .02        | .02     | 1             | 105  | 36E05A | EL-13     |
| 38                     | .040                 | .02        | .02     | 1             | 105  | 38E04A | EL-13     |
| 40                     | .030                 | .02        | .02     | 1             | 105  | 40E03A | EL-13     |
| 40                     | .060                 | .02        | .02     | 1             | 130  | 40E06A | EL-13     |
| 42                     | .030                 | .02        | .02     | 1             | 105  | 42E03A | EL-13     |
| 44                     | .030                 | .02        | .02     | 1             | 105  | 44E03A | EL-13     |
| 45                     | .030                 | .02        | .02     | 1             | 105  | 45E03A | EL-13     |
| 48                     | .030                 | .02        | .02     | 1             | 105  | 48E03A | EL-13     |
| 48                     | .050                 | .02        | .02     | 1             | 130  | 48E05A | EL-13     |
| 50                     | .030                 | .02        | .02     | 1             | 105  | 50E03A | EL-13     |
| 50                     | .050                 | .02        | .02     | 1             | 130  | 50E05A | EL-13     |
| 55                     | .040                 | .02        | .02     | 1             | 130  | 55E04A | EL-13     |
| 60                     | .050                 | .02        | .02     | 1             | 130  | 60E05A | EL-13     |
| 65                     | .050                 | .02        | .02     | 1             | 130  | 65E05A | EL-13     |
| 70                     | .040                 | .02        | .02     | 1             | 130  | 70E04A | EL-13     |
| 75                     | .030                 | .02        | .02     | 1</td         |      |        |           |

dual tracking outputs

## Mini Encapsulated - PC Board mounting

LINEAR REGULATED  
AC-DC

- Shipped Within 3 Days
- All Models U.L. Recognized
- One Year Warranty



**These dual output** mini-modules are compact and convenient sources of the voltages required to power operational amplifiers and related circuits. They may be mounted directly on printed circuit board assemblies, simplifying system layout and minimizing the connectors and wiring required.

### STANDARD FEATURES

- May be used in series
- No derating or heat sinking required
- Short circuit protected

### SPECIFICATIONS

**Input Voltage:** 105-125 VAC, 47 to 420 Hz, single phase.

**Output Voltage Setting:** Each output is factory preset to within  $\pm 2\%$  (5 volt models) or  $\pm 1\%$  (10, 12 and 15 volt models) of the nominal output voltage.

**T/C terminal:** The T/C terminal is the output Common.

**Polarity:** Positive output, common, and negative output.

**Ambient Operating Temperature:**  $-20$  to  $+71^\circ\text{C}$ .

No derating required.

**Storage Temperature:**  $-55$  to  $+85^\circ\text{C}$ .

**Temperature Coefficient:** 10, 12 and 15 volt models, typically  $0.015\%/\text{C}$ ; 5 volt models,  $0.03\%/\text{C}$ .

**Impedance:** 0.07 ohms at 1 kHz and 0.2 ohms at 10 kHz (approx.).

**Weight:** 7 oz. (Case size ES-10)

13 oz. (Case size EL-10)

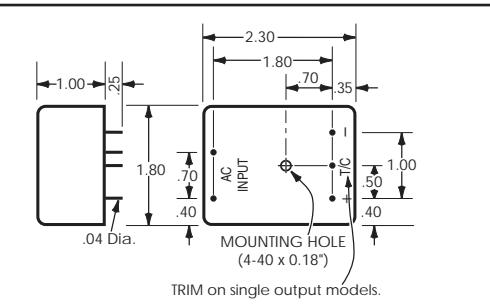
1 lb. 3 oz. (Case size EL-13)

1 lb. 15 oz. (Case size EL-20)

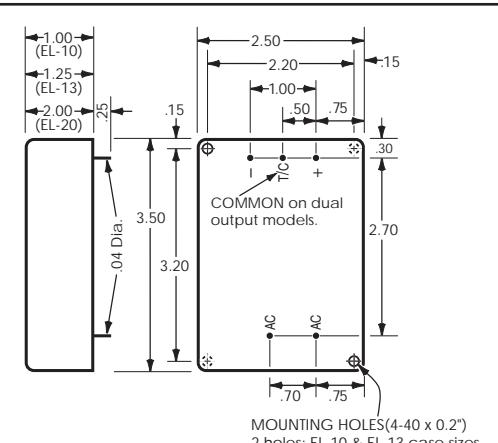
**Mounting:** May be mounted on printed circuit board or in socket (see below).

### OPTIONS

**230 Volt Input:** All models can be alternately furnished for operation on an input of 210 to 250 VAC, 47-420 Hz. To order, add suffix "230" to model number and \$10.00 to price. Requires two additional days.



Case Size ES-10



Case Sizes EL-10, EL-13, and EL-20

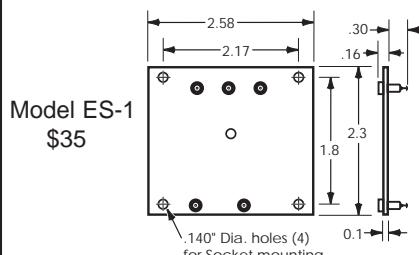
### DUAL TRACKING OUTPUTS

| Nominal Output Voltages | Amps. per Output | Regulation    |               | Ripple mV RMS | (\$ Price | Model   | Case Size |
|-------------------------|------------------|---------------|---------------|---------------|-----------|---------|-----------|
|                         |                  | Load $\pm \%$ | Line $\pm \%$ |               |           |         |           |
| $\pm 5$                 | .150             | .1            | .05           | 1.5           | 105       | D5-15   | EL-10     |
| $\pm 5$                 | .250             | .1            | .05           | 1.5           | 130       | D5-25   | EL-10     |
| $\pm 5$                 | .500             | .1            | .05           | 1.5           | 180       | D5-50   | EL-20     |
| $\pm 10$                | .200             | .05           | .05           | 1             | 120       | D10-20  | EL-10     |
| $\pm 10$                | .300             | .05           | .05           | 1             | 155       | D10-30  | EL-13     |
| $\pm 10$                | .400             | .1            | .05           | 1             | 180       | D10-40  | EL-20     |
| $\pm 12$                | .025             | .1            | .05           | 1             | 70        | D12-03  | ES-10     |
| $\pm 12$                | .050             | .1            | .05           | 1             | 80        | D12-05  | ES-10     |
| $\pm 12$                | .100             | .05           | .05           | 1             | 95        | D12-10A | EL-10     |
| $\pm 12$                | .150             | .05           | .05           | 1             | 105       | D12-15A | EL-10     |
| $\pm 12$                | .200             | .05           | .05           | 1             | 120       | D12-20  | EL-10     |
| $\pm 12$                | .300             | .05           | .05           | 1             | 140       | D12-30  | EL-13     |
| $\pm 12$                | .350             | .05           | .05           | 1             | 155       | D12-35  | EL-13     |
| $\pm 12$                | .500             | .1            | .05           | 1             | 180       | D12-50  | EL-20     |
| $\pm 15$                | .025             | .1            | .05           | 1             | 70        | D15-03  | ES-10     |
| $\pm 15$                | .050             | .1            | .05           | 1             | 80        | D15-05  | ES-10     |
| $\pm 15$                | .100             | .05           | .05           | 1             | 95        | D15-10A | EL-10     |
| $\pm 15$                | .150             | .05           | .05           | 1             | 105       | D15-15A | EL-10     |
| $\pm 15$                | .200             | .05           | .05           | 1             | 120       | D15-20  | EL-10     |
| $\pm 15$                | .300             | .05           | .05           | 1             | 140       | D15-30  | EL-13     |
| $\pm 15$                | .350             | .05           | .05           | 1             | 155       | D15-35  | EL-13     |
| $\pm 15$                | .500             | .1            | .05           | 1             | 180       | D15-50  | EL-20     |

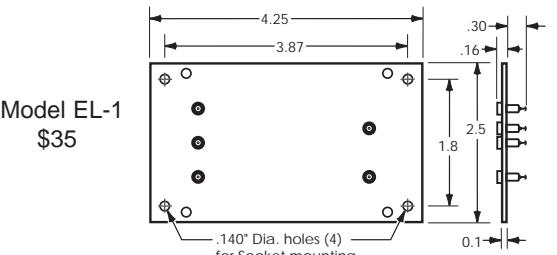
### ACCESSORY SOCKETS:

For use with PC board mounting Mini Linears and PC board mounting DC-DC Converters.

Each of these sockets has a sturdy phenolic base with gold plated teflon-insulated contacts.



For case sizes ES-10 and ESC-10



For case sizes EL-10, EL-13, EL-20 and ELC-10

# NEMA 4X Enclosed Power Supplies



We can put many of our power supplies in NEMA enclosures. Shown here is one of our Mini power supplies in a NEMA enclosure.

NEMA 4X enclosures provide protection against accidental contact with dangerous voltages, and protect the power supply inside from the ingress of dirt, dust, lint, and other substances. Although they do not have an airtight seal, they provide substantial protection from dripping and splashing water and other liquids.

Please contact Acopian for more information. Call 800-523-9478.



Acopian Technical Company  
Easton, PA

*single & dual tracking outputs***Mini Encapsulated - with screw terminals**LINEAR REGULATED  
AC-DC

- Shipped Within 3 Days
- All Models U.L. Recognized
- One Year Warranty

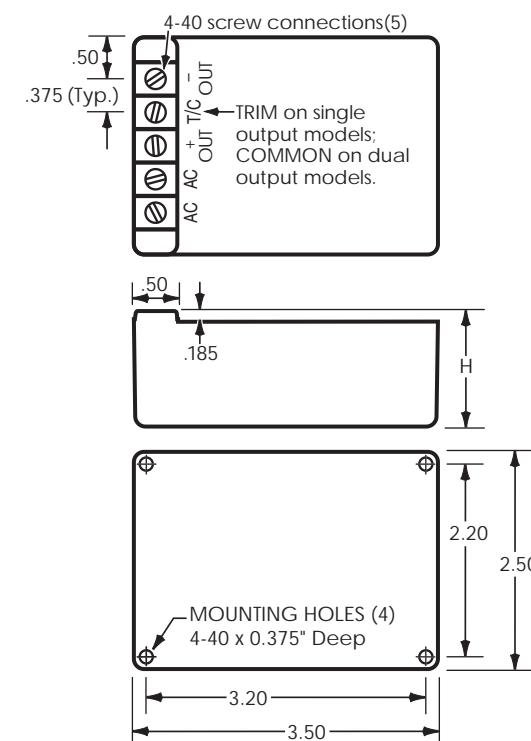
**Although small in size**, these mini-modules offer high performance at modest prices. All models, with series regulated outputs ranging from 1 to 75 volts and as high as 2.5 amps, may be mounted in an area only 3.5" x 2.5". Dual output models are available with the ratings

**STANDARD FEATURES**

- May be used in series
- No derating or heat sinking required
- Short circuit protected
- Small, lightweight

**SPECIFICATIONS****Input Voltage:** 105-125 VAC, 47 to 420 Hz, single phase.**Output Voltage Setting:** Outputs are factory preset to within  $\pm 2\%$  (1 to 9 volt models) or  $\pm 1\%$  (10 to 75 volt models) of the nominal output voltage.**T/C terminal:** For single output models, the T/C terminal can be used to trim the output more precisely to the nominal voltage rating by connecting an external resistor from the T/C terminal to either the + or - terminal. For dual output models, the T/C terminal is the output common.**Polarity:** Either positive or negative terminal of a single output module may be grounded. Dual output modules have a positive/common/negative output terminal configuration.**Ambient Operating Temperature:** -20 to +71°C. No derating required.**Storage Temperature:** -55 to +85°C.**Temperature Coefficient:** From 9 to 75 volts, typically 0.015%/°C; 1 to 8 volts, 0.03%/°C.**Impedance:** 0.07 ohms at 1 kHz and 0.2 ohms at 10 kHz (approx.).**Mounting:** Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket, or they may be used on a test bench or tabletop. When wall-mounting or DIN rail mounting is desired, use accessory Mounting Kits on page 77.**OPTIONS****230 Volt Input:** All models can be alternately furnished for operation on an input of 210 to 250 VAC, 47-420 Hz. To order, add suffix "-230" to model number and \$10.00 to price. The "-230" option requires two additional days.

commonly required for driving op amps and other balanced loads. Terminal strip input/output connections eliminate all need for sockets or soldering. Short circuit protection, encapsulated construction, and conservative design assure long term reliability.



| Case Size | H     | Approx. Weight |
|-----------|-------|----------------|
| EB-10     | 1.375 | 15 oz.         |
| EB-13     | 1.625 | 1 lb. 4 oz.    |
| EB-20     | 2.375 | 2 lb. 1 oz.    |

# SINGLE OUTPUT, WITH SCREW TERMINALS

(For Mini Encapsulated power supplies with higher wattage outputs than those shown below, see pages 38-39.)

| Nominal Output Voltage | Output Current Amps. | Regulation |         | Ripple mV RMS | (\$) | Model    | Case Size |
|------------------------|----------------------|------------|---------|---------------|------|----------|-----------|
|                        |                      | Load ±%    | Line ±% |               |      |          |           |
| 1                      | .500                 | .4         | .05     | 1             | 105  | 1EB50    | EB-10     |
| 1.5                    | .500                 | .3         | .05     | 1             | 105  | 1.5EB50  | EB-10     |
| 1.5                    | 1.0                  | .5         | .05     | 1             | 140  | 1.5EB100 | EB-13     |
| 1.5                    | 2.5                  | .6         | .05     | 1             | 185  | 1.5EB250 | EB-20     |
| 2                      | .400                 | .25        | .05     | 1             | 105  | 2EB40    | EB-10     |
| 3                      | .500                 | .25        | .05     | 1             | 105  | 3EB50    | EB-10     |
| 3.3                    | .500                 | .15        | .05     | 1             | 105  | 3.3EB50  | EB-10     |
| 3.3                    | 1.0                  | .4         | .05     | 1             | 140  | 3.3EB100 | EB-13     |
| 3.3                    | 2.0                  | .4         | .05     | 1             | 165  | 3.3EB200 | EB-20     |
| 4                      | .400                 | .15        | .05     | 1             | 105  | 4EB40    | EB-10     |
| 5                      | .500                 | .15        | .05     | 1             | 105  | 5EB50    | EB-10     |
| 5                      | 1.0                  | .25        | .05     | 1             | 125  | 5EB100   | EB-13     |
| 5                      | 1.5                  | .25        | .05     | 1             | 145  | 5EB150   | EB-13     |
| 5                      | 2.0                  | .25        | .05     | 1             | 165  | 5EB200   | EB-20     |
| 5                      | 2.5                  | .25        | .05     | 1             | 185  | 5EB250   | EB-20     |
| 6                      | .400                 | .1         | .05     | 1             | 105  | 6EB40    | EB-10     |
| 6                      | .550                 | .25        | .05     | 1             | 125  | 6EB55    | EB-10     |
| 6                      | 1.0                  | .25        | .05     | 1             | 145  | 6EB100   | EB-13     |
| 6                      | 1.75                 | .2         | .05     | 1             | 170  | 6EB175   | EB-20     |
| 7                      | .340                 | .1         | .05     | 1             | 105  | 7EB34    | EB-10     |
| 7                      | .450                 | .2         | .05     | 1             | 125  | 7EB45    | EB-10     |
| 7                      | .900                 | .25        | .05     | 1             | 145  | 7EB90    | EB-13     |
| 7                      | 1.15                 | .2         | .05     | 1             | 170  | 7EB115   | EB-20     |
| 8                      | .300                 | .1         | .05     | 1             | 105  | 8EB30    | EB-10     |
| 8                      | .700                 | .2         | .05     | 1             | 145  | 8EB70    | EB-13     |
| 8                      | 1.1                  | .2         | .05     | 1             | 170  | 8EB110   | EB-20     |
| 9                      | .260                 | .1         | .05     | 1             | 105  | 9EB26    | EB-10     |
| 9                      | .450                 | .15        | .05     | 1             | 125  | 9EB45    | EB-10     |
| 9                      | .850                 | .2         | .05     | 1             | 145  | 9EB85    | EB-13     |
| 9                      | 1.5                  | .2         | .05     | 1             | 180  | 9EB150   | EB-20     |
| 10                     | .240                 | .05        | .05     | 1             | 105  | 10EB24   | EB-10     |
| 10                     | .400                 | .15        | .05     | 1             | 125  | 10EB40   | EB-10     |
| 10                     | .750                 | .2         | .05     | 1             | 145  | 10EB75   | EB-13     |
| 10                     | 1.2                  | .15        | .05     | 1             | 180  | 10EB120  | EB-20     |
| 11                     | .220                 | .05        | .05     | 1             | 105  | 11EB22   | EB-10     |
| 11                     | .350                 | .15        | .05     | 1             | 125  | 11EB35   | EB-10     |
| 11                     | .600                 | .15        | .05     | 1             | 145  | 11EB60   | EB-13     |
| 11                     | 1.0                  | .15        | .05     | 1             | 180  | 11EB100  | EB-20     |
| 12                     | .200                 | .05        | .05     | 1             | 105  | 12EB20   | EB-10     |
| 12                     | .400                 | .1         | .05     | 1             | 125  | 12EB40   | EB-10     |
| 12                     | .700                 | .15        | .05     | 1             | 155  | 12EB70   | EB-13     |
| 12                     | 1.2                  | .2         | .05     | 1             | 180  | 12EB120  | EB-20     |
| 13                     | .200                 | .05        | .05     | 1             | 105  | 13EB20   | EB-10     |
| 13                     | .350                 | .1         | .05     | 1             | 125  | 13EB35   | EB-10     |
| 13                     | .600                 | .1         | .05     | 1             | 155  | 13EB60   | EB-13     |
| 13                     | 1.0                  | .15        | .05     | 1             | 180  | 13EB100  | EB-20     |
| 14                     | .200                 | .05        | .05     | 1             | 105  | 14EB20   | EB-10     |
| 14                     | .300                 | .1         | .05     | 1             | 125  | 14EB30   | EB-10     |
| 14                     | .500                 | .1         | .05     | 1             | 145  | 14EB50   | EB-13     |
| 14                     | 1.0                  | .15        | .05     | 1             | 180  | 14EB100  | EB-20     |
| 15                     | .200                 | .05        | .05     | 1             | 105  | 15EB20   | EB-10     |
| 15                     | .400                 | .1         | .05     | 1             | 125  | 15EB40   | EB-10     |
| 15                     | .600                 | .1         | .05     | 1             | 145  | 15EB60   | EB-13     |
| 15                     | 1.0                  | .15        | .05     | 1             | 180  | 15EB100  | EB-20     |
| 16                     | .160                 | .05        | .05     | 1             | 105  | 16EB16   | EB-10     |
| 16                     | .350                 | .1         | .05     | 1             | 135  | 16EB35   | EB-10     |
| 16                     | .500                 | .1         | .05     | 1             | 155  | 16EB50   | EB-13     |
| 16                     | .900                 | .15        | .05     | 1             | 180  | 16EB90   | EB-20     |
| 17                     | .140                 | .05        | .05     | 1             | 105  | 17EB14   | EB-10     |
| 17                     | .325                 | .1         | .05     | 1             | 135  | 17EB33   | EB-10     |
| 17                     | .450                 | .1         | .05     | 1             | 155  | 17EB45   | EB-13     |
| 17                     | .750                 | .15        | .05     | 1             | 180  | 17EB75   | EB-20     |
| 18                     | .120                 | .05        | .05     | 1             | 105  | 18EB12   | EB-10     |
| 18                     | .270                 | .1         | .05     | 1             | 125  | 18EB27   | EB-10     |
| 18                     | .400                 | .1         | .05     | 1             | 145  | 18EB40   | EB-13     |
| 18                     | .550                 | .1         | .05     | 1             | 170  | 18EB55   | EB-20     |

| Nominal Output Voltage | Output Current Amps. | Regulation  |         | Ripple mV RMS | (\$) | Model  | Case Size |
|------------------------|----------------------|-------------|---------|---------------|------|--------|-----------|
|                        |                      | Load ±%     | Line ±% |               |      |        |           |
| 19                     | .120                 | .05         | .05     | 1             | 105  | 19EB12 | EB-10     |
| 19                     | .250                 | .1          | .05     | 1             | 125  | 19EB25 | EB-10     |
| 19                     | .400                 | .1          | .05     | 1             | 145  | 19EB40 | EB-13     |
| 19                     | .700                 | .1          | .05     | 1             | 180  | 19EB70 | EB-20     |
| 20                     | .120                 | .05         | .05     | 1             | 105  | 20EB12 | EB-10     |
| 20                     | .200                 | .1          | .05     | 1             | 125  | 20EB20 | EB-13     |
| 20                     | .400                 | .1          | .05     | 1             | 145  | 20EB40 | EB-20     |
| 20                     | .700                 | .1          | .05     | 1             | 180  | 20EB70 | EB-20     |
| 21                     | .120                 | .05         | .05     | 1             | 105  | 21EB12 | EB-10     |
| 21                     | .175                 | .1          | .05     | 1             | 125  | 21EB18 | EB-10     |
| 21                     | .375                 | .1          | .05     | 1             | 145  | 21EB38 | EB-13     |
| 21                     | .600                 | .1          | .05     | 1             | 170  | 21EB60 | EB-20     |
| 22                     | .100                 | .05         | .05     | 1             | 105  | 22EB10 | EB-10     |
| 22                     | .150                 | .1          | .05     | 1             | 125  | 22EB15 | EB-10     |
| 22                     | .300                 | .1          | .05     | 1             | 145  | 22EB30 | EB-13     |
| 22                     | .500                 | .1          | .05     | 1             | 170  | 22EB50 | EB-20     |
| 23                     | .100                 | .05         | .05     | 1             | 105  | 23EB10 | EB-10     |
| 23                     | .200                 | .1          | .05     | 1             | 125  | 23EB20 | EB-10     |
| 23                     | .300                 | .1          | .05     | 1             | 145  | 23EB30 | EB-13     |
| 23                     | .600                 | .1          | .05     | 1             | 180  | 23EB60 | EB-20     |
| 24                     | .100                 | .05         | .05     | 1             | 105  | 24EB10 | EB-10     |
| 24                     | .200                 | .1          | .05     | 1             | 125  | 24EB20 | EB-10     |
| 24                     | .350                 | .1          | .05     | 1             | 155  | 24EB35 | EB-13     |
| 24                     | .600                 | .1          | .05     | 1             | 180  | 24EB60 | EB-20     |
| 25                     | .100                 | .05         | .05     | 1             | 105  | 25EB10 | EB-10     |
| 25                     | .190                 | .1          | .05     | 1             | 125  | 25EB19 | EB-10     |
| 25                     | .325                 | .1          | .05     | 1             | 155  | 25EB33 | EB-13     |
| 25                     | .550                 | .1          | .05     | 1             | 180  | 25EB55 | EB-20     |
| 26                     | .080                 | .05         | .05     | 1             | 105  | 26EB08 | EB-10     |
| 26                     | .170                 | .1          | .05     | 1             | 125  | 26EB17 | EB-10     |
| 26                     | .300                 | .1          | .05     | 1             | 145  | 26EB30 | EB-13     |
| 26                     | .450                 | .1          | .05     | 1             | 170  | 26EB45 | EB-20     |
| 27                     | .080                 | .05         | .05     | 1             | 105  | 27EB08 | EB-10     |
| 27                     | .160                 | .1          | .05     | 1             | 125  | 27EB16 | EB-10     |
| 27                     | .300                 | .1          | .05     | 1             | 145  | 27EB30 | EB-13     |
| 27                     | .500                 | .1          | .05     | 1             | 180  | 27EB50 | EB-20     |
| 28                     | .080                 | .05         | .05     | 1             | 105  | 28EB08 | EB-10     |
| 28                     | .150                 | .1          | .05     | 1             | 125  | 28EB15 | EB-10     |
| 28                     | .300                 | .1          | .05     | 1             | 155  | 28EB30 | EB-13     |
| 28                     | .500                 | .1          | .05     | 1             | 180  | 28EB50 | EB-20     |
| 30                     | .080                 | .02         | .02     | 1             | 115  | 30EB08 | EB-13     |
| 32                     | .070                 | .02         | .02     | 1             | 115  | 32EB07 | EB-13     |
| 34                     | .060                 | .02         | .02     | 1             | 115  | 34EB06 | EB-13     |
| 35                     | .050                 | .02         | .02     | 1             | 115  | 35EB05 | EB-13     |
| 36                     | .050                 | .02         | .02     | 1             | 115  | 36EB05 | EB-13     |
| 38                     | .040                 | .02         | .02     | 1             | 115  | 38EB04 | EB-13     |
| 40                     | .030                 | .02         | .02     | 1             | 115  | 40EB03 | EB-13     |
| 40                     | .060                 | .02         | .02     | 1             | 140  | 40EB06 | EB-13     |
| 42                     | .030                 | .02         | .02     | 1             | 115  | 42EB03 | EB-13     |
| 44                     | .030                 | .02         | .02     | 1             | 115  | 44EB03 | EB-13     |
| 45                     | .030                 | .02         | .02     | 1             | 115  | 45EB03 | EB-13     |
| 48                     | .030                 | .02         | .02     | 1             | 115  | 48EB03 | EB-13     |
| 48                     | .050                 | .02         | .02     | 1             | 140  | 48EB05 | EB-13     |
| 50                     | .030                 | .02         | .02     | 1             | 115  | 50EB03 | EB-13     |
| 50                     | .050                 | .02         | .02     | 1             | 140  | 50EB05 | EB-13     |
| 55                     | .040                 | .02         | .02     | 1             | 140  | 55EB04 | EB-13     |
| 60                     | .050                 | .02         | .02     | 1             | 140  | 60EB05 | EB-13     |
| 65                     | .050                 | .02         | .02     | 1             | 140  | 65EB05 | EB-13     |
| 70                     | .040                 | .02         | .02     | 1             | 140  | 70EB04 | EB-13     |
| 75                     | .030                 | .02         | .02     | 1             | 140  | 75EB03 | EB-13     |
| 185                    | .025                 | Unregulated |         | 2V            | 75   | NX-25B | EB-10     |
| 185                    | .050                 | Unregulated |         | 3.5V          | 100  | NX-50B | EB-13     |

## DUAL TRACKING OUTPUTS

| Nominal Output Voltages | Amps. per Output | Regulation |         | Ripple mV RMS | (\$) | Model   | Case Size |
|-------------------------|------------------|------------|---------|---------------|------|---------|-----------|
|                         |                  | Load ±%    | Line ±% |               |      |         |           |
| ±5                      | .150             | .1         | .05     | 1.5           | 115  | DB5-15  | EB-10     |
| ±5                      | .250             | .1         | .05     | 1.5           | 140  | DB5-25  | EB-10     |
| ±5                      | .500             | .1         | .05     | 1.5           | 190  | DB5-50  | EB-20     |
| ±10                     | .200             | .05        | .05     | 1             | 125  | DB10-20 | EB-10     |
| ±10                     | .300             | .05        | .05     | 1             | 165  | DB10-30 | EB-13     |
| ±10                     | .400             | .1         | .05     | 1             | 190  | DB10-40 | EB-20     |
| ±12                     | .100             | .05        | .05     | 1             | 100  | DB12-10 | EB-10     |
| ±12                     | .150             | .05        | .05     | 1             | 115  | DB12-15 | EB-10     |
| ±12                     | .200             | .05        | .05     | 1             | 125  | DB12-20 | EB-10     |

| Nominal Output Voltages | Amps. per Output | Regulation |         | Ripple mV RMS | (\$) | Model   | Case Size |
|-------------------------|------------------|------------|---------|---------------|------|---------|-----------|
|                         |                  | Load ±%    | Line ±% |               |      |         |           |
| ±12                     | .300             | .05        | .05     | 1             | 155  | DB12-30 | EB-13     |
| ±12                     | .350             | .05        | .05     | 1             | 165  | DB12-35 | EB-13     |

single output

## Mini Encapsulated - PC Board mounting or - with screw terminals

**SWITCHING REGULATED**  
DC output (accepts either AC or DC input)

- Shipped Within 6 Days
- One Year Warranty

**These versatile power supplies** mount in a surface area of only 3.5" x 2.5", and are available in a choice of mounting styles. They have a high efficiency and may be operated through a wide temperature range.

### STANDARD FEATURES

- Compact, lightweight, fully encapsulated
- Short circuit and overload protected
- No heat sinking or forced air required
- Input/output isolation
- Extensive EMI filtering and shielding

### SPECIFICATIONS

**Input Voltage:** 85-130 VAC, 47-420 Hz, single phase, or 120-180 Vdc. DC input may be connected without regard to polarity.

**Output Voltage Setting:** Output is factory preset to within  $\pm 2\%$  (5 to 9 volt models) or  $\pm 1\%$  (10 to 48 volt models) of the nominal output voltage.

**T/C terminal (Output Voltage Trim Adjustment):** The T/C terminal can be used to trim the output more precisely to the nominal voltage rating by connecting an external resistor from the T/C terminal to either the + or - terminal.

**Polarity:** Output is floating. Either positive or negative terminal may be grounded.

#### Regulation:

**Load:**  $\pm 0.05\%$  (5 and 6 volt "WL" models,  $\pm 0.1\%$ )  
**Line:**  $\pm 0.05\%$

**Ambient Operating Temperature:** -10 to +71°C.

No derating required through +50°C.

**Storage Temperature:** -40 to +85°C.

**Temperature Coefficient:**  $\pm 0.02\%/\text{°C}$  (Typical).

**Humidity:** Maximum of 90% relative, non-condensing.

**Overload/Short Circuit Protection:** Power foldback with automatic recovery.

#### Isolation:

**Input to output:** 1400 Vdc  
**Input to ground:** 1400 Vdc  
**Output to ground:** 400 Vdc



A common-mode input filter reduces conducted noise, and the shielded case minimizes radiated energy. Their outputs may be used in either polarity, and may be precisely trimmed.

**Efficiency:** 76% (Typical).

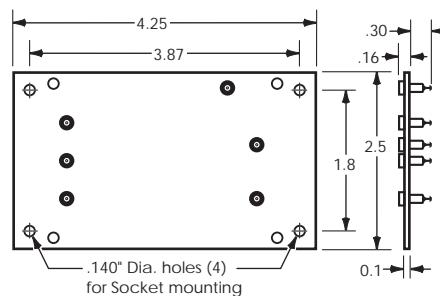
**Switching Frequency:** 225 kHz (Typical).

**Transient Response:** Returns to within  $\pm 1\%$  of output setting within 300  $\mu\text{S}$ . Maximum of  $\pm 3\%$  output excursion following a load step change from 50% to 100% of rating.

**Holdup Time:** 33 mS (Typical, at nominal input voltage with full load).

**Mounting:** Models for PC Board mounting may also be mounted in the socket shown below. For models with screw terminals, when wall-mounting or DIN rail mounting is desired, use accessory Mounting Kits on page 77.

### ACCESSORY SOCKET

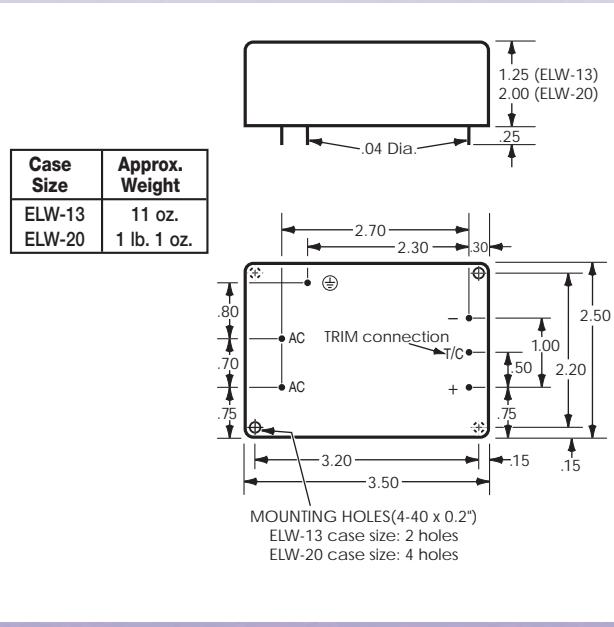


Accepts power supplies in case sizes ELW-13 and ELW-20. Sturdy phenolic base with gold plated teflon-insulated contacts.

Model ELW-1 .....\$35

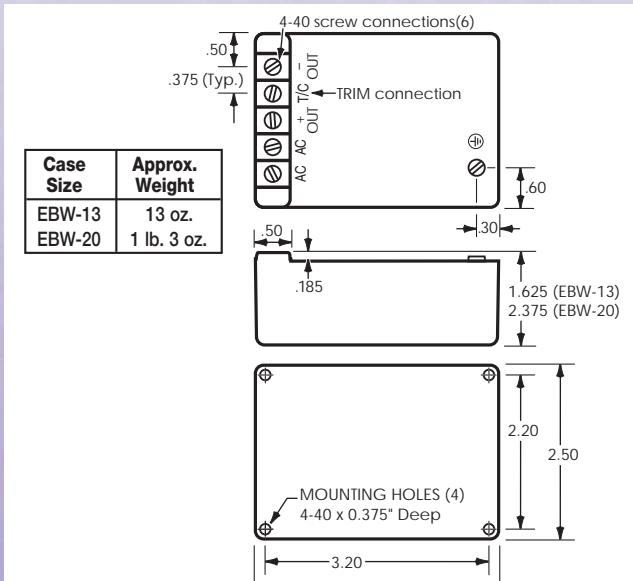
## FOR PC BOARD MOUNTING

| Nominal Output Voltage | Output Current Amps. at |      | Ripple mV (@ 25 MHz BW) |     | (\$) | Model   | Case Size |
|------------------------|-------------------------|------|-------------------------|-----|------|---------|-----------|
|                        | 50°C                    | 71°C | RMS                     | P-P |      |         |           |
| 5                      | 6.00                    | 3.60 | 10                      | 50  | 195  | 5WL600  | ELW-13    |
| 5                      | 10.00                   | 6.00 | 10                      | 50  | 220  | 5WL1000 | ELW-20    |
| 6                      | 5.00                    | 3.00 | 10                      | 50  | 195  | 6WL500  | ELW-13    |
| 6                      | 8.30                    | 4.95 | 10                      | 50  | 220  | 6WL830  | ELW-20    |
| 7                      | 4.20                    | 2.50 | 15                      | 100 | 195  | 7WL420  | ELW-13    |
| 7                      | 7.10                    | 4.26 | 15                      | 100 | 220  | 7WL710  | ELW-20    |
| 8                      | 3.70                    | 2.20 | 15                      | 100 | 195  | 8WL370  | ELW-13    |
| 8                      | 6.20                    | 3.70 | 15                      | 100 | 220  | 8WL620  | ELW-20    |
| 9                      | 3.30                    | 2.00 | 15                      | 100 | 195  | 9WL330  | ELW-13    |
| 9                      | 5.50                    | 3.30 | 15                      | 100 | 220  | 9WL550  | ELW-20    |
| 10                     | 3.00                    | 1.80 | 15                      | 100 | 195  | 10WL300 | ELW-13    |
| 10                     | 5.00                    | 3.00 | 15                      | 100 | 220  | 10WL500 | ELW-20    |
| 11                     | 2.70                    | 1.60 | 15                      | 100 | 195  | 11WL270 | ELW-13    |
| 11                     | 4.50                    | 2.70 | 15                      | 100 | 220  | 11WL450 | ELW-20    |
| 12                     | 2.50                    | 1.50 | 15                      | 100 | 195  | 12WL250 | ELW-13    |
| 12                     | 4.10                    | 2.45 | 15                      | 100 | 220  | 12WL410 | ELW-20    |
| 13                     | 2.30                    | 1.38 | 15                      | 100 | 195  | 13WL230 | ELW-13    |
| 13                     | 3.80                    | 2.25 | 15                      | 100 | 220  | 13WL380 | ELW-20    |
| 14                     | 2.10                    | 1.25 | 15                      | 100 | 195  | 14WL210 | ELW-13    |
| 14                     | 3.50                    | 2.10 | 15                      | 100 | 220  | 14WL350 | ELW-20    |
| 15                     | 2.00                    | 1.20 | 15                      | 100 | 195  | 15WL200 | ELW-13    |
| 15                     | 3.30                    | 1.95 | 15                      | 100 | 220  | 15WL330 | ELW-20    |
| 16                     | 1.85                    | 1.10 | 15                      | 100 | 195  | 16WL185 | ELW-13    |
| 16                     | 3.10                    | 1.85 | 15                      | 100 | 220  | 16WL310 | ELW-20    |
| 17                     | 1.75                    | 1.05 | 15                      | 100 | 195  | 17WL175 | ELW-13    |
| 17                     | 2.90                    | 1.75 | 15                      | 100 | 220  | 17WL290 | ELW-20    |
| 18                     | 1.65                    | 1.00 | 15                      | 100 | 195  | 18WL165 | ELW-13    |
| 18                     | 2.75                    | 1.65 | 15                      | 100 | 220  | 18WL275 | ELW-20    |
| 19                     | 1.55                    | .93  | 15                      | 100 | 195  | 19WL155 | ELW-13    |
| 19                     | 2.60                    | 1.55 | 15                      | 100 | 220  | 19WL260 | ELW-20    |
| 20                     | 1.50                    | .90  | 15                      | 100 | 195  | 20WL150 | ELW-13    |
| 20                     | 2.50                    | 1.50 | 15                      | 100 | 220  | 20WL250 | ELW-20    |
| 21                     | 1.40                    | .84  | 15                      | 100 | 195  | 21WL140 | ELW-13    |
| 21                     | 2.35                    | 1.40 | 15                      | 100 | 220  | 21WL235 | ELW-20    |
| 22                     | 1.35                    | .80  | 15                      | 100 | 195  | 22WL135 | ELW-13    |
| 22                     | 2.25                    | 1.35 | 15                      | 100 | 220  | 22WL225 | ELW-20    |
| 23                     | 1.30                    | .78  | 15                      | 100 | 195  | 23WL130 | ELW-13    |
| 23                     | 2.15                    | 1.30 | 15                      | 100 | 220  | 23WL215 | ELW-20    |
| 24                     | 1.25                    | .75  | 15                      | 100 | 195  | 24WL125 | ELW-13    |
| 24                     | 2.10                    | 1.25 | 15                      | 100 | 220  | 24WL210 | ELW-20    |
| 25                     | 1.20                    | .72  | 15                      | 100 | 195  | 25WL120 | ELW-13    |
| 25                     | 2.00                    | 1.20 | 15                      | 100 | 220  | 25WL200 | ELW-20    |
| 26                     | 1.15                    | .70  | 15                      | 100 | 195  | 26WL115 | ELW-13    |
| 26                     | 1.90                    | 1.15 | 15                      | 100 | 220  | 26WL190 | ELW-20    |
| 27                     | 1.10                    | .66  | 15                      | 100 | 195  | 27WL110 | ELW-13    |
| 27                     | 1.85                    | 1.10 | 15                      | 100 | 220  | 27WL185 | ELW-20    |
| 28                     | 1.05                    | .63  | 15                      | 100 | 195  | 28WL105 | ELW-13    |
| 28                     | 1.75                    | 1.05 | 15                      | 100 | 220  | 28WL175 | ELW-20    |
| 30                     | 1.00                    | .60  | 25                      | 150 | 195  | 30WL100 | ELW-13    |
| 30                     | 1.65                    | 1.00 | 25                      | 150 | 220  | 30WL165 | ELW-20    |
| 36                     | .85                     | .50  | 25                      | 150 | 195  | 36WL85  | ELW-13    |
| 36                     | 1.35                    | .80  | 25                      | 150 | 220  | 36WL135 | ELW-20    |
| 40                     | .75                     | .45  | 25                      | 150 | 195  | 40WL75  | ELW-13    |
| 40                     | 1.25                    | .75  | 25                      | 150 | 220  | 40WL125 | ELW-20    |
| 45                     | .65                     | .40  | 25                      | 150 | 195  | 45WL65  | ELW-13    |
| 45                     | 1.10                    | .65  | 25                      | 150 | 220  | 45WL110 | ELW-20    |
| 48                     | .65                     | .40  | 25                      | 150 | 195  | 48WL65  | ELW-13    |
| 48                     | 1.05                    | .60  | 25                      | 150 | 220  | 48WL105 | ELW-20    |



## WITH SCREW TERMINALS

| Nominal Output Voltage | Output Current Amps. at |      | Ripple mV (@ 25 MHz BW) |     | (\$) | Model   | Case Size |
|------------------------|-------------------------|------|-------------------------|-----|------|---------|-----------|
|                        | 50°C                    | 71°C | RMS                     | P-P |      |         |           |
| 5                      | 6.00                    | 3.60 | 10                      | 50  | 200  | 5WB600  | EBW-13    |
| 5                      | 10.00                   | 6.00 | 10                      | 50  | 230  | 5WB1000 | EBW-20    |
| 6                      | 5.00                    | 3.00 | 10                      | 50  | 200  | 6WB500  | EBW-13    |
| 6                      | 8.30                    | 4.95 | 10                      | 50  | 230  | 6WB830  | EBW-20    |
| 7                      | 4.20                    | 2.50 | 15                      | 100 | 200  | 7WB420  | EBW-13    |
| 7                      | 7.10                    | 4.26 | 15                      | 100 | 230  | 7WB710  | EBW-20    |
| 8                      | 3.70                    | 2.20 | 15                      | 100 | 200  | 8WB370  | EBW-13    |
| 8                      | 6.20                    | 3.70 | 15                      | 100 | 230  | 8WB620  | EBW-20    |
| 9                      | 3.30                    | 2.00 | 15                      | 100 | 200  | 9WB330  | EBW-13    |
| 9                      | 5.50                    | 3.30 | 15                      | 100 | 230  | 9WB550  | EBW-20    |
| 10                     | 3.00                    | 1.80 | 15                      | 100 | 200  | 10WB300 | EBW-13    |
| 10                     | 5.00                    | 3.00 | 15                      | 100 | 230  | 10WB500 | EBW-20    |
| 11                     | 2.70                    | 1.60 | 15                      | 100 | 200  | 11WB270 | EBW-13    |
| 11                     | 4.50                    | 2.70 | 15                      | 100 | 230  | 11WB450 | EBW-20    |
| 12                     | 2.50                    | 1.50 | 15                      | 100 | 200  | 12WB250 | EBW-13    |
| 12                     | 4.10                    | 2.45 | 15                      | 100 | 230  | 12WB410 | EBW-20    |
| 13                     | 2.30                    | 1.38 | 15                      | 100 | 200  | 13WB230 | EBW-13    |
| 13                     | 3.80                    | 2.25 | 15                      | 100 | 230  | 13WB380 | EBW-20    |
| 14                     | 2.10                    | 1.25 | 15                      | 100 | 200  | 14WB210 | EBW-13    |
| 14                     | 3.50                    | 2.10 | 15                      | 100 | 230  | 14WB350 | EBW-20    |
| 15                     | 2.00                    | 1.20 | 15                      | 100 | 200  | 15WB200 | EBW-13    |
| 15                     | 3.30                    | 1.95 | 15                      | 100 | 230  | 15WB330 | EBW-20    |
| 16                     | 1.85                    | 1.10 | 15                      | 100 | 200  | 16WB185 | EBW-13    |
| 16                     | 3.10                    | 1.85 | 15                      | 100 | 230  | 16WB310 | EBW-20    |
| 17                     | 1.75                    | 1.05 | 15                      | 100 | 200  | 17WB175 | EBW-13    |
| 17                     | 2.90                    | 1.75 | 15                      | 100 | 230  | 17WB290 | EBW-20    |
| 18                     | 1.65                    | 1.00 | 15                      | 100 | 200  | 18WB165 | EBW-13    |
| 18                     | 2.75                    | 1.65 | 15                      | 100 | 230  | 18WB275 | EBW-20    |
| 19                     | 1.55                    | .93  | 15                      | 100 | 200  | 19WB155 | EBW-13    |
| 19                     | 2.60                    | 1.55 | 15                      | 100 | 230  | 19WB260 | EBW-20    |
| 20                     | 1.50                    | .90  | 15                      | 100 | 200  | 20WB150 | EBW-13    |
| 20                     | 2.50                    | 1.50 | 15                      | 100 | 230  | 20WB250 | EBW-20    |
| 21                     | 1.40                    | .84  | 15                      | 100 | 200  | 21WB140 | EBW-13    |
| 21                     | 2.35                    | 1.40 | 15                      | 100 | 230  | 21WB235 | EBW-20    |
| 22                     | 1.35                    | .80  | 15                      | 100 | 200  | 22WB135 | EBW-13    |
| 22                     | 2.25                    | 1.35 | 15                      | 100 | 230  | 22WB225 | EBW-20    |
| 23                     | 1.30                    | .78  | 15                      | 100 | 200  | 23WB130 | EBW-13    |
| 23                     | 2.15                    | 1.30 | 15                      | 100 | 230  | 23WB215 | EBW-20    |
| 24                     | 1.25                    | .75  | 15                      | 100 | 200  | 24WB125 | EBW-13    |
| 24                     | 2.10                    | 1.25 | 15                      | 100 | 230  | 24WB210 | EBW-20    |
| 25                     | 1.20                    | .72  | 15                      | 100 | 200  | 25WB120 | EBW-13    |
| 25                     | 2.00                    | 1.20 | 15                      | 100 | 230  | 25WB200 | EBW-20    |
| 26                     | 1.15                    | .70  | 15                      | 100 | 200  | 26WB115 | EBW-13    |
| 26                     | 1.90                    | 1.15 | 15                      | 100 | 230  | 26WB190 | EBW-20    |
| 27                     | 1.10                    | .66  | 15                      | 100 | 200  | 27WB110 | EBW-13    |
| 27                     | 1.85                    | 1.10 | 15                      | 100 | 230  | 27WB185 | EBW-20    |
| 28                     | 1.05                    | .63  | 15                      | 100 | 200  | 28WB105 | EBW-13    |
| 28                     | 1.75                    | 1.05 | 15                      | 100 | 230  | 28WB175 | EBW-20    |
| 30                     | 1.00                    | .60  | 25                      | 150 | 200  | 30WB100 | EBW-13    |
| 30                     | 1.65                    | 1.00 | 25                      | 150 | 230  | 30WB165 | EBW-20    |
| 36                     | .85                     | .50  | 25                      | 150 | 200  | 36WB85  | EBW-13    |
| 36                     | 1.35                    | .80  | 25                      | 150 | 230  | 36WB135 | EBW-20    |
| 40                     | .75                     | .45  | 25                      | 150 | 200  | 40WB75  | EBW-13    |
| 40                     | 1.25                    | .75  | 25                      | 150 | 230  | 40WB125 | EBW-20    |
| 45                     | .65                     | .40  | 25                      | 150 | 200  | 45WB65  | EBW-13    |
| 45                     | 1.10                    | .65  | 25                      | 150 | 230  | 45WB110 | EBW-20    |
| 48                     | .65                     | .40  | 25                      | 150 | 200  | 48WB65  | EBW-13    |
| 48                     | 1.05                    | .60  | 25                      | 150 | 230  | 48WB105 | EBW-20    |



## Narrow Profile SINGLE OUTPUT LINEAR REGULATED AC-DC

- Shipped Within 3 Days
- All Models U.L. Recognized
- Five Year Warranty

**Where only a narrow mounting space is available,** Acopian Narrow Profile power supplies fit where many others cannot. Choose from Series A (High Performance) and Series B (General Purpose) models with output ratings up to 150 volts, up to 3.5 amps.

### SPECIFICATIONS

**Input Voltage:** 105-125 VAC, 50-400 Hz, single phase.

**Output Specifications:** See table.

**Series A:** Model numbers begin with the letter A.

**Series B:** Model numbers begin with the letter B.

**Remote Voltage Adjustment/Sensing:** Standard in Series A, not available in Series B.

**Polarity:** Output is floating; either positive or negative terminal may be grounded or floated up to 300 volts above ground.

**Temperature Coefficient:**

**Series A:** 0.015%/°C (Typical).

**Series B:** 0.02%/°C (Typical).

**Ambient Operating Temperature:**

**Series A:** -20 to +71°C.

**Series B:** 0 to +71°C.

**Storage Temperature:** -55 to +85°C.

**Overload/Short Circuit Protection:**

**Series A:** Foldback current limiting with automatic recovery.

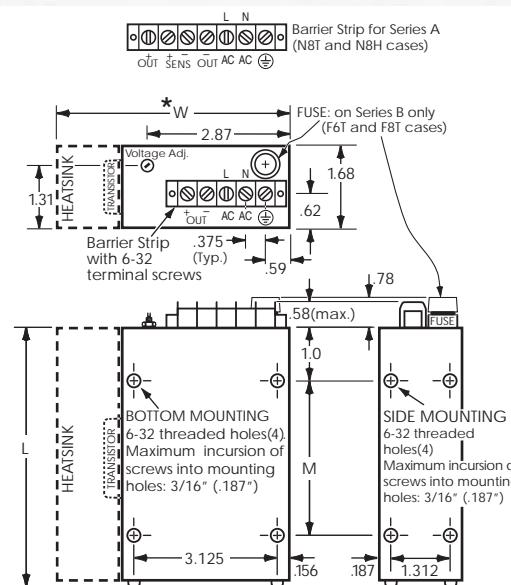
**Series B:** Input fuse and output current limiting.

### OPTIONS

**Overvoltage Protection:** An internal preset overvoltage protector is available. To order, add prefix "V" to the model number and add \$25.00 to the standard price of models with outputs of 1 to 70 volts; \$35.00, for 75 to 150 volt outputs.

**Terminal Strip Cover:** Clips on. To order, add suffix "M" to model number and \$5.00 to price.

**230 Volt Input:** All models can be alternately furnished for operation on inputs of 210-250 VAC, 50-400 Hz. To order, add suffix "-230" to model number and \$25.00 to price. The "-230" option requires two additional days.



For REAR MOUNTING, remove 6-32 screws (4). These screws may then be used for mounting, provided they extend at least 1/4" (0.250) into the power supply case.

| Case Size | L    | W*   | M   | Approx. Weight |
|-----------|------|------|-----|----------------|
| F6T       | 6.59 | 3.84 | 4.0 | 2 lb. 4 oz.    |
| F8T       | 8.47 | 3.84 | 5.0 | 3 lb. 2 oz.    |
| N8T       | 8.47 | 3.84 | 5.0 | 3 lb. 2 oz.    |
| N8H       | 8.47 | 4.68 | 5.0 | 3 lb. 14 oz.   |

\*W dimension includes TRANSISTOR on F6T, F8T, and N8T cases and HEATSINK on N8H case.

**Mounting:** Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket, or they may be used on a test bench or tabletop. To mount from the power supply side of the mounting surface or for DIN rail mounting, see accessory Mounting Kits on page 91.

## NARROW PROFILE SINGLE OUTPUT

| Nominal Output Voltage | Adj-<br>ust<br>±V | Output Current Amps. at |      |      | Regulation   |              | Ripple mV RMS | (\$)<br>Price | Model     | Case Size | Nominal Output Voltage | Adj-<br>ust<br>±V | Output Current Amps. at |      |      | Regulation  |             | Ripple mV RMS | (\$)<br>Price | Model    | Case Size |
|------------------------|-------------------|-------------------------|------|------|--------------|--------------|---------------|---------------|-----------|-----------|------------------------|-------------------|-------------------------|------|------|-------------|-------------|---------------|---------------|----------|-----------|
|                        |                   | 40°C                    | 55°C | 71°C | Load<br>± %* | Line<br>± %* |               |               |           |           |                        |                   | 40°C                    | 55°C | 71°C | Load<br>± % | Line<br>± % |               |               |          |           |
| 1                      | .5                | 2.2                     | 2.1  | 2.0  | .005         | .005         | .250          | 210           | A1NT220   | N8T       | 26                     | 1                 | .750                    | .750 | .750 | .1          | .05         | 1             | 180           | B26TN75  | F6T       |
| 1                      | .5                | 3.5                     | 3.5  | 3.0  | .005         | .005         | .250          | 245           | A1NT350   | N8H       | 26                     | .5                | 1.25                    | 1.25 | 1.25 | .005        | .005        | .250          | 235           | A26NT125 | N8H       |
| 1.5                    | .5                | 2.2                     | 2.1  | 2.0  | .005         | .005         | .250          | 210           | A1.5NT220 | N8T       | 28                     | 1                 | .700                    | .700 | .700 | .1          | .05         | 1             | 180           | B28TN70  | F6T       |
| 1.5                    | .5                | 3.5                     | 3.5  | 3.0  | .005         | .005         | .250          | 245           | A1.5NT350 | N8H       | 28                     | .5                | .800                    | .800 | .800 | .005        | .005        | .250          | 210           | A28NT80  | N8T       |
| 2                      | .5                | 2.2                     | 2.1  | 2.0  | .005         | .005         | .250          | 210           | A2NT220   | N8T       | 28                     | .5                | 1.25                    | 1.25 | 1.25 | .005        | .005        | .250          | 235           | A28NT125 | N8H       |
| 2                      | .5                | 3.0                     | 3.0  | 3.0  | .005         | .005         | .250          | 245           | A2NT300   | N8H       | 30                     | 1                 | .500                    | .500 | .500 | .05         | .05         | 1             | 180           | B30TN50  | F6T       |
| 3                      | .5                | 1.0                     | 1.0  | 1.0  | .5           | .1           | 1             | 175           | B3TN100   | F6T       | 30                     | .5                | .750                    | .750 | .750 | .005        | .005        | .250          | 215           | A30NT75  | N8T       |
| 3                      | .5                | 2.2                     | 2.1  | 2.0  | .005         | .005         | .250          | 210           | A3NT220   | N8T       | 30                     | .5                | 1.1                     | 1.1  | 1.1  | .005        | .005        | .250          | 245           | A30NT110 | N8H       |
| 3                      | .5                | 3.5                     | 3.5  | 3.0  | .005         | .005         | .250          | 245           | A3NT350   | N8H       | 32                     | 1                 | .400                    | .400 | .400 | .05         | .05         | 1             | 175           | B32TN40  | F6T       |
| 3.3                    | .5                | 1.0                     | 1.0  | 1.0  | .5           | .1           | 1             | 175           | B3.3TN100 | F6T       | 32                     | .5                | .600                    | .600 | .600 | .005        | .005        | .250          | 210           | A32TN60  | N8T       |
| 3.3                    | .5                | 2.2                     | 2.1  | 2.0  | .005         | .005         | .250          | 210           | A3.3NT220 | N8T       | 34                     | 1                 | .400                    | .400 | .400 | .05         | .05         | 1             | 175           | B34TN40  | F6T       |
| 3.3                    | .5                | 3.5                     | 3.5  | 3.0  | .005         | .005         | .250          | 245           | A3.3NT350 | N8H       | 34                     | .5                | 1.1                     | 1.1  | 1.1  | .005        | .005        | .250          | 245           | A34NT110 | N8H       |
| 5                      | .5                | 1.0                     | 1.0  | 1.0  | .1           | .1           | 1             | 170           | B5TN100   | F6T       | 35                     | 1                 | .400                    | .400 | .400 | .05         | .05         | 1             | 175           | B35TN40  | F6T       |
| 5                      | .5                | 1.1                     | 1.0  | 1.0  | .005         | .005         | .250          | 180           | A5TN110   | N8T       | 35                     | .5                | .600                    | .600 | .600 | .005        | .005        | .250          | 210           | A35TN60  | N8T       |
| 5                      | .5                | 2.2                     | 2.1  | 2.0  | .005         | .005         | .250          | 210           | A5NT220   | N8T       | 35                     | .5                | 1.1                     | 1.1  | 1.1  | .005        | .005        | .250          | 245           | A35NT110 | N8H       |
| 5                      | .5                | 3.5                     | 3.5  | 3.0  | .005         | .005         | .250          | 245           | A5NT350   | N8H       | 36                     | 1                 | .400                    | .400 | .400 | .05         | .05         | 1             | 175           | B36TN40  | F6T       |
| 6                      | .5                | 1.0                     | 1.0  | 1.0  | .1           | .1           | 1             | 175           | B6TN100   | F6T       | 36                     | .5                | .600                    | .600 | .600 | .005        | .005        | .250          | 210           | A36TN60  | N8T       |
| 6                      | .5                | 2.2                     | 2.1  | 2.0  | .005         | .005         | .250          | 210           | A6NT220   | N8T       | 36                     | .5                | 1.0                     | 1.0  | 1.0  | .005        | .005        | .250          | 245           | A36NT100 | N8H       |
| 6                      | .5                | 2.7                     | 2.7  | 2.7  | .005         | .005         | .250          | 245           | A6NT270   | N8H       | 38                     | 1                 | .200                    | .200 | .200 | .05         | .05         | 1             | 165           | B38TN20  | F6T       |
| 7                      | 1                 | 1.0                     | 1.0  | 1.0  | .1           | .1           | 1             | 175           | B7TN100   | F6T       | 40                     | 1                 | .400                    | .400 | .400 | .05         | .05         | 1             | 185           | B40TN40  | F6T       |
| 7                      | .5                | 1.1                     | 1.0  | 1.0  | .005         | .005         | .250          | 195           | A7TN110   | N8T       | 40                     | .5                | .750                    | .750 | .750 | .005        | .005        | .250          | 230           | A40NT75  | N8T       |
| 7                      | .5                | 2.0                     | 2.0  | 2.0  | .005         | .005         | .250          | 230           | A7NT200   | N8H       | 45                     | 1                 | .400                    | .400 | .400 | .05         | .05         | 1             | 195           | B45TN40  | F6T       |
| 8                      | 1                 | 1.0                     | 1.0  | 1.0  | .1           | .1           | 1             | 175           | B8TN100   | F6T       | 45                     | .5                | .600                    | .600 | .600 | .005        | .005        | .250          | 235           | A45NT60  | N8T       |
| 8                      | .5                | 1.1                     | 1.0  | 1.0  | .005         | .005         | .250          | 195           | A8TN110   | N8T       | 48                     | 1                 | .400                    | .400 | .400 | .05         | .05         | 1             | 210           | B48TN40  | F6T       |
| 8                      | .5                | 2.0                     | 2.0  | 2.0  | .005         | .005         | .250          | 230           | A8NT200   | N8H       | 48                     | .5                | .500                    | .500 | .500 | .005        | .005        | .250          | 245           | A48NT50  | N8T       |
| 9                      | 1                 | 1.0                     | 1.0  | 1.0  | .1           | .1           | 1             | 175           | B9TN100   | F6T       | 50                     | 1                 | .400                    | .400 | .400 | .05         | .05         | 1             | 220           | B50FT40  | F6T       |
| 9                      | .5                | 1.1                     | 1.0  | 1.0  | .005         | .005         | .250          | 195           | A9TN110   | N8T       | 50                     | 1                 | .450                    | .450 | .450 | .005        | .005        | .250          | 260           | A50NT45  | N8T       |
| 9                      | .5                | 2.0                     | 2.0  | 2.0  | .005         | .005         | .250          | 230           | A9NT200   | N8H       | 55                     | 1                 | .200                    | .200 | .200 | .05         | .05         | 1             | 185           | B55FT20  | F6T       |
| 10                     | 1                 | 1.0                     | 1.0  | 1.0  | .1           | .1           | 1             | 180           | B10TN100  | F6T       | 55                     | 1                 | .400                    | .400 | .400 | .05         | .05         | .250          | 260           | A55NT40  | N8T       |
| 10                     | .5                | 1.1                     | 1.0  | 1.0  | .005         | .005         | .250          | 195           | A10TN110  | N8T       | 60                     | 1                 | .150                    | .150 | .150 | .05         | .05         | 1             | 185           | B60FT15  | F6T       |
| 10                     | .5                | 2.0                     | 2.0  | 2.0  | .005         | .005         | .250          | 230           | A10NT200  | N8H       | 60                     | 1                 | .350                    | .350 | .350 | .005        | .005        | .250          | 260           | A60NT35  | N8T       |
| 11                     | 1                 | 1.0                     | 1.0  | .750 | .1           | .1           | 1             | 180           | B11TN100  | F6T       | 65                     | 1                 | .100                    | .100 | .100 | .05         | .05         | 1             | 180           | B65FT10  | F6T       |
| 11                     | .5                | 1.1                     | 1.0  | 1.0  | .005         | .005         | .250          | 195           | A11TN110  | N8T       | 65                     | 1                 | .250                    | .250 | .250 | .05         | .05         | 1             | 225           | B65FT25  | F8T       |
| 11                     | .5                | 2.0                     | 2.0  | 2.0  | .005         | .005         | .250          | 230           | A11NT200  | N8H       | 65                     | 1                 | .270                    | .270 | .270 | .005        | .005        | .250          | 260           | A65NT27  | N8T       |
| 12                     | 1                 | 1.0                     | 1.0  | .750 | .1           | .1           | 1             | 180           | B12TN100  | F6T       | 67                     | 1                 | .100                    | .100 | .100 | .05         | .05         | 1             | 180           | B67FT10  | F6T       |
| 12                     | .5                | 1.1                     | 1.0  | 1.0  | .005         | .005         | .250          | 195           | A12TN110  | N8T       | 70                     | 1                 | .100                    | .100 | .100 | .05         | .05         | 1             | 180           | B70FT10  | F6T       |
| 12                     | .5                | 2.0                     | 2.0  | 2.0  | .005         | .005         | .250          | 230           | A12NT200  | N8H       | 70                     | 1                 | .250                    | .250 | .250 | .005        | .005        | .250          | 260           | A70NT25  | N8T       |
| 13                     | 1                 | 1.0                     | 1.0  | .750 | .1           | .1           | 1             | 180           | B13TN100  | F6T       | 75                     | 1                 | .200                    | .200 | .200 | .05         | .05         | 1             | 220           | B75FT20  | F8T       |
| 13                     | .5                | 1.1                     | 1.0  | 1.0  | .005         | .005         | .250          | 195           | A13TN110  | N8T       | 75                     | 1                 | .250                    | .250 | .250 | .005        | .005        | .250          | 260           | A75NT25  | N8T       |
| 13                     | .5                | 2.0                     | 2.0  | 2.0  | .005         | .005         | .250          | 230           | A13NT200  | N8H       | 80                     | 1                 | .100                    | .100 | .100 | .05         | .05         | 1             | 190           | B80FT10  | F6T       |
| 14                     | 1                 | 1.0                     | 1.0  | .750 | .1           | .1           | 1             | 180           | B14TN100  | F6T       | 80                     | 1                 | .200                    | .200 | .200 | .05         | .05         | 1             | 220           | B80FT20  | F8T       |
| 14                     | .5                | 1.1                     | 1.0  | 1.0  | .005         | .005         | .250          | 195           | A14TN110  | N8T       | 80                     | 1                 | .250                    | .250 | .250 | .005        | .005        | .250          | 260           | A80NT25  | N8T       |
| 14                     | .5                | 2.0                     | 2.0  | 2.0  | .005         | .005         | .250          | 230           | A14NT200  | N8H       | 85                     | 1                 | .250                    | .250 | .250 | .005        | .005        | .250          | 260           | A85NT25  | N8T       |
| 15                     | 1                 | 1.0                     | 1.0  | .750 | .1           | .1           | 1             | 180           | B15TN100  | F6T       | 90                     | 1                 | .100                    | .100 | .100 | .05         | .05         | 1             | 195           | B90FT10  | F6T       |
| 15                     | .5                | 1.1                     | 1.0  | 1.0  | .005         | .005         | .250          | 195           | A15TN110  | N8T       | 90                     | 1                 | .200                    | .200 | .200 | .05         | .05         | 1             | 225           | B90FT20  | F8T       |
| 15                     | .5                | 2.0                     | 2.0  | 2.0  | .005         | .005         | .250          | 230           | A15NT200  | N8H       | 90                     | 1                 | .250                    | .250 | .250 | .005        | .005        | .250          | 265           | A90NT25  | N8T       |
| 16                     | 1                 | 1.0                     | 1.0  | .750 | .1           | .1           | 1             | 180           | B16TN100  | F6T       | 95                     | 1                 | .200                    | .200 | .200 | .05         | .05         | 1             | 230           | B95FT20  | F8T       |
| 16                     | .5                | 1.0                     | 1.0  | 1.0  | .005         | .005         | .250          | 195           | A16TN100  | N8T       | 95                     | 1                 | .200                    | .200 | .200 | .05         | .05         | .250          | 260           | A95NT20  | N8T       |
| 16                     | .5                | 1.75                    | 1.75 | 1.75 | .005         | .005         | .250          | 230           | A16NT175  | N8H       | 100                    | 1                 | .100                    | .100 | .100 | .05         | .05         | 1             | 220           | B100FT10 | F6T       |
| 18                     | 1                 | .750                    | .750 | .750 | .1           | .1           | 1             | 180           | B18TN75   | F6T       | 100                    | 1                 | .200                    | .200 | .200 | .05         | .05         | .250          | 270           | B100FT20 | F8T       |
| 18                     | .5                | 1.0                     | 1.0  | 1.0  | .005         | .005         | .250          | 195           | A18TN100  | N8T       | 100                    | 1                 | .200                    | .200 | .200 | .005        | .005        | .250          | 270           | A100NT20 | N8T       |
| 18                     | .5                | 1.5                     | 1.5  | 1.5  | .005         | .005         | .250          | 230           | A18NT150  | N8H       | 110                    | 1                 | .100                    | .100 | .100 | .05         | .05         | 1             | 220           | B110FT10 | F6T       |
| 20                     | 1                 | .500                    | .500 | .500 | .1           | .1           | 1             | 165           | B20TN50   | F6T       | 115                    | 1                 | .100                    | .100 | .100 | .05         | .05         | 1             | 220           | B115FT10 | F6T       |
| 20                     | .5                | .900                    | .900 | .900 | .005         | .005         | .250          | 195           | A20TN90   | N8T       | 120                    | 1                 | .050                    | .050 | .050 | .05         | .05         | 1             | 215           | B120FT05 | F6T       |
| 20                     | .5                | 1.25                    | 1.25 | 1.25 | .005         | .005         | .250          | 230           | A20NT125  | N8H       | 120                    | 1                 | .200                    | .200 | .200 | .05         | .05         | .250          | 270           | B120FT20 | F8T       |
| 24                     | 1                 | .750                    | .750 | .750 | .1           | .1           | 1             | 180           | B24TN75   | F6T       | 125                    | 1                 | .050                    | .050 | .050 | .05         | .05         | 1             | 215           | B125FT05 | F6T       |
| 24                     | .5                | 1.0                     | 1.0  | 1.0  | .005         | .005         | .250          | 210           | A24TN100  | N8T       | 125                    | 1                 | .200                    | .200 | .200 | .05         | .05         | .250          | 270           | B125FT20 | F8T       |
| 24                     | .5                | 1.25                    | 1.25 | 1.25 | .005         | .005         | .250          | 235           | A24NT125  | N8H       | 125                    | 1                 | .200                    | .200 | .200 | .005        | .005        | .250          | 270           | A125NT20 | N8T       |
| 25                     | 1                 | .750                    | .750 | .750 | .1           | .05          | 1             | 180           | B25TN75   | F6T       | 150                    | 1                 | .100                    | .100 | .100 | .05         | .05         | 1             | 235           | B150FT10 | F8T       |
| 25                     | .5                | .750                    | .750 | .750 | .005         | .005         | .250          | 210           | A25TN75   | N8T       | 150                    | 1                 |                         |      |      |             |             |               |               |          |           |

**Narrow Profile****SWITCHING REGULATED (to 120 watts)**

AC-DC single output

DC-DC (DC input can be used on 230 VAC input models)

- Shipped Within 3 Days
- UL60950, UL508, CE Certified
- Five Year Warranty



**This group of Narrow Profile switchers** includes convection cooled models less than 7" long that provide outputs up to 75 watts and fan cooled models less than 8" long that provide outputs to 120 watts.

**STANDARD FEATURES**

- Internal EMI Filter and Shielding
- Pluggable Input/output Terminal Block
- Excellent Load/line Regulation
- Overcurrent, Overvoltage Protection
- No Minimum Load Required

**SPECIFICATIONS**

**Input Voltage:** 90-132 VAC, 47-420 Hz, single phase. 180-265 VAC input is also available (see Options).

**DC Input:** Not applicable on 115 VAC models. On 230 VAC models, 200-375 Vdc input can be used. DC input may be connected without regard to polarity.

**Inrush current:** Cold start, (theristor limiter) 15A peak @115 VAC; 30A peak @ 230 VAC.

**Startup Time:** 1 second typical.

**Input Undervoltage:** An input of less than 90 VAC (180 VAC with “-230” option) will not damage power supply.

**Regulation:**

**Line:**  $\pm 0.05\%$  or 5 mV, whichever is greater.

**Load:**  $\pm 0.05\%$  or 5 mV, whichever is greater.

**Output Voltage Remote Adjustment:** The output voltage may be controlled by means of an external 1K potentiometer.

**Polarity:** Output is floating and may be used in either polarity.

**Drift:**  $\pm 0.1\%$  typical over 8 hours, after 30 minute warmup.

**Temperature Coefficient:**  $\pm 0.02\%/\text{ }^{\circ}\text{C}$  (Typical).

**Holdup Time:** 20 mS minimum.

**Transient Response:** 300  $\mu\text{s}$  to return to  $\pm 1\%$  of output setting. Maximum of  $\pm 3\%$  output excursion following a load step change from 50% to 100%.

**Remote Sensing:** Compensates up to 0.5 volt drop per output line, within the limits of the output voltage adjustment range.



**Overload/Short Circuit Protection:** Current limiting with automatic recovery.

**Overvoltage Protection:** Automatic reset.

**EMI:** Designed to meet FCC Part 15 and EN55022, Class A.

**Output Indicator (DC on):** Green LED.

**Efficiency:** See table. (Typical, at nominal input voltage, with full load.)

**Ambient Operating Temperature:** 0 to  $+71\text{ }^{\circ}\text{C}$ .

**Storage Temperature:**  $-40$  to  $+85\text{ }^{\circ}\text{C}$ .

**Cooling:** Case size WN6A: forced-air cooled; air enters rear of power supply and exits from top. Case size WN6B: convection cooled.

**Switching Frequency:** 100 kHz (Typical).

| <b>Dielectric Withstand Voltage</b> | <b>Isolation</b> |
|-------------------------------------|------------------|
| Input to output: 4242 Vdc           | 300 Vdc          |
| Input to case: 2121 Vdc             | 300 Vdc          |
| Output to case: 750 Vdc             | 300 Vdc          |

**Internal Failure Protection:** Provided by internal fuse. **Mounting:** Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket. To mount from the power supply side of the mounting surface or for DIN rail mounting, see accessory Mounting Kits on page 91.

**OPTIONS**

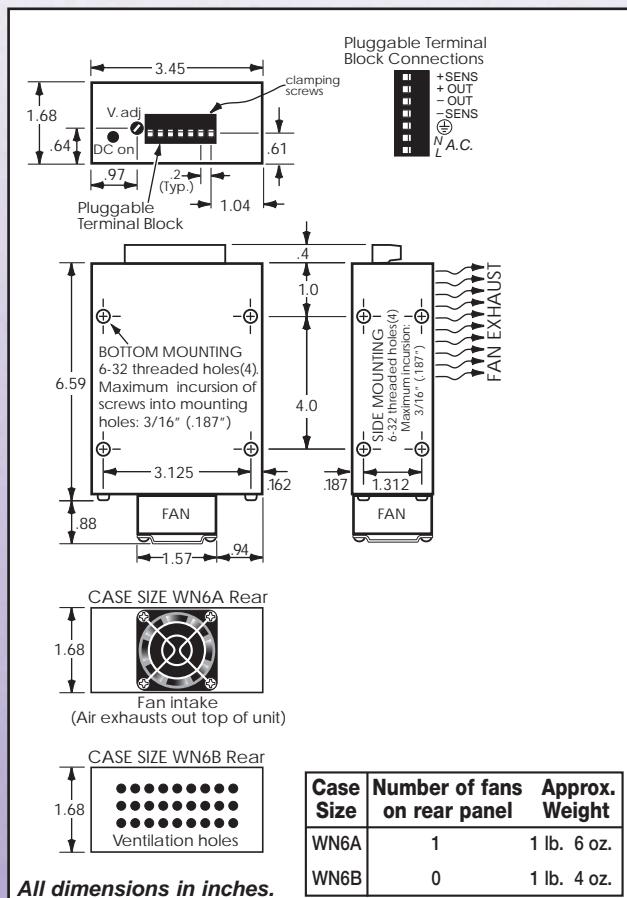
**230 Volt Input:** For applications where operation on an input of 180-265 VAC, 47-420 Hz, is desired. To order, add suffix “-230” to the model number. No increase in price.

On 230 VAC models, 200-375 Vdc input can also be used.

## **Narrow Profile SWITCHING REGULATED (to 120 watts)**

| Nominal Output Voltage | Adjust Range $\pm$ V | Output Current Amps. at |      | Ripple mV (@ 25 MHz BW) |     | Effic. (Typ.) % | (\$ Price | Model      | Case Size |
|------------------------|----------------------|-------------------------|------|-------------------------|-----|-----------------|-----------|------------|-----------|
|                        |                      | 40°C                    | 71°C | RMS                     | P-P |                 |           |            |           |
| 3.3                    | .5                   | 12                      | 8.4  | 10                      | 50  | 66              | 225       | W3.3FT1200 | WN6B      |
| 3.3                    | .5                   | 15                      | 10.5 | 10                      | 50  | 66              | 255       | W3.3FT1500 | WN6A      |
| 5                      | .5                   | 12                      | 8.4  | 10                      | 50  | 70              | 225       | W5FT1200   | WN6B      |
| 5                      | .5                   | 15                      | 10.5 | 10                      | 50  | 70              | 255       | W5FT1500   | WN6A      |
| 6                      | .5                   | 10                      | 7    | 10                      | 50  | 71              | 225       | W6FT1000   | WN6B      |
| 6                      | .5                   | 12.5                    | 8.6  | 10                      | 50  | 71              | 255       | W6FT1250   | WN6A      |
| 7                      | .5                   | 8.5                     | 5.9  | 10                      | 50  | 71              | 225       | W7FT850    | WN6B      |
| 7                      | .5                   | 10.6                    | 7.4  | 10                      | 50  | 71              | 255       | W7FT1060   | WN6A      |
| 8                      | .5                   | 7.5                     | 5.2  | 15                      | 100 | 72              | 225       | W8FT750    | WN6B      |
| 8                      | .5                   | 9.4                     | 6.6  | 15                      | 100 | 72              | 255       | W8FT940    | WN6A      |
| 9                      | .5                   | 6.6                     | 4.6  | 15                      | 100 | 73              | 225       | W9FT660    | WN6B      |
| 9                      | .5                   | 9.3                     | 6.5  | 15                      | 100 | 73              | 255       | W9FT930    | WN6A      |
| 10                     | .5                   | 6                       | 4.2  | 15                      | 100 | 73              | 225       | W10FT600   | WN6B      |
| 10                     | .5                   | 9.2                     | 6.4  | 15                      | 100 | 73              | 255       | W10FT920   | WN6A      |
| 12                     | .5                   | 5.8                     | 4.0  | 15                      | 100 | 76              | 225       | W12FT580   | WN6B      |
| 12                     | .5                   | 9.1                     | 6.3  | 15                      | 100 | 76              | 255       | W12FT910   | WN6A      |
| 13                     | .5                   | 5.3                     | 3.7  | 15                      | 100 | 76              | 225       | W13FT530   | WN6B      |
| 13                     | .5                   | 8.1                     | 5.6  | 15                      | 100 | 76              | 255       | W13FT810   | WN6A      |
| 14                     | .5                   | 4.9                     | 3.4  | 15                      | 100 | 76              | 225       | W14FT490   | WN6B      |
| 14                     | .5                   | 7.7                     | 5.4  | 15                      | 100 | 76              | 255       | W14FT770   | WN6A      |
| 15                     | .5                   | 4.7                     | 3.3  | 15                      | 100 | 76              | 225       | W15FT470   | WN6B      |
| 15                     | .5                   | 7.4                     | 5.2  | 15                      | 100 | 76              | 255       | W15FT740   | WN6A      |
| 16                     | .5                   | 4.4                     | 3    | 15                      | 100 | 76              | 225       | W16FT440   | WN6B      |
| 16                     | .5                   | 6.8                     | 4.7  | 15                      | 100 | 76              | 255       | W16FT680   | WN6A      |
| 18                     | .5                   | 4                       | 2.8  | 15                      | 100 | 78              | 225       | W18FT400   | WN6B      |
| 18                     | .5                   | 6                       | 4.2  | 15                      | 100 | 78              | 255       | W18FT600   | WN6A      |
| 20                     | .5                   | 3.7                     | 2.6  | 15                      | 100 | 78              | 225       | W20FT370   | WN6B      |
| 20                     | .5                   | 5.6                     | 3.9  | 15                      | 100 | 78              | 255       | W20FT560   | WN6A      |

| Nominal Output Voltage | Adjust Range ± V | Output Current Amps. at |      | Ripple mV (@ 25 MHz BW) |     | Effic. (Typ.) % | (\$ Price | Model    | Case Size |
|------------------------|------------------|-------------------------|------|-------------------------|-----|-----------------|-----------|----------|-----------|
|                        |                  | 40°C                    | 71°C | RMS                     | P-P |                 |           |          |           |
| 22                     | .5               | 3.4                     | 2.4  | 15                      | 100 | 79              | 225       | W22FT340 | WN6B      |
| 22                     | .5               | 5.3                     | 3.7  | 15                      | 100 | 79              | 255       | W22FT530 | WN6A      |
| 24                     | .5               | 3.2                     | 2.2  | 15                      | 100 | 81              | 225       | W24FT320 | WN6B      |
| 24                     | .5               | 5                       | 3.5  | 15                      | 100 | 80              | 255       | W24FT500 | WN6A      |
| 25                     | .5               | 3                       | 2.1  | 15                      | 100 | 81              | 225       | W25FT300 | WN6B      |
| 25                     | .5               | 4.8                     | 3.3  | 15                      | 100 | 80              | 255       | W25FT480 | WN6A      |
| 26                     | .5               | 2.8                     | 2    | 15                      | 100 | 81              | 225       | W26FT280 | WN6B      |
| 26                     | .5               | 4.6                     | 3.2  | 15                      | 100 | 80              | 255       | W26FT460 | WN6A      |
| 28                     | .5               | 2.7                     | 1.9  | 15                      | 100 | 81              | 225       | W28FT270 | WN6B      |
| 28                     | .5               | 4.2                     | 2.9  | 15                      | 100 | 80              | 255       | W28FT420 | WN6A      |
| 30                     | .5               | 2.5                     | 1.7  | 25                      | 150 | 81              | 225       | W30FT250 | WN6B      |
| 30                     | .5               | 4                       | 2.8  | 25                      | 150 | 80              | 255       | W30FT400 | WN6A      |
| 32                     | 1                | 2.3                     | 1.6  | 25                      | 150 | 81              | 225       | W32FT230 | WN6B      |
| 32                     | 1                | 3.7                     | 2.5  | 25                      | 150 | 80              | 255       | W32FT370 | WN6A      |
| 34                     | 1                | 2.2                     | 1.5  | 25                      | 150 | 81              | 225       | W34FT220 | WN6B      |
| 34                     | 1                | 3.5                     | 2.4  | 25                      | 150 | 80              | 255       | W34FT350 | WN6A      |
| 36                     | 1                | 2.1                     | 1.4  | 25                      | 150 | 81              | 225       | W36FT210 | WN6B      |
| 36                     | 1                | 3.3                     | 2.3  | 25                      | 150 | 80              | 255       | W36FT330 | WN6A      |
| 38                     | 1                | 2                       | 1.4  | 25                      | 150 | 81              | 225       | W38FT200 | WN6B      |
| 38                     | 1                | 3.1                     | 2.2  | 25                      | 150 | 80              | 255       | W38FT310 | WN6A      |
| 40                     | 1                | 1.9                     | 1.3  | 25                      | 150 | 82              | 225       | W40FT190 | WN6B      |
| 40                     | 1                | 3                       | 2.1  | 25                      | 150 | 81              | 255       | W40FT300 | WN6A      |
| 42                     | 1                | 1.8                     | 1.2  | 25                      | 150 | 82              | 225       | W42FT180 | WN6B      |
| 42                     | 1                | 2.8                     | 1.9  | 25                      | 150 | 81              | 255       | W42FT280 | WN6A      |
| 45                     | 1                | 1.7                     | 1.2  | 25                      | 150 | 82              | 225       | W45FT170 | WN6B      |
| 45                     | 1                | 2.6                     | 1.8  | 25                      | 150 | 81              | 255       | W45FT260 | WN6A      |
| 48                     | 1                | 1.6                     | 1.1  | 25                      | 150 | 82              | 225       | W48FT160 | WN6B      |
| 48                     | 1                | 2.5                     | 1.7  | 25                      | 150 | 81              | 255       | W48FT250 | WN6A      |



## Narrow Profile

# SWITCHING REGULATED (to 288 watts) (Power Factor Correction and Universal Input)

DC output (accepts either AC or DC input)

- Shipped Within 3 Days
- UL60950, UL508, CE Certified
- Five Year Warranty



**Small yet providing up to 288 watts of well regulated DC**, these supplies can be mounted in spaces where many others won't fit. A metal case fully encloses all circuitry and provides EMI shielding and an AC input filter attenuates both common and differential mode noise conducted to the line.

## STANDARD FEATURES

- Universal input
- Power Factor Correction
- High surge current capability
- 'Soft start' operation

## SPECIFICATIONS

**Input Voltage:** 90-265 VAC, 49-420 Hz, single phase, or 110-350 Vdc. DC input may be connected without regard to polarity.

**Inrush current:** Cold start, (theristor limiter) 20A peak @115 VAC; 40A peak @ 230 VAC.

**Startup Time:** 800 mS typical.

**Input Undervoltage:** An input of less than 90 VAC will not damage power supply.

**Power Factor:** 0.99 typical at 115 VAC, 60Hz and full load. Complies with EN61000-3-2.

### Regulation:

**Line:**  $\pm 0.05\%$  or 5 mV, whichever is greater.

**Load:**  $\pm 0.05\%$  or 5 mV, whichever is greater.

**Output Voltage Remote Adjustment:** The output voltage may be controlled by means of an external 1K potentiometer.

**Polarity:** Output is floating and may be used in either polarity.

**Drift:**  $\pm 0.1\%$  typical over 8 hours, after 30 minute warmup.

**Temperature Coefficient:**  $\pm 0.02\%/\text{°C}$  (Typical).

**Holdup Time:** 16 mS minimum.

**Transient Response:** 300  $\mu\text{s}$  to return to  $\pm 1\%$  of output setting. Maximum of  $\pm 3\%$  output excursion following a load step change from 50% to 100%.

**Remote Sensing:** Compensates up to 0.5 volt drop per output line, within the limits of the output voltage adjustment range.



**Overload/Short Circuit Protection:** Current limiting with automatic recovery.

**Overvoltage Protection:** Latches power supply OFF, reset by momentarily removing AC input power.

**Output Inhibit:** Applying between +3 and +25 Vdc to the inhibit terminal will disable the supply.

**EMI:** Complies with FCC Part 15 and EN55022, Class A.

**Output Indicator (DC on):** Green LED.

**Thermal Protection:** Thermostat, self-resetting.

**Efficiency:** See table. (Typical, at nominal input voltage, with full load.)

**Ambient Operating Temperature:** 0 to +71°C.

**Storage Temperature:** -40 to +85°C.

**Cooling:** Forced-air cooled; air enters rear of power supply and exits from top.

Case size WN8B: convection cooled.

**Switching Frequency:** 100 kHz (Typical).

### Dielectric Withstand Voltage      Isolation

**Input to output:** 4242 Vdc

300 Vdc

**Input to case:** 2121 Vdc

300 Vdc

**Output to case:** 750 Vdc

300 Vdc

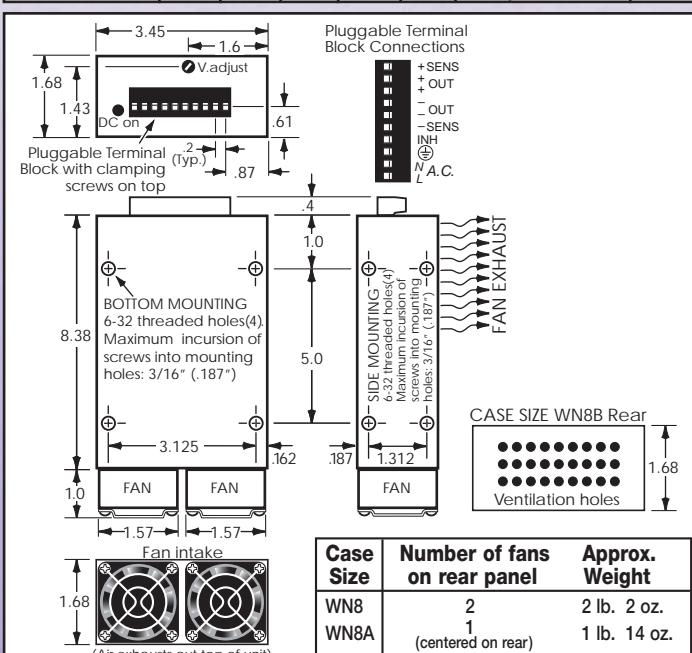
**Internal Failure Protection:** provided by internal fuse.

**Mounting:** Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket. To mount from the power supply side of the mounting surface or for DIN rail mounting, see accessory Mounting Kits on page 91.

## Narrow Profile SWITCHING REGULATED (to 288 watts)

| Nominal Output Voltage | Adjust Range $\pm V$ | Output Current Amps. at |      | Ripple mV (@ 25 MHz BW) | Effic. (Typ.) % | (\$) | Model | Case Size  |
|------------------------|----------------------|-------------------------|------|-------------------------|-----------------|------|-------|------------|
|                        |                      | 40°C                    | 71°C |                         |                 |      |       |            |
| 3.3                    | .5                   | 12                      | 8.4  | 10                      | 50              | 66   | 300   | WN8B       |
| 3.3                    | .5                   | 18.5                    | 12.9 | 10                      | 50              | 66   | 320   | W3.3NT1850 |
| 3.3                    | .5                   | 25                      | 17.5 | 10                      | 50              | 66   | 390   | W3.3NT2500 |
| 5                      | .5                   | 12                      | 8.4  | 10                      | 50              | 69   | 300   | W5NT1200   |
| 5                      | .5                   | 18.5                    | 12.9 | 10                      | 50              | 69   | 320   | W5NT1850   |
| 5                      | .5                   | 25                      | 17.5 | 10                      | 50              | 69   | 390   | W5NT2500   |
| 6                      | .5                   | 10                      | 7    | 10                      | 50              | 70   | 300   | W6NT1000   |
| 6                      | .5                   | 15.4                    | 10.7 | 10                      | 50              | 70   | 320   | W6NT1540   |
| 6                      | .5                   | 24                      | 16.8 | 10                      | 50              | 70   | 390   | W6NT2400   |
| 7                      | .5                   | 8.5                     | 5.9  | 10                      | 50              | 70   | 300   | W7NT850    |
| 7                      | .5                   | 15                      | 10.5 | 10                      | 50              | 70   | 320   | W7NT1500   |
| 7                      | .5                   | 23                      | 16.1 | 10                      | 50              | 70   | 390   | W7NT2300   |
| 8                      | .5                   | 7.5                     | 5.2  | 15                      | 100             | 72   | 300   | W8NT750    |
| 8                      | .5                   | 14.7                    | 10.3 | 15                      | 100             | 72   | 320   | W8NT1470   |
| 8                      | .5                   | 23                      | 16.1 | 15                      | 100             | 72   | 390   | W8NT2300   |
| 9                      | .5                   | 6.6                     | 4.6  | 15                      | 100             | 72   | 300   | W9NT660    |
| 9                      | .5                   | 14.4                    | 10   | 15                      | 100             | 72   | 320   | W9NT1440   |
| 9                      | .5                   | 23                      | 16.1 | 15                      | 100             | 72   | 390   | W9NT2300   |
| 10                     | .5                   | 6                       | 4.2  | 15                      | 100             | 73   | 300   | W10NT600   |
| 10                     | .5                   | 14.1                    | 9.8  | 15                      | 100             | 73   | 320   | W10NT1410  |
| 10                     | .5                   | 22                      | 15.4 | 15                      | 100             | 73   | 390   | W10NT2200  |
| 12                     | .5                   | 5.8                     | 4    | 15                      | 100             | 75   | 300   | W12NT580   |
| 12                     | .5                   | 13.7                    | 9.6  | 15                      | 100             | 75   | 320   | W12NT1370  |
| 12                     | .5                   | 22                      | 15.4 | 15                      | 100             | 75   | 390   | W12NT2200  |
| 13                     | .5                   | 5.3                     | 3.7  | 15                      | 100             | 75   | 300   | W13NT530   |
| 13                     | .5                   | 12.3                    | 8.6  | 15                      | 100             | 75   | 320   | W13NT1230  |
| 13                     | .5                   | 20                      | 14   | 15                      | 100             | 75   | 390   | W13NT2000  |
| 14                     | .5                   | 4.9                     | 3.4  | 15                      | 100             | 75   | 300   | W14NT490   |
| 14                     | .5                   | 11.7                    | 8.2  | 15                      | 100             | 75   | 320   | W14NT1170  |
| 14                     | .5                   | 19                      | 13.3 | 15                      | 100             | 75   | 390   | W14NT1900  |
| 15                     | .5                   | 4.7                     | 3.3  | 15                      | 100             | 75   | 300   | W15NT470   |
| 15                     | .5                   | 11.1                    | 7.8  | 15                      | 100             | 75   | 320   | W15NT1110  |
| 15                     | .5                   | 18                      | 12.6 | 15                      | 100             | 75   | 390   | W15NT1800  |
| 16                     | .5                   | 4.4                     | 3    | 15                      | 100             | 75   | 300   | W16NT440   |
| 16                     | .5                   | 10.2                    | 7.1  | 15                      | 100             | 75   | 320   | W16NT1020  |
| 16                     | .5                   | 16.5                    | 11.5 | 15                      | 100             | 75   | 390   | W16NT1650  |
| 18                     | .5                   | 4                       | 2.8  | 15                      | 100             | 77   | 300   | W18NT400   |
| 18                     | .5                   | 9.2                     | 6.4  | 15                      | 100             | 77   | 320   | W18NT920   |
| 18                     | .5                   | 15                      | 10.5 | 15                      | 100             | 77   | 390   | W18NT1500  |
| 20                     | .5                   | 3.7                     | 2.6  | 15                      | 100             | 78   | 300   | W20NT370   |
| 20                     | .5                   | 8.6                     | 6    | 15                      | 100             | 78   | 320   | W20NT860   |
| 20                     | .5                   | 14                      | 9.8  | 15                      | 100             | 78   | 390   | W20NT1400  |
| 22                     | .5                   | 3.4                     | 2.4  | 15                      | 100             | 78   | 300   | W22NT340   |
| 22                     | .5                   | 8                       | 5.6  | 15                      | 100             | 78   | 320   | W22NT800   |
| 22                     | .5                   | 13                      | 9.1  | 15                      | 100             | 78   | 390   | W22NT1300  |
| 24                     | .5                   | 3.2                     | 2.2  | 15                      | 100             | 80   | 300   | W24NT320   |
| 24                     | .5                   | 7.5                     | 5.3  | 15                      | 100             | 80   | 320   | W24NT750   |
| 24                     | .5                   | 12                      | 8.4  | 15                      | 100             | 80   | 390   | W24NT1200  |
| 25                     | .5                   | 3                       | 2.1  | 15                      | 100             | 80   | 300   | W25NT300   |
| 25                     | .5                   | 7.2                     | 5    | 15                      | 100             | 80   | 320   | W25NT720   |
| 25                     | .5                   | 11.2                    | 7.8  | 15                      | 100             | 80   | 390   | W25NT1120  |
| 26                     | .5                   | 2.8                     | 2    | 15                      | 100             | 80   | 300   | W26NT280   |
| 26                     | .5                   | 6.9                     | 4.8  | 15                      | 100             | 80   | 320   | W26NT690   |
| 26                     | .5                   | 10.6                    | 7.4  | 15                      | 100             | 80   | 390   | W26NT1060  |
| 28                     | .5                   | 2.7                     | 1.9  | 15                      | 100             | 80   | 300   | W28NT270   |
| 28                     | .5                   | 6.2                     | 4.3  | 15                      | 100             | 80   | 320   | W28NT620   |
| 28                     | .5                   | 10                      | 7    | 15                      | 100             | 80   | 390   | W28NT1000  |
| 30                     | .5                   | 2.4                     | 1.7  | 25                      | 150             | 80   | 300   | W30NT240   |
| 30                     | .5                   | 5.6                     | 3.9  | 25                      | 150             | 80   | 320   | W30NT560   |
| 30                     | .5                   | 9                       | 6.3  | 25                      | 150             | 80   | 390   | W30NT900   |
| 32                     | 1                    | 2.3                     | 1.6  | 25                      | 150             | 80   | 300   | W32NT230   |
| 32                     | 1                    | 5.4                     | 3.7  | 25                      | 150             | 80   | 320   | W32NT540   |
| 32                     | 1                    | 8.6                     | 6    | 25                      | 150             | 80   | 390   | W32NT860   |
| 34                     | 1                    | 2.2                     | 1.5  | 25                      | 150             | 80   | 300   | W34NT220   |
| 34                     | 1                    | 5.2                     | 3.6  | 25                      | 150             | 80   | 320   | W34NT520   |
| 34                     | 1                    | 8.3                     | 5.8  | 25                      | 150             | 80   | 390   | W34NT830   |
| 36                     | 1                    | 2.1                     | 1.4  | 25                      | 150             | 80   | 300   | W36NT210   |
| 36                     | 1                    | 5                       | 3.5  | 25                      | 150             | 80   | 320   | W36NT500   |
| 36                     | 1                    | 8                       | 5.6  | 25                      | 150             | 80   | 390   | W36NT800   |
| 38                     | 1                    | 2                       | 1.4  | 25                      | 150             | 80   | 300   | W38NT200   |
| 38                     | 1                    | 4.7                     | 3.3  | 25                      | 150             | 80   | 320   | W38NT470   |
| 38                     | 1                    | 7.5                     | 5.2  | 25                      | 150             | 80   | 390   | W38NT750   |

| Nominal Output Voltage | Adjust Range $\pm V$ | Output Current Amps. at |      | Ripple mV (@ 25 MHz BW) | Effic. (Typ.) % | (\$) | Model | Case Size |
|------------------------|----------------------|-------------------------|------|-------------------------|-----------------|------|-------|-----------|
|                        |                      | 40°C                    | 71°C |                         |                 |      |       |           |
| 40                     | 1                    | 1.9                     | 1.3  | 25                      | 180             | 81   | 300   | W40NT190  |
| 40                     | 1                    | 4.3                     | 3    | 25                      | 150             | 81   | 320   | W40NT430  |
| 40                     | 1                    | 7                       | 4.9  | 25                      | 150             | 81   | 390   | W40NT700  |
| 42                     | 1                    | 1.8                     | 1.2  | 25                      | 150             | 81   | 300   | W42NT180  |
| 42                     | 1                    | 4.1                     | 2.8  | 25                      | 150             | 81   | 320   | W42NT410  |
| 42                     | 1                    | 6.8                     | 4.7  | 25                      | 150             | 81   | 390   | W42NT680  |
| 45                     | 1                    | 1.7                     | 1.2  | 25                      | 150             | 81   | 300   | W45NT170  |
| 45                     | 1                    | 3.9                     | 2.7  | 25                      | 150             | 81   | 320   | W45NT390  |
| 45                     | 1                    | 6.4                     | 4.4  | 25                      | 150             | 81   | 390   | W45NT640  |
| 48                     | 1                    | 1.6                     | 1.1  | 25                      | 150             | 81   | 300   | W48NT160  |
| 48                     | 1                    | 3.7                     | 2.6  | 25                      | 150             | 81   | 320   | W48NT370  |
| 48                     | 1                    | 6                       | 4.2  | 25                      | 150             | 81   | 390   | W48NT600  |
| 50                     | 1                    | 1.5                     | 1    | 50                      | 150             | 80   | 300   | W50NT150  |
| 50                     | 1                    | 3.3                     | 2.3  | 50                      | 150             | 80   | 320   | W50NT330  |
| 50                     | 1                    | 5                       | 3.5  | 50                      | 150             | 80   | 390   | W50NT500  |
| 55                     | 1                    | 1.3                     | 0.91 | 50                      | 150             | 80   | 300   | W55NT130  |
| 55                     | 1                    | 3                       | 2.1  | 50                      | 150             | 80   | 320   | W55NT300  |
| 55                     | 1                    | 4.5                     | 3.2  | 50                      | 150             | 80   | 390   | W55NT450  |
| 60                     | 1                    | 1.2                     | 0.84 | 50                      | 150             | 80   | 300   | W60NT120  |
| 60                     | 1                    | 2.8                     | 1.9  | 50                      | 150             | 80   | 320   | W60NT280  |
| 60                     | 1                    | 4.2                     | 2.9  | 50                      | 150             | 80   | 390   | W60NT420  |
| 70                     | 1                    | 1                       | 0.7  | 67                      | 200             | 80   | 300   | W70NT100  |
| 70                     | 1                    | 2.4                     | 1.7  | 67                      | 200             | 80   | 320   | W70NT240  |
| 70                     | 1                    | 3.6                     | 2.5  | 67                      | 200             | 80   | 390   | W70NT360  |
| 75                     | 1                    | 1                       | 0.7  | 67                      | 200             | 80   | 300   | W75NT100  |
| 75                     | 1                    | 2.2                     | 1.5  | 67                      | 200             | 80   | 320   | W75NT220  |
| 75                     | 1                    | 3.3                     | 2.3  | 67                      | 200             | 80   | 390   | W75NT330  |
| 80                     | 1                    | 0.9                     | 0.63 | 67                      | 200             | 80   | 300   | W80NT90   |
| 80                     | 1                    | 2.1                     | 1.4  | 67                      | 200             | 80   | 320   | W80NT210  |
| 80                     | 1                    | 3.1                     | 2.2  | 67                      | 200             | 80   | 390   | W80NT310  |
| 90                     | 1                    | 0.8                     | 0.55 | 100                     | 300             | 80   | 300   | W90NT80   |
| 90                     | 1                    | 1.8                     | 1.3  | 100                     | 300             | 80   | 320   | W90NT180  |
| 90                     | 1                    | 2.8                     | 1.9  | 100                     | 300             | 80   | 390   | W90NT280  |
| 100                    | 1                    | 0.75                    | 0.52 | 150                     | 450             | 80   | 300   | W100NT75  |
| 100                    | 1                    | 1.7                     | 1.2  | 150                     | 450             | 80   | 320   | W100NT170 |
| 100                    | 1                    | 2.5                     | 1.8  | 150                     | 450             | 80   | 390   | W100NT250 |
| 110                    | 1                    | 0.65                    | 0.45 | 150                     | 450             | 80   | 300   | W110NT65  |
| 110                    | 1                    | 1.5                     | 1.1  | 150                     | 450             | 80   | 320   | W110NT150 |
| 110                    | 1                    | 2.3                     | 1.6  | 150                     | 450             | 80   | 390   | W110NT230 |
| 120                    | 1                    | 0.6                     | 0.42 | 150                     | 450             | 80   | 300   | W120NT60  |
| 120                    | 1                    | 1.4                     | 1    | 150                     | 450             | 80   | 320   | W120NT140 |
| 120                    | 1                    | 2.1                     | 1.5  | 150                     | 450             | 80   | 390   | W120NT210 |
| 125                    | 1                    | 0.6                     | 0.42 | 150                     | 450             | 80   | 300   | W125NT60  |
| 125                    | 1                    | 1.3                     | 0.9  | 150                     | 450             | 80   | 320   | W125NT130 |
| 125                    | 1                    | 2                       | 1.4  | 150                     | 450             | 80   | 390   | W125NT200 |



## Gold Box

# SINGLE OUTPUT

### LINEAR REGULATED AC-DC

### SERIES A (High Performance)

- Shipped Within 3 Days
- All Models U.L. Recognized
- CE
- Five Year Warranty



**Series A power supplies** offer unusually high performance—many models have regulation of  $\pm 0.005\%$ . Electronic current limiting and provision for remote voltage sensing are standard features; overvoltage

protection is available as a built-in option. Rugged extruded aluminum cases include threaded mounting holes on bottom, back, and side, permitting mounting in any position.

### SERIES A: HIGH PERFORMANCE POWER SUPPLIES

#### STANDARD FEATURES

- Provision for remote sensing and/or external output adjustment
- Short circuit proof with automatic recovery (electronic current limiting)
- Can be mounted on any of three surfaces (case sizes H8, H11 and H16; two surfaces)

#### SPECIFICATIONS

**Input Voltage:** 105-125 VAC, 50-400 Hz, single phase.

**Output Specifications:** See pages 48 and 49. Series A supplies have model numbers beginning with the letter A.

**Remote Voltage Adjustment/Sensing:** Provision for sensing the output voltage across the load, so that drops in the load line are compensated, is a standard feature. This feature also permits the use of an externally located potentiometer to adjust output voltage.

**Polarity:** Output is floating; either positive or negative terminal may be grounded or floated up to 300 volts above ground.

**Temperature Coefficient:** 0.015%/°C (Typical).

**Ambient Operating Temperature:** -20 to +71°C.

**Storage Temperature:** -55 to +85°C.

**Response Time:** Less than 20 microseconds.

#### OPTIONS

**Under/Overvoltage Alarm Contacts:** To control a horn or light, or to signal your PLC. Available on models with nominal outputs of 5 Vdc to 125 Vdc. SPDT contacts switch if the power supply's output deviates by

1.0 volt or more: 5 volt models.

2.0 volts or more: 6 to 48 volt models.

3.0 volts or more: 50 to 125 volt models.

Contact ratings: 120 VAC, 8A / 60 Vdc, 1A. (To comply with SELV requirements, limit switched voltage to 60Vdc/42 VAC.) To order, add suffix "L" to model number and \$35.00 to price. Models with this option are not yet UL Recognized/CE certified.

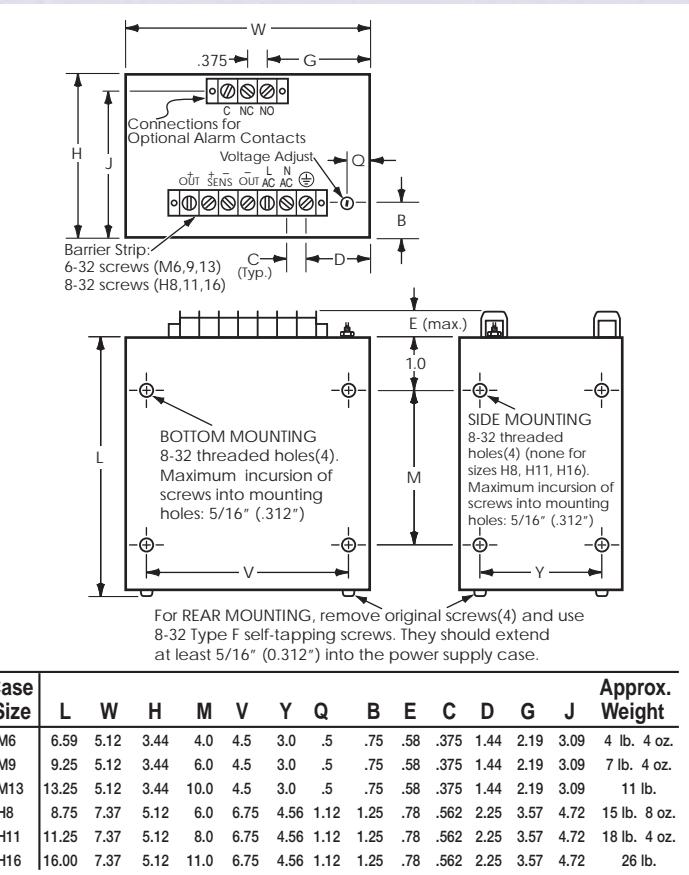
**Overvoltage Protection:** An internal preset overvoltage protector is available. To order, add prefix "V" to the model number, and increase standard price as follows:

| Outputs of                      | 1.5-70V | 75-150V |
|---------------------------------|---------|---------|
| All case sizes except H16 . . . | \$25.00 | \$35.00 |
| Case size H16 . . . . .         | 75.00   | 85.00   |

**Terminal Strip Cover:** Clips on. To order, add suffix "M" to model number and \$5.00 to price.

**230 Volt Input:** All models can be alternately furnished for operation on inputs of 210-250 VAC, 50-400 Hz. To order, add suffix "-230" to model number and \$25.00 to price. (For models in case sizes H8, H11 and H16, add \$40.00.) The "-230" option requires two additional days.

**Mounting:** Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket. To mount from the power supply side of the mounting surface or for DIN rail mounting, see accessory Mounting Kits on page 91.



**Gold Box**  
**SINGLE OUTPUT**  
 LINEAR REGULATED  
 AC-DC



**SERIES B (General Purpose)**

- Shipped Within 3 Days
- All Models U.L. Recognized
- **CE**
- Five Year Warranty

**Series B power supplies** are ideal for powering digital circuitry, test sets, instrument bridges, and process control transmitters. Many models have regulation of  $\pm 0.1\%$  or better. All components are generously derated

to insure a long and trouble-free life, and they use the same rugged construction as the Series A line. Overvoltage protection and other options are available.

**SERIES B: GENERAL PURPOSE POWER SUPPLIES**

**STANDARD FEATURES**

- Short circuit proof (electronic current limiting)
- May be mounted on any of three surfaces
- Completely serviceable

**SPECIFICATIONS**

**Input Voltage:** 105-125 VAC, 50-400 Hz, single phase.

**Output Specifications:** See pages 48 and 49. Series B supplies have model numbers beginning with the letter B.

**Remote Voltage Adjustment/Sensing:** Available as an option. See below.

**Polarity:** Output is floating; either positive or negative terminal may be grounded or floated up to 300 volts above ground.

**Temperature Coefficient:** 0.02%/°C (Typical).

**Ambient Operating Temperature:** 0 to +71°C.

**Storage Temperature:** -55 to +85°C.

**OPTIONS**

**Under/Overvoltage Alarm Contacts:** To control a horn or light, or to signal your PLC. Available on models with nominal outputs of 5 Vdc to 125 Vdc. SPDT contacts switch if the power supply's output deviates by

1.0 volt or more: 5 volt models.

2.0 volts or more: 6 to 48 volt models.

3.0 volts or more: 50 to 125 volt models.

Contact ratings: 120 VAC, 8A / 60 Vdc, 1A. (To comply with SELV requirements, limit switched voltage to 60Vdc/42 VAC.) To order, add suffix "L" to model number and \$35.00 to price. Models with this option are not yet UL Recognized/CE certified.

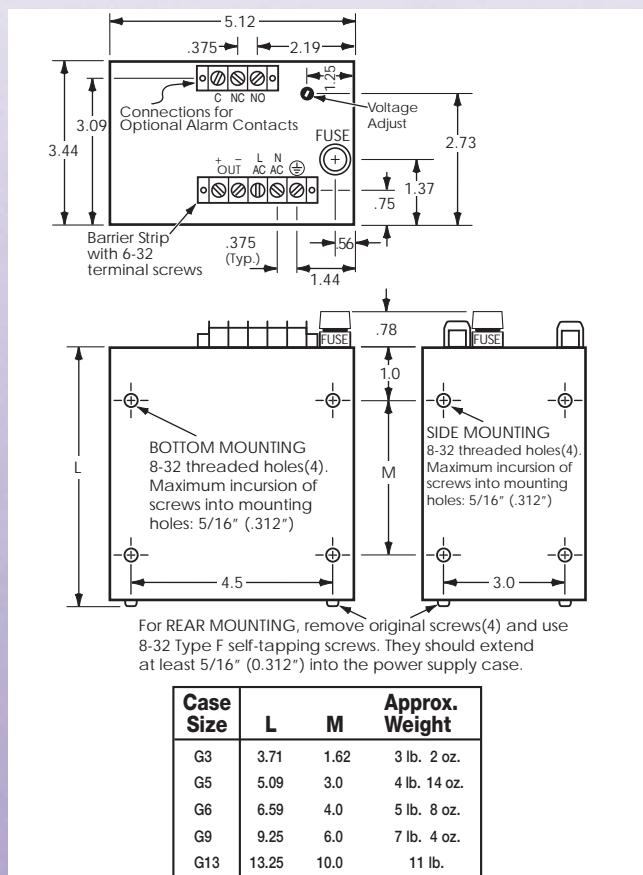
**Overvoltage Protection:** An internal preset overvoltage protector is available. To order, add prefix "V" to the model number, and add \$25.00 to the standard price of models with outputs of 1.5 to 70 volts; \$35.00, for 75 to 200 volt outputs.

**Remote Voltage Sensing:** Provision for sensing the output voltage across the load, so that drops in the load lines are compensated, is available on all models. (This option also permits the use of an externally located potentiometer to adjust output voltage.) To order, add prefix "R" to the model number. No increase in price.

**Terminal Strip Cover:** Clips on. To order, add suffix "M" to model number and \$5.00 to price.

**230 Volt Input:** All models can be alternately furnished for operation on inputs of 210-250 VAC, 50-400 Hz. To order, add suffix "-230" to model number and \$25.00 to price. The "-230" option requires two additional days.

**Mounting:** Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket. To mount from the power supply side of the mounting surface or for DIN rail mounting, see accessory Mounting Kits on page 91.



| Case Size | L     | M    | Approx. Weight |
|-----------|-------|------|----------------|
| G3        | 3.71  | 1.62 | 3 lb. 2 oz.    |
| G5        | 5.09  | 3.0  | 4 lb. 14 oz.   |
| G6        | 6.59  | 4.0  | 5 lb. 8 oz.    |
| G9        | 9.25  | 6.0  | 7 lb. 4 oz.    |
| G13       | 13.25 | 10.0 | 11 lb.         |

# SERIES A & B

| Nominal Output Voltage | Adj-<br>ust<br>±V | Output Current Amps. at |      |      | Regulation   |              | Ripple mV RMS | (\$)<br>Price | Model      | Case Size | Output Current Amps. at |              |      | Regulation |      | Ripple mV RMS | (\$)<br>Price | Model | Case Size |          |     |
|------------------------|-------------------|-------------------------|------|------|--------------|--------------|---------------|---------------|------------|-----------|-------------------------|--------------|------|------------|------|---------------|---------------|-------|-----------|----------|-----|
|                        |                   | 40°C 55°C 71°C          |      |      | Load<br>± %* | Line<br>± %* |               |               |            |           | Load<br>± %*            | Line<br>± %* |      |            |      |               |               |       |           |          |     |
|                        |                   | 40°C                    | 55°C | 71°C |              |              |               |               |            |           |                         |              |      |            |      |               |               |       |           |          |     |
| 1.5                    | .5                | 6.0                     | 4.3  | 3.5  | .005         | .005         | .250          | 280           | A1.5MT600  | M6        | 10                      | 1            | .500 | .500       | .1   | .05           | 1             | 130   | B10G50    | G3       |     |
| 1.5                    | .5                | 9.0                     | 7.2  | 5.5  | .005         | .005         | .250          | 325           | A1.5MT900  | M9        | 10                      | 1            | 1.0  | 1.0        | .1   | .1            | 1             | 160   | B10G100   | G3       |     |
| 1.5                    | .5                | 12.0                    | 10.0 | 8.0  | .005         | .005         | .250          | 385           | A1.5MT1200 | M13       | 10                      | .5           | 2.0  | 2.0        | .2   | .2            | 1.5           | 195   | B10G200   | G5       |     |
| 1.5                    | .5                | 22.0                    | 18.5 | 15.5 | .005         | .005         | .250          | 475           | A1.5H2200  | H11       | 10                      | .5           | 3.0  | 2.7        | .2   | .1            | 1.5           | 225   | B10G300   | G6       |     |
| 1.5                    | .5                | 32.0                    | 27.0 | 22.5 | .005         | .005         | .250          | 565           | A1.5H3200  | H16       | 10                      | .5           | 4.5  | 3.6        | .2   | .005          | .250          | 275   | A10MT450  | M6       |     |
| 2                      | .5                | 6.0                     | 4.3  | 3.5  | .005         | .005         | .250          | 280           | A2MT600    | M6        | 10                      | .5           | 6.0  | 4.0        | .3   | .1            | 1.5           | 300   | B10G600   | G9       |     |
| 2                      | .5                | 12.0                    | 10.0 | 8.0  | .005         | .005         | .250          | 385           | A2MT1200   | M13       | 10                      | .5           | 7.5  | 6.0        | .45  | .005          | .250          | 340   | A10MT750  | M9       |     |
| 3                      | .5                | .500                    | .500 | .500 | .2           | .1           | 1             | 130           | B3G50      | G3        | 10                      | .5           | 10.0 | 8.3        | .4   | .1            | 1.5           | 345   | B10G1000  | G13      |     |
| 3                      | .5                | 1.2                     | 1.1  | 1.0  | .2           | .1           | 1             | 160           | B3G120     | G3        | 10                      | .5           | 10.0 | 8.3        | .7   | .005          | .250          | 385   | A10MT1000 | M13      |     |
| 3                      | .5                | 2.1                     | 2.1  | 2.0  | .5           | .1           | 1             | 185           | B3G210     | G5        | 10                      | .5           | 14.0 | 11.9       | .98  | .005          | .250          | 450   | A10H1400  | H8       |     |
| 3                      | .5                | 4.0                     | 3.5  | 3.0  | .5           | .1           | 1.5           | 230           | B3G400     | G6        | 10                      | .5           | 18.0 | 15.0       | 1.20 | .005          | .250          | 505   | A10H1800  | H11      |     |
| 3                      | .5                | 6.0                     | 4.3  | 3.5  | .005         | .005         | .250          | 280           | A3MT600    | M6        | 10                      | .5           | 25.0 | 20.0       | 16.5 | .005          | .250          | 565   | A10H2500  | H16      |     |
| 3                      | .5                | 9.0                     | 7.2  | 5.5  | .005         | .005         | .250          | 325           | A3MT900    | M9        | 12                      | 1            | .500 | .500       | .1   | .05           | 1             | 130   | B12G50    | G3       |     |
| 3                      | .5                | 12.0                    | 10.0 | 8.0  | .005         | .005         | .250          | 385           | A3MT1200   | M13       | 12                      | .5           | 2.0  | 1.7        | .2   | .1            | 1.5           | 190   | B12G100   | G3       |     |
| 3                      | .5                | 17.0                    | 14.5 | 12.0 | .005         | .005         | .250          | 420           | A3H1700    | H8        | 12                      | .5           | 3.0  | 2.7        | .2   | .1            | 1.5           | 220   | B12G200   | G5       |     |
| 3                      | .5                | 20.0                    | 16.5 | 13.5 | .005         | .005         | .250          | 475           | A3H2000    | H11       | 12                      | .5           | 3.8  | 3.3        | .26  | .1            | 1.5           | 230   | B12G300   | G6       |     |
| 3                      | .5                | 30.0                    | 25.0 | 20.0 | .005         | .005         | .250          | 565           | A3H3000    | H16       | 12                      | .5           | 4.0  | 3.3        | .26  | .005          | .250          | 270   | A12MT400  | M6       |     |
| 3.3                    | .5                | .500                    | .500 | .500 | .2           | .1           | 1             | 130           | B3.3G50    | G3        | 12                      | .5           | 6.5  | 5.3        | .4   | .1            | 1.5           | 300   | B12G650   | G9       |     |
| 3.3                    | .5                | 1.2                     | 1.1  | 1.0  | .2           | .1           | 1             | 160           | B3.3G120   | G3        | 12                      | .5           | 6.5  | 5.3        | .4   | .005          | .250          | 335   | A12MT650  | M9       |     |
| 3.3                    | .5                | 2.1                     | 2.1  | 2.0  | .5           | .1           | 1             | 185           | B3.3G210   | G5        | 12                      | .5           | 9.0  | 7.5        | .60  | .1            | 1.5           | 345   | B12G900   | G13      |     |
| 3.3                    | .5                | 4.0                     | 3.5  | 3.0  | .5           | .1           | 1.5           | 230           | B3.3G400   | G6        | 12                      | .5           | 13.0 | 11.0       | .91  | .005          | .250          | 450   | A12H1300  | H8       |     |
| 3.3                    | .5                | 6.0                     | 4.3  | 3.5  | .005         | .005         | .250          | 280           | A3.3MT600  | M6        | 12                      | .5           | 17.0 | 14.3       | 11.5 | .005          | .250          | 505   | A12H1700  | H11      |     |
| 3.3                    | .5                | 7.0                     | 5.9  | 4.9  | .5           | .1           | 1.5           | 285           | B3.3G700   | G9        | 12                      | .5           | 21.0 | 17.5       | 14.5 | .005          | .250          | 565   | A12H2100  | H16      |     |
| 3.3                    | .5                | 9.0                     | 7.2  | 5.5  | .005         | .005         | .250          | 330           | A3.3MT900  | M9        | 13                      | 1            | .500 | .500       | .1   | .05           | 1             | 150   | B13G50    | G3       |     |
| 3.3                    | .5                | 12.0                    | 10.0 | 8.0  | .005         | .005         | .250          | 385           | A3.3MT1200 | M13       | 13                      | 1            | 1.5  | 1.4        | .13  | .1            | 1.5           | 190   | B13G150   | G3       |     |
| 3.3                    | .5                | 17.0                    | 14.5 | 12.0 | .005         | .005         | .250          | 420           | A3.3H1700  | H8        | 13                      | .5           | 2.0  | 2.0        | .2   | .1            | 1.5           | 215   | B13G200   | G5       |     |
| 3.3                    | .5                | 22.0                    | 18.5 | 15.5 | .005         | .005         | .250          | 475           | A3.3H2200  | H11       | 13                      | .5           | 3.0  | 2.7        | .25  | .1            | 1.5           | 235   | B13G300   | G6       |     |
| 3.3                    | .5                | 32.0                    | 27.0 | 22.5 | .005         | .005         | .250          | 565           | A3.3H3200  | H16       | 13                      | .5           | 3.5  | 3.0        | .25  | .005          | .250          | 275   | A13MT350  | M6       |     |
| 5                      | .5                | .500                    | .500 | .500 | .1           | .1           | 1             | 130           | B5G50      | G3        | 13                      | .5           | 5.0  | 4.5        | .2   | .1            | 1.5           | 295   | B13G500   | G9       |     |
| 5                      | .5                | 1.2                     | 1.1  | 1.0  | .1           | .1           | 1             | 160           | B5G120     | G3        | 13                      | .5           | 8.0  | 7.5        | .3   | .1            | 1.5           | 345   | B13G800   | G13      |     |
| 5                      | .5                | 1.7                     | 1.5  | 1.3  | .2           | .1           | 1.5           | 175           | B5G170     | G3        | 13                      | .5           | 8.0  | 7.5        | .30  | .005          | .250          | 385   | A13MT800  | M13      |     |
| 5                      | .5                | 2.1                     | 2.1  | 2.0  | .2           | .1           | 1.5           | 185           | B5G210     | G5        | 14                      | 1            | .500 | .500       | .1   | .05           | 1             | 150   | B14G50    | G3       |     |
| 5                      | .5                | 4.0                     | 3.5  | 3.0  | .3           | .1           | 1.5           | 220           | B5G400     | G6        | 14                      | 1            | 1.5  | 1.4        | .13  | .1            | 1.5           | 190   | B14G150   | G3       |     |
| 5                      | .5                | 5.0                     | 4.4  | 3.0  | .4           | .1           | 1.5           | 235           | B5G500     | G6        | 14                      | .5           | 2.0  | 2.0        | .2   | .1            | 1.5           | 215   | B14G200   | G5       |     |
| 5                      | .5                | 5.1                     | 3.6  | 2.6  | .005         | .005         | .250          | 265           | A5MT510    | M6        | 14                      | .5           | 3.0  | 2.7        | .25  | .1            | 1.5           | 235   | B14G300   | G6       |     |
| 5                      | .5                | 6.0                     | 4.3  | 3.5  | .005         | .005         | .250          | 285           | A5MT600    | M6        | 14                      | .5           | 3.0  | 2.7        | .25  | .005          | .250          | 270   | A14MT300  | M6       |     |
| 5                      | .5                | 8.0                     | 7.0  | 5.0  | .4           | .1           | 1.5           | 295           | B5G800     | G9        | 14                      | .5           | 5.0  | 4.5        | .40  | .2            | .1            | 1.5   | 285       | B14G500  | G9  |
| 5                      | .5                | 9.0                     | 7.2  | 5.5  | .005         | .005         | .250          | 330           | A5MT900    | M9        | 14                      | .5           | 7.0  | 6.5        | .60  | .3            | .1            | 1.5   | 345       | B14G700  | G13 |
| 5                      | .5                | 10.0                    | 9.0  | 7.0  | .4           | .1           | 1.5           | 335           | B5G1000    | G13       | 14                      | .5           | 7.0  | 7.5        | .70  | .005          | .250          | 385   | A14MT800  | M13      |     |
| 5                      | .5                | 12.0                    | 10.0 | 8.0  | .005         | .005         | .250          | 385           | A5MT1200   | M13       | 15                      | 1            | .750 | .750       | .1   | .1            | 1             | 155   | B15G75    | G3       |     |
| 5                      | .5                | 17.0                    | 14.5 | 12.0 | .005         | .005         | .250          | 420           | A5H1700    | H8        | 15                      | 1            | 1.5  | 1.4        | .13  | .1            | 1.5           | 180   | B15G150   | G3       |     |
| 5                      | .5                | 22.0                    | 18.5 | 15.5 | .005         | .005         | .250          | 475           | A5H2200    | H11       | 15                      | 1            | 2.0  | 1.7        | .15  | .1            | 1.5           | 195   | B15G200   | G5       |     |
| 5                      | .5                | 32.0                    | 27.0 | 22.0 | .005         | .005         | .250          | 565           | A5H3200    | H16       | 15                      | 1            | 3.0  | 2.8        | .25  | .005          | .250          | 245   | A15MT300  | M6       |     |
| 6                      | 1                 | .500                    | .500 | .500 | .1           | .1           | 1             | 130           | B6G50      | G3        | 15                      | 1            | 4.2  | 3.8        | .30  | .15           | .1            | 1.5   | 270       | B15G420  | G9  |
| 6                      | .5                | 1.2                     | 1.1  | 1.0  | .1           | .1           | 1             | 160           | B6G120     | G3        | 15                      | 1            | 5.5  | 4.7        | .40  | .05           | .005          | .250  | 335       | A15MT550 | M9  |
| 6                      | .5                | 1.7                     | 1.5  | 1.3  | .2           | .1           | 1.5           | 175           | B6G170     | G3        | 15                      | 1            | 6.0  | 5.0        | .40  | .2            | .1            | 1.5   | 325       | B15G600  | G9  |
| 6                      | .5                | 3.2                     | 3.1  | 3.0  | .3           | .1           | 1.5           | 215           | B6G320     | G6        | 15                      | 1            | 7.0  | 6.0        | .50  | .2            | .1            | 1.5   | 345       | B15G700  | G13 |
| 6                      | .5                | 4.9                     | 3.5  | 2.5  | .005         | .005         | .250          | 235           | A6MT490    | M6        | 15                      | 1            | 8.0  | 6.5        | .55  | .05           | .005          | .250  | 385       | A15MT800 | M13 |
| 6                      | .5                | 6.0                     | 4.5  | 3.5  | .005         | .005         | .250          | 275           | A6MT600    | M6        | 15                      | 1            | 11.5 | 9.7        | .80  | .005          | .005          | .250  | 450       | A15H1150 | H8  |
| 6                      | .5                | 8.5                     | 7.5  | 5.2  | .005         | .005         | .250          | 330           | A6MT850    | M9        | 15                      | 1            | 15.0 | 12.8       | 10.5 | .005          | .005          | .250  | 500       | A15H1500 | H11 |
| 6                      | .5                | 11.0                    | 9.3  | 7.5  | .005         | .005         | .250          | 385           | A6MT1100   | M13       | 15                      | 1            | 19.0 | 16.3       | 13.5 | .005          | .005          | .250  | 565       | A15H1900 | H16 |
| 6                      | .5                | 16.0                    | 13.6 | 11.2 | .005         | .005         | .250          | 425           | A6H1600    | H8        | 16                      | 1            | .300 | .300       | .05  | .05           | 1             | 115   | B16G30    | G3       |     |
| 6                      | .5                | 21.0                    | 17.0 | 14.0 | .005         | .005         | .250          | 480           | A6H2100    | H11       | 16                      | 1            | .750 | .750       | .1   | .1            | 1             | 175   | B16G100   | G3       |     |
| 6                      | .5                | 28.0                    | 23.0 | 19.0 | .005         | .005         | .250          | 565           | A6H2800    | H16       | 16                      | 1            | 3.0  | 2.8        | .25  | .15           | .1            | 1.5   | 265       | B16G300  | G9  |
| 7                      | 1                 | .500                    | .500 | .500 | .1           | .05          | 1             | 135           | B7G50      | G3        | 16                      | 1            | .5   | 2.1        | .20  | .005          | .05           | 1     | 115       | B18G30   | G3  |
| 7                      | 1                 | 1.0                     | 1.0  | 1.0  | .1           | .1           | 1             | 175           | B7G100     | G3        | 16                      | 1            | 5.0  | 5.0        | .2   | .15           | .1            | 1     | 175       | B18G75   | G3  |
| 7                      | .5                | 2.0                     | 2.0  | 2.0  | .2           | .1           | 1.5           | 195           | B7G200     | G5        | 16                      | .5           | 3.0  | 2.8        | .25  | .15           | .1            | 1     | 175       | B18G110  | G5  |
| 7                      | .5                | 3.0                     | 2.7  | 2.5  | .2           | .1           | 1.5           | 225           | B7G300     | G6        | 16                      | .5           | 4.5  | 4.0        | .35  | .005          | .005          | .250  | 325       | A18MT450 | M9  |
| 7                      | .5                | 5.0                     | 4.0  | 3.5  | .005         | .005         | .250          | 275           | A8MT500    | M6        | 16                      | .5           | 6.5  | 6.0        | .55  | .005          | .005          | .250  | 385       | A18MT650 | M13 |
| 7                      | .5                | 6.5                     | 5.2  | 4.0  | .3           | .1           | 1.5           | 300           | B8G650     | G9        | 16                      | .5           | 14.0 | 12.0       | 10.0 | .005          | .005          | .250  | 505       | A18H1400 | H11 |
| 7                      | .5                | 8.0                     | 6.5  | 5.0  | .005         | .005         | .250          | 335           | A8MT800    | M9        | 16                      | .5           | 18.0 | 15.5       | 13.0 | .005          | .005          | .250  | 565       | A18H1800 | H16 |
| 8                      | 1</               |                         |      |      |              |              |               |               |            |           |                         |              |      |            |      |               |               |       |           |          |     |

# SERIES A & B

| Nominal Output Voltage | Adj-<br>ust<br>±V | Output Current Amps. at |      |      | Regulation  |             | Ripple mV RMS | (\$)<br>Price | Model     | Case Size |
|------------------------|-------------------|-------------------------|------|------|-------------|-------------|---------------|---------------|-----------|-----------|
|                        |                   | 40°C 55°C 71°C          |      |      | Load<br>± % | Line<br>± % |               |               |           |           |
|                        |                   | .05                     | .05  | 1    | 115         | B24G30      | G3            |               |           |           |
| 24                     | 1                 | .300                    | .300 | .300 | .05         | .05         | 1             | 115           | B24G30    | G3        |
| 24                     | 1                 | .750                    | .750 | .750 | .1          | .05         | 1             | 160           | B24G75    | G3        |
| 24                     | 1                 | 1.1                     | 1.1  | 1.0  | .1          | .1          | 1.5           | 180           | B24G110   | G5        |
| 24                     | .5                | 1.7                     | 1.7  | 1.5  | .1          | .1          | 1.5           | 195           | B24G170   | G5        |
| 24                     | .5                | 2.1                     | 2.0  | 2.0  | .1          | .1          | 1.5           | 220           | B24G210   | G5        |
| 24                     | .5                | 2.1                     | 2.0  | 2.0  | .005        | .005        | .250          | 260           | A24MT210  | M6        |
| 24                     | .5                | 3.5                     | 3.0  | 2.5  | .15         | .1          | 1.5           | 280           | B24G350   | G9        |
| 24                     | .5                | 3.5                     | 3.0  | 2.5  | .005        | .005        | .250          | 335           | A24MT350  | M9        |
| 24                     | .5                | 5.0                     | 5.0  | 5.0  | .15         | .1          | 1.5           | 345           | B24G500   | G13       |
| 24                     | .5                | 5.5                     | 5.0  | 4.5  | .005        | .005        | .250          | 385           | A24MT550  | M13       |
| 24                     | .5                | 8.5                     | 7.2  | 5.9  | .005        | .005        | .250          | 450           | A24H850   | H8        |
| 24                     | .5                | 12.0                    | 10.5 | 9.0  | .005        | .005        | .250          | 505           | A24H1200  | H11       |
| 24                     | .5                | 15.0                    | 13.0 | 11.0 | .005        | .005        | .250          | 565           | A24H1500  | H16       |
| 25                     | 1                 | .300                    | .300 | .300 | .05         | .05         | 1             | 135           | B25G30    | G3        |
| 25                     | 1                 | .750                    | .750 | .750 | .1          | .05         | 1             | 165           | B25G75    | G3        |
| 25                     | 1                 | 1.1                     | 1.1  | 1.1  | .1          | .1          | 1.5           | 190           | B25G110   | G5        |
| 25                     | .5                | 1.7                     | 1.7  | 1.5  | .1          | .1          | 1.5           | 225           | B25G170   | G5        |
| 25                     | .5                | 2.1                     | 2.1  | 2.0  | .1          | .1          | 1.5           | 230           | B25G210   | G5        |
| 25                     | .5                | 3.5                     | 3.0  | 2.5  | .15         | .1          | 1.5           | 285           | B25G350   | G9        |
| 25                     | .5                | 5.0                     | 5.0  | 5.0  | .15         | .1          | 1.5           | 355           | B25G500   | G13       |
| 28                     | 1                 | .300                    | .300 | .300 | .05         | .05         | 1             | 135           | B28G30    | G3        |
| 28                     | 1                 | .500                    | .500 | .500 | .05         | .05         | 1             | 155           | B28G50    | G3        |
| 28                     | 1                 | .800                    | .800 | .800 | .1          | .05         | 1             | 165           | B28G80    | G5        |
| 28                     | 1                 | 1.1                     | 1.1  | 1.0  | .1          | .05         | 1             | 185           | B28G110   | G5        |
| 28                     | .5                | 1.8                     | 1.6  | 1.5  | .1          | .1          | 1.5           | 220           | B28G180   | G5        |
| 28                     | .5                | 2.1                     | 2.1  | 2.0  | .1          | .1          | 1.5           | 230           | B28G210   | G5        |
| 28                     | .5                | 2.1                     | 2.1  | 2.0  | .005        | .005        | .250          | 265           | A28MT210  | M6        |
| 28                     | .5                | 3.0                     | 2.7  | 2.5  | .15         | .1          | 1.5           | 275           | B28G300   | G9        |
| 28                     | .5                | 3.0                     | 2.7  | 2.5  | .005        | .005        | .250          | 310           | A28MT300  | M9        |
| 28                     | .5                | 5.0                     | 5.0  | 5.0  | .15         | .1          | 1.5           | 345           | B28G500   | G13       |
| 28                     | .5                | 5.0                     | 5.0  | 5.0  | .005        | .005        | .250          | 385           | A28MT500  | M13       |
| 28                     | .5                | 8.0                     | 6.8  | 5.6  | .005        | .005        | .250          | 450           | A28H800   | H8        |
| 28                     | .5                | 11.0                    | 9.5  | 8.0  | .005        | .005        | .250          | 505           | A28H1100  | H11       |
| 28                     | .5                | 14.0                    | 12.0 | 10.0 | .005        | .005        | .250          | 565           | A28H1400  | H16       |
| 30                     | 1                 | .300                    | .300 | .300 | .05         | .05         | 1             | 135           | B30GT30   | G3        |
| 30                     | 1                 | .500                    | .500 | .500 | .05         | .05         | 1             | 160           | B30GT50   | G3        |
| 30                     | 1                 | 1.1                     | 1.1  | 1.0  | .1          | .1          | 1             | 195           | B30GT110  | G5        |
| 30                     | .5                | 1.7                     | 1.6  | 1.5  | .1          | .1          | 1.5           | 220           | B30GT170  | G5        |
| 30                     | .5                | 2.1                     | 2.1  | 2.0  | .1          | .1          | 1.5           | 235           | B30G210   | G6        |
| 30                     | .5                | 2.1                     | 2.1  | 2.0  | .005        | .005        | .250          | 270           | A30MT210  | M6        |
| 30                     | .5                | 3.0                     | 2.7  | 2.5  | .005        | .005        | .250          | 315           | A30MT300  | M9        |
| 30                     | .5                | 5.0                     | 5.0  | 5.0  | .15         | .1          | 1.5           | 350           | B30GT500  | G13       |
| 30                     | .5                | 5.0                     | 5.0  | 5.0  | .005        | .005        | .250          | 385           | A30MT500  | M13       |
| 30                     | .5                | 7.5                     | 6.3  | 5.2  | .005        | .005        | .250          | 455           | A30H750   | H8        |
| 30                     | .5                | 10.0                    | 9.0  | 8.0  | .005        | .005        | .250          | 515           | A30H1000  | H11       |
| 30                     | .5                | 14.0                    | 12.0 | 10.0 | .005        | .005        | .250          | 580           | A30H1400  | H16       |
| 32                     | 1                 | .300                    | .300 | .300 | .05         | .05         | 1             | 135           | B32GT30   | G3        |
| 32                     | 1                 | .500                    | .500 | .500 | .05         | .05         | 1             | 160           | B32GT50   | G3        |
| 32                     | 1                 | 1.0                     | 1.0  | 1.0  | .1          | .1          | 1             | 195           | B32GT100  | G5        |
| 32                     | 1                 | 1.5                     | 1.5  | 1.5  | .1          | .1          | 1.5           | 230           | B32GT150  | G5        |
| 32                     | .5                | 1.8                     | 1.6  | 1.3  | .005        | .005        | .250          | 280           | A32MT180  | M6        |
| 32                     | .5                | 2.5                     | 2.1  | 1.7  | .005        | .005        | .250          | 335           | A32MT250  | M9        |
| 32                     | .5                | 9.0                     | 7.5  | 6.0  | .005        | .005        | .250          | 530           | A32HT900  | H11       |
| 34                     | 1                 | .300                    | .300 | .300 | .05         | .05         | 1             | 135           | B34GT30   | G3        |
| 34                     | 1                 | .800                    | .800 | .800 | .1          | .1          | 1             | 195           | B34GT80   | G5        |
| 34                     | 1                 | 1.5                     | 1.5  | 1.5  | .1          | .1          | 1.5           | 235           | B34GT150  | G5        |
| 35                     | 1                 | .100                    | .100 | .100 | .05         | .05         | 1             | 125           | B35GT10   | G3        |
| 35                     | 1                 | .300                    | .300 | .300 | .05         | .05         | 1             | 135           | B35GT30   | G3        |
| 35                     | 1                 | .500                    | .500 | .500 | .05         | .05         | 1             | 165           | B35GT50   | G3        |
| 35                     | 1                 | .600                    | .600 | .600 | .1          | .05         | 1             | 185           | B35GT60   | G3        |
| 35                     | 1                 | .800                    | .800 | .800 | .1          | .05         | 1.5           | 195           | B35GT80   | G5        |
| 36                     | 1                 | .100                    | .100 | .100 | .05         | .05         | 1             | 125           | B36GT10   | G3        |
| 36                     | 1                 | .500                    | .500 | .500 | .05         | .05         | 1             | 165           | B36GT50   | G3        |
| 36                     | 1                 | .800                    | .750 | .700 | .1          | .05         | 1             | 195           | B36GT80   | G5        |
| 36                     | .5                | 1.3                     | 1.3  | 1.3  | .1          | .1          | 1.5           | 220           | B36GT130  | G6        |
| 36                     | .5                | 1.3                     | 1.3  | 1.3  | .005        | .005        | .250          | 275           | A36MT130  | M6        |
| 36                     | .5                | 2.3                     | 2.0  | 1.8  | .1          | .1          | 1.5           | 310           | B36GT230  | G9        |
| 36                     | .5                | 2.3                     | 2.0  | 1.8  | .005        | .005        | .250          | 335           | A36MT230  | M9        |
| 36                     | .5                | 4.0                     | 3.2  | 2.5  | .005        | .005        | .250          | 395           | A36MT400  | M13       |
| 36                     | .5                | 8.0                     | 6.6  | 5.3  | .005        | .005        | .250          | 530           | A36HT800  | H11       |
| 36                     | .5                | 11.0                    | 9.1  | 7.2  | .005        | .005        | .250          | 645           | A36HT1100 | H16       |
| 40                     | 1                 | .200                    | .200 | .200 | .05         | .05         | 1             | 150           | B40GT20   | G3        |
| 40                     | 1                 | .400                    | .400 | .400 | .05         | .05         | 1             | 180           | B40GT40   | G3        |
| 40                     | 1                 | .500                    | .500 | .500 | .1          | .05         | 1             | 195           | B40GT50   | G5        |
| 40                     | 1                 | 1.0                     | 1.0  | 1.0  | .1          | .1          | 1.5           | 225           | B40GT100  | G6        |
| 45                     | 1                 | .200                    | .200 | .200 | .05         | .05         | 1             | 150           | B45GT20   | G3        |
| 45                     | 1                 | .400                    | .400 | .400 | .05         | .05         | 1             | 190           | B45GT40   | G3        |

| Nominal Output Voltage | Adj-<br>ust<br>±V | Output Current Amps. at |      |      | Regulation  |             | Ripple mV RMS | (\$)<br>Price | Model    | Case Size |
|------------------------|-------------------|-------------------------|------|------|-------------|-------------|---------------|---------------|----------|-----------|
|                        |                   | 40°C 55°C 71°C          |      |      | Load<br>± % | Line<br>± % |               |               |          |           |
|                        |                   | .05                     | .05  | 1    | 150         | B48GT20     | G3            |               |          |           |
| 48                     | 1                 | .200                    | .200 | .200 | .05         | .05         | 1             | 150           | B48GT40  | G3        |
| 48                     | 1                 | .400                    | .400 | .400 | .05         | .05         | 1             | 195           | B48GT60  | G5        |
| 48                     | 1                 | .600                    | .600 | .600 | .1          | .1          | 1             | 235           | B48GT110 | G6        |
| 48                     | 1                 | 1.1                     | 1.0  | .600 | .1          | .1          | 1.5           | 265           | A48MT120 | M6        |
| 48                     | 1                 | 1.2                     | 1.0  | .800 | .005        | .005        | .250          | 295           | A48MT180 | M9        |
| 48                     | 1                 | 1.8                     | 1.6  | 1.2  | .005        | .005        | .250          | 340           | A48MT300 | M13       |
| 48                     | 1                 | 3.0                     | 2.6  | 2.1  | .005        | .005        | .250          | 395           | A48HT600 | H11       |
| 48                     | 1                 | 6.0                     | 5.0  | 4.0  | .005        | .005        | .250          | 530           | A48HT800 | H16       |
| 48                     | 1                 | 8.5                     | 7.2  | 5.5  | .005        | .005        | .250          | 645           | A48HT850 | H16       |
| 50                     | 1                 | .400                    | .400 | .400 | .05         | .05         | 1             | 215           | B50GT40  | G3        |
| 50                     | 1                 | .500                    | .500 | .500 | .05         | .05         | 1             | 245           | B50GT50  | G5        |
| 50                     | 1                 | 1.0                     | .800 | .700 | .005        | .005        | .250          | 310           | A50MT100 | M6        |
| 50                     | 1                 | 1.5                     | 1.3  | 1.0  | .005        | .005        | .250          | 355           | A50MT150 | M9        |
| 50                     | 1                 | 2.7                     | 2.3  | 1.8  | .005        | .005        | .250          | 410           | A50MT270 | M13       |
| 50                     | 1                 | 6.0                     | 5.0  | 4.0  | .005        | .005        | .250          | 540           | A50HT600 | H11       |
| 50                     | 1                 | 8.0                     | 6.6  | 5.2  | .005        | .005        | .250          | 645           | A50HT800 | H16       |
| 55                     | 1                 | .500                    | .500 | .500 | .05         | .05         | 1             | 260           | B55GT50  | G5        |
| 60                     | 1                 | .200                    | .200 | .200 | .05         | .05         | 1             | 180           | B60GT20  | G3        |
| 60                     | 1                 | .300                    | .300 | .300 | .05         | .05         | 1             | 220           | B60GT30  | G3        |
| 60                     | 1                 | .400                    | .400 | .400 | .05         | .05         | 1             | 260           | B60GT40  | G5        |
| 60                     | 1                 | .850                    | .720 | .600 | .005        | .005        | .250          | 315           | A60MT85  | M6        |
| 60                     | 1                 | 1.2                     | 1.0  | .800 | .005        | .005        | .250          | 355           | A60MT120 | M9        |
| 60                     | 1                 | 2.5                     | 2.1  | 1.7  | .005        | .005        | .250          | 410           | A60MT250 | M13       |
| 60                     | 1                 | 5.0                     | 4.1  | 3.3  | .005        | .005        | .250          | 550           | A60HT500 | H11       |
| 60                     | 1                 | 7.0                     | 5.8  | 4.6  | .005        | .005        | .250          | 650           | A60HT700 | H16       |
| 65                     | 1                 | .300                    | .300 | .300 | .05         | .05         | 1             | 220           | B65GT30  | G3        |
| 70                     | 1                 | .100                    | .100 | .100 | .05         | .05         | 1             | 220           | B70GT10  | G3        |
| 70                     | 1                 | .300                    | .300 | .300 | .05         | .05         | 1             | 220           | B70GT30  | G3        |
| 75                     | 1                 | .050                    | .050 | .050 | .05         | .05         | 1             | 150           | B75GT05  | G3        |
| 75                     | 1                 | .200                    | .200 | .200 | .05         | .05         | 1             | 215           | B75GT20  | G3        |
| 75                     | 1                 | .600                    | .500 | .400 | .005        | .005        | .250          | 315           | A75MT60  | M6        |
| 75                     | 1                 | 1.0                     | .830 | .660 | .005        | .005        | .250          | 370           | A75MT100 | M9        |
| 75                     | 1                 | 2.0                     | 1.8  | 1.5  | .005        | .005        | .250          | 410           | A75MT200 | M13       |
| 75                     | 1                 | 4.0                     | 3.3  | 2.6  | .01         | .01         | 1             | 550           | A75HT400 | H11       |
| 75</                   |                   |                         |      |      |             |             |               |               |          |           |

*Acopian*

**NEW!**

## Acopian's most versatile 720 watt power supply...



For complete specifications, see pages 51-53.

### Featuring

- Constant Current Control
- Constant Voltage Control
- Can be paralleled for Current Share
- Output can be inhibited with TTL level
- Can be paralleled for N+1 Redundancy
- Wide Adjust models with ranges down to 0 Volts
- Programmable models with 0-10V control voltages
- Outputs to 50 VOLTS, 720 WATTS
- 5 Year Warranty

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**Low Profile****SWITCHING REGULATED (to 720 watts)  
(Power Factor Correction and Universal Input)**

AC-DC or DC-DC

*single output & wide adjust output*

- Shipped Within 6 Days
- UL60950, UL508, CE Certified
- Five Year Warranty

**STANDARD FEATURES**

- Universal input
- Power Factor Correction
- Constant voltage and constant current modes
- Voltage and current monitor terminals
- Voltage and current programming capabilities
- Short circuit and overload protection
- Thermal protection
- Low Profile
- No minimum load required
- Adjustable down to 0 volts ('Wide Adjust' models)
- Can be paralleled for increased current (option P)
- N+1 Redundancy (option N)
- Internal EMI Filter and RFI Shielding
- Pluggable connectors for input and control wiring
- Remote Sensing
- 'V ok' signal monitor
- 'Soft start' operation

**SPECIFICATIONS**

**Input Voltage:** 90-265 VAC, 49-420 Hz, single phase, or 110-350 Vdc. 208 VAC 3-phase is also available (see Options). AC input (maximum): 8A (WL7 case), 12A (WL9 case) DC input (maximum): 5.75A (WL7 case), 8.8A (WL9 case) DC input may be connected without regard to polarity.

**Inrush current:** Cold start, (thermistor limiter) 33A peak @ 115 VAC (typical); 65A peak @ 230 VAC (typical). (Not recommended for use on ground fault protected circuits.)

**Startup Time:** 800 ms (typical).

**Input Undervoltage:** An input of less than 90 VAC will not damage power supply.

**Power Factor:** 0.99 typical at 115 VAC, 60Hz and full load. Complies with EN61000-3-2.

**Regulation (in constant voltage mode):**

Line Regulation:  $\pm 0.05\%$  or 5 mV, whichever is greater. Load Regulation:  $\pm 0.05\%$  or 5 mV, whichever is greater.

**Regulation, Ripple (in constant current mode):**

Line Regulation:  $\pm 0.2\%$  or 30 mA.

Load Regulation:  $\pm 0.5\%$  or 100 mA.

Current Ripple: 0.5% rms.

**Regulation, Ripple (in 'N+1' or 'P' mode):**

Line Regulation:  $\pm 0.1\%$  or 50 mV, whichever is greater.

Load Regulation:  $\pm 0.1\%$  or 50 mV, whichever is greater.

Ripple: 2x rating in table.

**Ambient Operating Temperature:** 0 to +71°C.

**Temperature Coefficient (after 30 minute warm-up):**

Voltage mode:  $\pm 0.02\%/\text{C}$  (typical).

Current mode:  $\pm 0.1\%/\text{C}$  (typical).



**Drift (voltage mode or current mode):**  $\pm 0.1\%$  (typical) over 8 hours, after 30 minute warmup.

**Storage Temperature:** -40 to +85°C.

**Holdup Time:** 20 ms minimum with full load.

**Transient Response:** 300  $\mu$ s to return to  $\pm 1\%$  of output setting. Maximum of  $\pm 3\%$  output excursion following a load step change from 50% to 100%.

**Efficiency:** See table. (Typical, at 115 VAC, with full load.)

**Polarity:** Output is floating and may be used in either polarity.

**Remote Sensing:** Compensates up to 0.5 Vdc drop per output line (or within the limits of the output voltage adjustment range). (Wide Adjust models compensate up to 0.5 Vdc drop per output line.)

**Output Adjustment:** Voltage and current output adjustments are located on the front. Output adjustment may also be controlled by using remotely located potentiometers.

**Output Programming (Wide Adjust models):** The output voltage and current may be programmed from 0 to full rating by means of control voltage inputs of 0 to +10 Vdc (0 to +5Vdc for models with option "C5"). Voltage mode accuracy: 0.5%. Current mode accuracy: 3% for models with greater than 10 amps output current and 4% for models with less than 10 amps output current. Accuracy percentages do not apply below 5% of output rating.

**Voltage Monitor Terminal:** Permits remote monitoring of output voltage, stepped down by a ratio of 10:1 (for 3.3v to 90v models) or 100:1 (for 100v to 135v models). Accuracy is 0.5% of maximum rated output voltage.

**For models with 0-5v programming option "C5":**

Permits remote monitoring of output voltage, stepped down by a ratio of 10:1 (for 3.3v to 45v models) or 100:1 (for 48v to 135v models). Accuracy is 0.5% of maximum rated output voltage.

**Current Monitor Terminal:** For models with greater than 10 amps output current: permits remote monitoring of output current, stepped down by a ratio of 100 mV/Amp (accuracy is 3% of maximum rated output current). For models with less than 10 amps output current: permits remote monitoring of output current, stepped down by a ratio of 1000 mV/Amp (accuracy is 3% of maximum rated output current).

**For models with 0-5v programming option "C5":**

For models with greater than 45 amps output current: permits remote monitoring of output current, stepped down by a ratio of 10 mV/Amp (accuracy is 5% of maximum rated output current). For models with less than 45 amps output current: permits remote monitoring of output current, stepped down by a ratio 100 mV/Amp (accuracy is 3% of maximum rated output current).

**Overload/Short Circuit Protection:** A short or overload forces the power supply into constant current mode, with automatic recovery.

**Overvoltage Protection:** Latches power supply OFF, reset by momentarily removing AC input power. (Models with 'N' option reset automatically.)

**Thermal Protection:** Thermostat(s), self-resetting.

**Internal Failure Protection:** Provided by internal fuse.

**Output Inhibit:** Applying between +3 and +15 Vdc to the Inhibit terminal will disable the supply. 'Output Enable' is also available (see Options).

**V ok (Single Output Models):** When the power supply's output voltage is between -14% and +15% of the nominal output voltage, 'V ok' will be between +3 and +5 Vdc (high). When the output voltage is outside the -14%, +15% window, the 'V ok' voltage will go low (approx 0.5 Vdc). 'V ok' can source 1 mA or sink up to 5 mA.

**Output Indicator (DC on):** Green LED.

**Switching Frequency:** 110 kHz (typical).

**EMI:** Designed to meet FCC Part 15 and EN55022, Class A.

#### Dielectric Withstand Voltage      Isolation

|                         |          |         |
|-------------------------|----------|---------|
| <b>Input to output:</b> | 4242 Vdc | 300 Vdc |
| <b>Input to case:</b>   | 2121 Vdc | 300 Vdc |
| <b>Output to case:</b>  | 750 Vdc  | 300 Vdc |

**Cooling:** Forced-air cooled; air enters rear of power supply and exits from front cover. High Speed Fan noise rated at 48dB for 450w models and 54dB for 720w models.

**Mounting:** Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket. To mount from the power supply side of the mounting surface use Mounting Kit NP6, or for DIN rail mounting use Mounting Kit WL35DIN or WLH35DIN. See accessory Mounting Kits on page 91.

#### OPTIONS

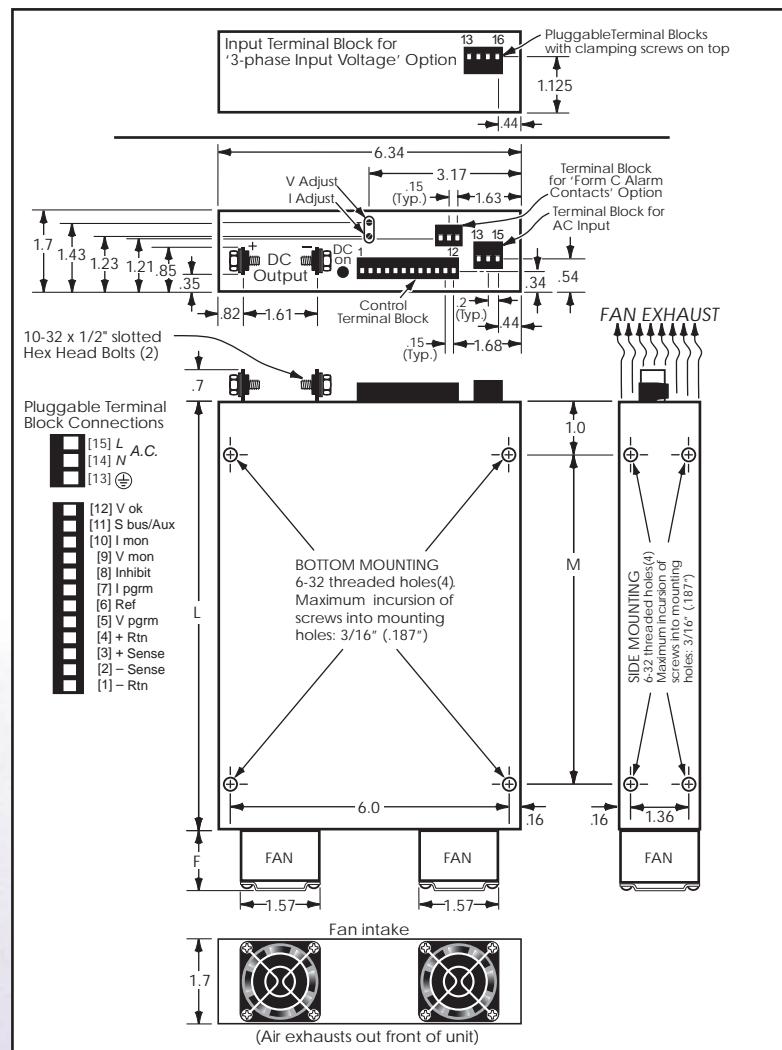
**Output Enable:** To enable the DC output, the Inhibit terminal must be tied to the -DC output. An open collector or contact closure can be used. To order, add suffix "E" to the model number. No increase in price.

**N+1 Redundancy (Single Output Models):** Allows up to 4 like models to be wired in N+1 redundancy. An internal isolation OR-ing diode is included in each power supply. Current share accuracy is  $\pm 5\%$  (typical). Power supply output current must be derated by 10%. This option includes the "P" (Parallelable) option and the "E1" (Output Blocking Protection Diode) option listed below, so if you specify the "N" option do not also specify the "P" or "E1" options. To order, add suffix "N" to the model number, and increase standard price by \$50.00.

**Parallelable (Single Output Models):** Allows up to 4 like models to be directly wired in parallel for increased current capability. Current share accuracy is  $\pm 5\%$  (typical). Power supply output current must be derated by 5%. This option is included in the "N" (N+1 Redundancy) option listed above, so if you specify the "N" option, do not also specify the "P" option. To order, add suffix "P" to the model number, and increase standard price by \$25.00.

**Output Blocking Protection Diode:** Used for battery charging applications. Derate output by 10%. This option is included in the "N" (N+1 Redundancy) option listed above, so if you specify the "N" option, do not also specify the "E1" option. To order, add suffix "E1" to the model number, and increase standard price by \$25.00.

**0-5v Programming (Wide Adjust Models - instead of the standard 0-10v Programming):** Output voltage and current of standard models may be programmed from 0 to full rating



All dimensions in inches.

| Case Size | L   | M   | F   | Approx. Weight |
|-----------|-----|-----|-----|----------------|
| WL7       | 7.7 | 5.5 | 1.0 | 3 lb. 6 oz.    |
| WL9       | 9.9 | 6.5 | 1.3 | 4 lb. 13 oz.   |

by means of control voltage inputs of 0 to +10Vdc. For programming with 0 to +5Vdc control voltages, add suffix "C5" to the model number, and increase standard price by \$40.00. Voltage mode accuracy: 1%. Current mode accuracy: 5%. Accuracy percentages do not apply below 5% of output rating.

**Thermostatically Controlled Fan:** Fan runs at reduced speed until maximum speed is required. To order, add suffix "D2" to the model number, and increase standard price by \$30.00.

**208 VAC 3-phase Input Voltage:** 170-240 VAC, 60-400 Hz. To order, add suffix "L4" to the model number, and increase standard price by \$115.00. (Not available with G7 option.)

**15Vdc Auxiliary Voltage:** +15Vdc  $\pm 2\%$  at 100mA. This option is not available with options "N" or "P". To order, add suffix "H5" to the model number, and increase standard price by \$15.00.

**Alarm with Relay Contacts (Single Output Models):** Form C alarm contacts (contacts rated at 175v, .5A) that change state when output reaches 10% below or 15% above nominal voltage. To order, add suffix "G7" to the model number, and increase standard price by \$50.00. (Not available with L4 option; 'V ok' signal is disabled with this option.)

**Moisture/Fungus Proofing:** Power supplies can be furnished with a moisture and fungus resistant varnish. To order, add suffix "F" to the model number, and increase standard price by \$50.00.

## Low Profile SWITCHING REGULATED (to 720 watts)

### SINGLE OUTPUT

| Nominal Output Voltage | Adjust Range $\pm$ V | Output Current Amps. at |      | Ripple mV (@ 25 MHz BW) |     | Effic. (Typ.) % | (\$ Price | Model      | Case Size |
|------------------------|----------------------|-------------------------|------|-------------------------|-----|-----------------|-----------|------------|-----------|
|                        |                      | 40°C                    | 71°C | RMS                     | P-P |                 |           |            |           |
| 3.3                    | .25                  | 40                      | 30   | 15                      | 50  | 61              | 615       | W3.3LT4000 | WL7       |
| 3.3                    | .25                  | 70                      | 49   | 15                      | 50  | 61              | 805       | W3.3LT7000 | WL9       |
| 5                      | .25                  | 40                      | 30   | 15                      | 50  | 64              | 615       | W5LT4000   | WL7       |
| 5                      | .25                  | 70                      | 49   | 15                      | 50  | 64              | 805       | W5LT7000   | WL9       |
| 6                      | .25                  | 40                      | 30   | 15                      | 50  | 65              | 615       | W6LT4000   | WL7       |
| 6                      | .25                  | 68                      | 47.6 | 15                      | 50  | 65              | 805       | W6LT6800   | WL9       |
| 7                      | .5                   | 40                      | 29   | 15                      | 50  | 65              | 615       | W7LT4000   | WL7       |
| 7                      | .5                   | 66                      | 46.2 | 15                      | 50  | 65              | 805       | W7LT6600   | WL9       |
| 8                      | .5                   | 39                      | 28   | 30                      | 100 | 67              | 615       | W8LT3900   | WL7       |
| 8                      | .5                   | 64                      | 44.8 | 30                      | 100 | 67              | 805       | W8LT6400   | WL9       |
| 9                      | .5                   | 38.8                    | 27.2 | 30                      | 100 | 67              | 615       | W9LT3880   | WL7       |
| 9                      | .5                   | 62                      | 43.4 | 30                      | 100 | 67              | 805       | W9LT6200   | WL9       |
| 10                     | .5                   | 37.5                    | 26.3 | 30                      | 100 | 68              | 615       | W10LT3750  | WL7       |
| 10                     | .5                   | 60                      | 42   | 30                      | 100 | 68              | 805       | W10LT6000  | WL9       |
| 12                     | 1                    | 37.5                    | 26.3 | 30                      | 100 | 73              | 615       | W12LT3750  | WL7       |
| 12                     | 1                    | 60                      | 42   | 30                      | 100 | 73              | 805       | W12LT6000  | WL9       |
| 13                     | 1                    | 34.6                    | 24.2 | 30                      | 100 | 73              | 615       | W13LT3460  | WL7       |
| 13                     | 1                    | 55.4                    | 38.8 | 30                      | 100 | 73              | 805       | W13LT5540  | WL9       |
| 14                     | 1                    | 32.1                    | 22.5 | 30                      | 100 | 73              | 615       | W14LT3210  | WL7       |
| 14                     | 1                    | 51.4                    | 35.9 | 30                      | 100 | 73              | 805       | W14LT5140  | WL9       |
| 15                     | 1                    | 30                      | 21   | 30                      | 100 | 73              | 615       | W15LT3000  | WL7       |
| 15                     | 1                    | 48                      | 33.6 | 30                      | 100 | 73              | 805       | W15LT4800  | WL9       |
| 16                     | 1                    | 28.1                    | 19.7 | 30                      | 100 | 73              | 615       | W16LT2810  | WL7       |
| 16                     | 1                    | 45                      | 31.5 | 30                      | 100 | 73              | 805       | W16LT4500  | WL9       |
| 18                     | 1                    | 25                      | 17.5 | 30                      | 100 | 75              | 615       | W18LT2500  | WL7       |
| 18                     | 1                    | 40                      | 28   | 30                      | 100 | 75              | 805       | W18LT4000  | WL9       |
| 20                     | 1                    | 22.5                    | 15.8 | 30                      | 100 | 76              | 615       | W20LT2250  | WL7       |
| 20                     | 1                    | 36                      | 25.2 | 30                      | 100 | 76              | 805       | W20LT3600  | WL9       |
| 22                     | 1                    | 20.5                    | 14.4 | 30                      | 100 | 76              | 615       | W22LT2050  | WL7       |
| 22                     | 1                    | 32.7                    | 22.9 | 30                      | 100 | 76              | 805       | W22LT3270  | WL9       |
| 24                     | 1                    | 18.8                    | 13.2 | 30                      | 100 | 78              | 615       | W24LT1880  | WL7       |
| 24                     | 1                    | 30                      | 21   | 30                      | 100 | 78              | 805       | W24LT3000  | WL9       |
| 25                     | 1                    | 18                      | 12.6 | 30                      | 100 | 78              | 615       | W25LT1800  | WL7       |
| 25                     | 1                    | 28.8                    | 20.2 | 30                      | 100 | 78              | 805       | W25LT2880  | WL9       |
| 26                     | 1                    | 17.3                    | 12.1 | 30                      | 100 | 78              | 615       | W26LT1730  | WL7       |
| 26                     | 1                    | 27.7                    | 19.4 | 30                      | 100 | 78              | 805       | W26LT2770  | WL9       |
| 28                     | 1                    | 16                      | 11.2 | 30                      | 100 | 78              | 615       | W28LT1600  | WL7       |
| 28                     | 1                    | 25.7                    | 18   | 30                      | 100 | 78              | 805       | W28LT2570  | WL9       |
| 30                     | 1                    | 15                      | 10.5 | 45                      | 150 | 78              | 615       | W30LT1500  | WL7       |
| 30                     | 1                    | 24                      | 16.8 | 45                      | 150 | 78              | 805       | W30LT2400  | WL9       |

| Nominal Output Voltage | Adjust Range $\pm$ V | Output Current Amps. at |      | Ripple mV (@ 25 MHz BW) |     | Effic. (Typ.) % | (\$ Price | Model     | Case Size |
|------------------------|----------------------|-------------------------|------|-------------------------|-----|-----------------|-----------|-----------|-----------|
|                        |                      | 40°C                    | 71°C | RMS                     | P-P |                 |           |           |           |
| 32                     | 1                    | 14                      | 9.8  | 45                      | 150 | 78              | 615       | W32LT1400 | WL7       |
| 32                     | 1                    | 22.5                    | 15.8 | 45                      | 150 | 78              | 805       | W32LT2250 | WL9       |
| 34                     | 1                    | 13.2                    | 9.3  | 45                      | 150 | 78              | 615       | W34LT1320 | WL7       |
| 34                     | 1                    | 21.2                    | 14.8 | 45                      | 150 | 78              | 805       | W34LT2120 | WL9       |
| 36                     | 1                    | 12.5                    | 8.8  | 45                      | 150 | 78              | 615       | W36LT1250 | WL7       |
| 36                     | 1                    | 20                      | 14   | 45                      | 150 | 78              | 805       | W36LT2000 | WL9       |
| 38                     | 1                    | 11.8                    | 8.3  | 45                      | 150 | 78              | 615       | W38LT1180 | WL7       |
| 38                     | 1                    | 18.9                    | 13.2 | 45                      | 150 | 78              | 805       | W38LT1890 | WL9       |
| 40                     | 1                    | 11.3                    | 7.9  | 45                      | 150 | 79              | 615       | W40LT1130 | WL7       |
| 40                     | 1                    | 18                      | 12.6 | 45                      | 150 | 79              | 805       | W40LT1800 | WL9       |
| 42                     | 1                    | 10.7                    | 7.5  | 45                      | 150 | 79              | 615       | W42LT1070 | WL7       |
| 42                     | 1                    | 17.1                    | 12   | 45                      | 150 | 79              | 805       | W42LT1710 | WL9       |
| 45                     | 1                    | 10                      | 7    | 45                      | 150 | 79              | 615       | W45LT1000 | WL7       |
| 45                     | 1                    | 16                      | 11.2 | 45                      | 150 | 79              | 805       | W45LT1600 | WL9       |
| 48                     | 1                    | 9.4                     | 6.6  | 45                      | 150 | 79              | 615       | W48LT940  | WL7       |
| 48                     | 1                    | 15                      | 10.5 | 45                      | 150 | 79              | 805       | W48LT1500 | WL9       |
| 50                     | 1                    | 9                       | 6.3  | 44                      | 150 | 79              | 615       | W50LT900  | WL7       |
| 50                     | 1                    | 14.4                    | 10   | 44                      | 150 | 79              | 805       | W50LT1440 | WL9       |
| 55                     | 1                    | 8.2                     | 5.7  | 44                      | 150 | 79              | 615       | W55LT820  | WL7       |
| 55                     | 1                    | 13.1                    | 9.2  | 44                      | 150 | 79              | 805       | W55LT1310 | WL9       |
| 60                     | 1                    | 7.5                     | 5.3  | 44                      | 150 | 79              | 615       | W60LT750  | WL7       |
| 60                     | 1                    | 12                      | 8.4  | 44                      | 150 | 79              | 805       | W60LT1200 | WL9       |
| 70                     | 1                    | 6.4                     | 4.5  | 66                      | 225 | 79              | 615       | W70LT640  | WL7       |
| 70                     | 1                    | 10.3                    | 7.2  | 66                      | 225 | 79              | 805       | W70LT1030 | WL9       |
| 75                     | 1                    | 6                       | 4.2  | 66                      | 225 | 79              | 615       | W75LT600  | WL7       |
| 75                     | 1                    | 9.6                     | 6.7  | 66                      | 225 | 79              | 805       | W75LT960  | WL9       |
| 80                     | 1                    | 5.6                     | 3.9  | 66                      | 225 | 79              | 615       | W80LT560  | WL7       |
| 80                     | 1                    | 9                       | 6.3  | 66                      | 225 | 79              | 805       | W80LT900  | WL9       |
| 90                     | 1                    | 5                       | 3.5  | 66                      | 225 | 79              | 615       | W90LT500  | WL7       |
| 90                     | 1                    | 8                       | 5.6  | 66                      | 225 | 79              | 805       | W90LT800  | WL9       |
| 100                    | 1                    | 4.5                     | 3.2  | 88                      | 300 | 79              | 615       | W100LT450 | WL7       |
| 100                    | 1                    | 7.2                     | 5    | 88                      | 300 | 79              | 805       | W100LT720 | WL9       |
| 110                    | 1                    | 4.1                     | 2.9  | 88                      | 300 | 79              | 615       | W110LT410 | WL7       |
| 110                    | 1                    | 6.5                     | 4.5  | 88                      | 300 | 79              | 805       | W110LT650 | WL9       |
| 120                    | 1                    | 3.8                     | 2.7  | 88                      | 300 | 79              | 615       | W120LT380 | WL7       |
| 120                    | 1                    | 6                       | 4.2  | 88                      | 300 | 79              | 805       | W120LT600 | WL9       |
| 125                    | 1                    | 3.6                     | 2.5  | 88                      | 300 | 79              | 615       | W125LT360 | WL7       |
| 125                    | 1                    | 5.7                     | 4    | 88                      | 300 | 79              | 805       | W125LT570 | WL9       |
| 135                    | 1                    | 3.3                     | 2.3  | 103                     | 350 | 79              | 615       | W135LT330 | WL7       |
| 135                    | 1                    | 5.3                     | 3.7  | 103                     | 350 | 79              | 805       | W135LT530 | WL9       |

## Low Profile SWITCHING REGULATED (to 720 watts)

### WIDE ADJUST OUTPUT

| Output Voltage Range | Output Current Amps. at |      | Ripple mV (@ 25 MHz BW) |     | Effic. (Typ.) %* | (\$)<br>Price | Model      | Case Size |
|----------------------|-------------------------|------|-------------------------|-----|------------------|---------------|------------|-----------|
|                      | 40°C                    | 71°C | RMS                     | P-P |                  |               |            |           |
| 0-5                  | 40                      | 31   | 15                      | 50  | 64               | 640           | Y05LX4000  | WL7       |
| 0-5                  | 70                      | 49   | 15                      | 50  | 64               | 830           | Y05LX7000  | WL9       |
| 0-8                  | 40                      | 28   | 30                      | 100 | 67               | 640           | Y08LX4000  | WL7       |
| 0-8                  | 64                      | 44   | 30                      | 100 | 67               | 830           | Y08LX6400  | WL9       |
| 0-9                  | 38                      | 27   | 30                      | 100 | 67               | 640           | Y09LX3800  | WL7       |
| 0-9                  | 62                      | 43   | 30                      | 100 | 67               | 830           | Y09LX6200  | WL9       |
| 0-10                 | 37                      | 26   | 30                      | 100 | 68               | 640           | Y010LX3700 | WL7       |
| 0-10                 | 60                      | 42   | 30                      | 100 | 68               | 830           | Y010LX6000 | WL9       |
| 0-12                 | 37                      | 26   | 30                      | 100 | 68               | 640           | Y012LX3700 | WL7       |
| 0-12                 | 60                      | 42   | 30                      | 100 | 68               | 830           | Y012LX6000 | WL9       |
| 0-14                 | 32                      | 22   | 30                      | 100 | 70               | 640           | Y014LX3200 | WL7       |
| 0-14                 | 51                      | 35   | 30                      | 100 | 70               | 830           | Y014LX5100 | WL9       |
| 0-15                 | 30                      | 21   | 30                      | 100 | 70               | 640           | Y015LX3000 | WL7       |
| 0-15                 | 48                      | 34   | 30                      | 100 | 70               | 830           | Y015LX4800 | WL9       |
| 0-16                 | 28                      | 20   | 30                      | 100 | 70               | 640           | Y016LX2800 | WL7       |
| 0-16                 | 45                      | 31   | 30                      | 100 | 70               | 830           | Y016LX4500 | WL9       |
| 0-18                 | 25                      | 18   | 30                      | 100 | 71               | 640           | Y018LX2500 | WL7       |
| 0-18                 | 40                      | 28   | 30                      | 100 | 71               | 830           | Y018LX4000 | WL9       |
| 0-22                 | 20                      | 14   | 30                      | 100 | 73               | 640           | Y022LX2000 | WL7       |
| 0-22                 | 32                      | 22   | 30                      | 100 | 73               | 830           | Y022LX3200 | WL9       |
| 0-24                 | 18                      | 13   | 30                      | 100 | 73               | 640           | Y024LX1800 | WL7       |
| 0-24                 | 30                      | 21   | 30                      | 100 | 73               | 830           | Y024LX3000 | WL9       |
| 0-25                 | 18                      | 13   | 30                      | 100 | 73               | 640           | Y025LX1800 | WL7       |
| 0-25                 | 28.8                    | 20   | 30                      | 100 | 73               | 830           | Y025LX2880 | WL9       |
| 0-30                 | 15                      | 11   | 45                      | 150 | 75               | 640           | Y030LX1500 | WL7       |
| 0-30                 | 24                      | 16   | 45                      | 150 | 75               | 830           | Y030LX2400 | WL9       |
| 0-35                 | 12.8                    | 9    | 45                      | 150 | 75               | 640           | Y035LX1280 | WL7       |
| 0-35                 | 20.5                    | 14   | 45                      | 150 | 75               | 830           | Y035LX2050 | WL9       |
| 0-36                 | 12                      | 8    | 45                      | 150 | 75               | 640           | Y036LX1200 | WL7       |
| 0-36                 | 20                      | 14   | 45                      | 150 | 75               | 830           | Y036LX2000 | WL9       |
| 0-40                 | 11                      | 8    | 45                      | 150 | 76               | 640           | Y040LX1100 | WL7       |
| 0-40                 | 18                      | 12   | 45                      | 150 | 76               | 830           | Y040LX1800 | WL9       |
| 0-50                 | 9                       | 6    | 45                      | 150 | 76               | 640           | Y050LX900  | WL7       |
| 0-50                 | 15                      | 10   | 45                      | 150 | 76               | 830           | Y050LX1500 | WL9       |
| 0-60                 | 7.5                     | 5.3  | 45                      | 150 | 79               | 640           | Y060LX750  | WL7       |
| 0-60                 | 12                      | 8.4  | 45                      | 150 | 79               | 830           | Y060LX1200 | WL9       |
| 0-70                 | 6.4                     | 4.5  | 66                      | 225 | 79               | 640           | Y070LX640  | WL7       |
| 0-70                 | 10.3                    | 7.2  | 66                      | 225 | 79               | 830           | Y070LX1030 | WL9       |
| 0-75                 | 6                       | 4.2  | 66                      | 225 | 79               | 640           | Y075LX600  | WL7       |
| 0-75                 | 9.6                     | 6.7  | 66                      | 225 | 79               | 830           | Y075LX960  | WL9       |
| 0-80                 | 5.6                     | 3.9  | 66                      | 225 | 79               | 640           | Y080LX560  | WL7       |
| 0-80                 | 9                       | 6.3  | 66                      | 225 | 79               | 830           | Y080LX900  | WL9       |
| 0-90                 | 5                       | 3.5  | 66                      | 225 | 79               | 640           | Y090LX500  | WL7       |
| 0-90                 | 8                       | 5.6  | 66                      | 225 | 79               | 830           | Y090LX800  | WL9       |
| 0-100                | 4.5                     | 3.2  | 88                      | 300 | 79               | 640           | Y0100LX450 | WL7       |
| 0-100                | 7.2                     | 5    | 88                      | 300 | 79               | 830           | Y0100LX720 | WL9       |
| 0-110                | 4.1                     | 2.9  | 88                      | 300 | 79               | 640           | Y0110LX410 | WL7       |
| 0-110                | 6.5                     | 4.5  | 88                      | 300 | 79               | 830           | Y0110LX650 | WL9       |
| 0-120                | 3.8                     | 2.7  | 88                      | 300 | 79               | 640           | Y0120LX380 | WL7       |
| 0-120                | 6                       | 4.2  | 88                      | 300 | 79               | 830           | Y0120LX600 | WL9       |
| 0-125                | 3.6                     | 2.5  | 88                      | 300 | 79               | 640           | Y0125LX360 | WL7       |
| 0-125                | 5.7                     | 4    | 88                      | 300 | 79               | 830           | Y0125LX570 | WL9       |
| 0-135                | 3.3                     | 2.3  | 103                     | 350 | 79               | 640           | Y0135LX330 | WL7       |
| 0-135                | 5.3                     | 3.7  | 103                     | 350 | 79               | 830           | Y0135LX530 | WL9       |

## Gold Box

# SWITCHING REGULATED

AC-DC  
single output & wide adjust output

- Shipped Within 9 Days
- U.L. Recognized (3.3v to 48v models)
- Five Year Warranty

**These ruggedly-built power supplies** have tightly regulated outputs and low output ripple. Features include status indicator lights, overvoltage protection, EMI filtering, 'soft start' operation and provision for external output inhibiting (TTL-compatible).

### SPECIFICATIONS

**Input Voltage:** 90-132 VAC, 49-61 Hz, single phase. For models W12GT95, W15GT78, W24GT50, W28GT42 and W48GT25, the use of a 30A line is recommended and when operating on 50 Hz input, derate output by 5%.

**Startup Time:** 400 mS maximum (250 mS typical).

**Input Undervoltage:** An input of less than 90 VAC (180 VAC with “-230” option) will not damage power supply.

**Load Regulation:**

3.3v to 48v Models:  $\pm 0.05\%$  3.3v to 48v Models:  $\pm 0.05\%$   
50v to 125v Models:  $\pm 0.1\%$  50v to 125v Models:  $\pm 0.1\%$

**Remote Voltage Programming:** The output voltage may be controlled by means of an external potentiometer (2500 ohms for single output models; 50,000 ohms for wide adjust output models).

**Polarity:** Output is floating and may be used in either polarity.

**Drift:**  $\pm 0.1\%$  typical over 8 hours, after 30 minute warmup.

**Temperature Coefficient:**  $\pm 0.02\%/\text{°C}$  (Typical).

**Holdup Time:** 33 mS minimum (At nominal input voltage, with full load).

**Transient Response:** 300  $\mu\text{S}$  to return to  $\pm 1\%$  of output setting. Maximum of  $\pm 3\%$  output excursion following a load step change from 50% to 100%.

**Remote Sensing:** Compensates up to 0.5 volt drop per output line, within the limits of the output voltage adjustment range.

**Overload/Short Circuit Protection:** Foldback current limiting with automatic recovery.

**Overvoltage Protection:** Latches power supply OFF, reset by momentarily removing AC input power. Red indicator lights to indicate latchup.

**Output Inhibit:** Applying between +2 and +30 Vdc to the inhibit terminal will disable the supply (TTL compatible).

**Thermal Protection:** Thermostat, self-resetting.



**Efficiency:** See table. (Typical, at nominal input voltage, with full load.)

**Ambient Operating Temperature:** 0 to +71°C.

**Storage Temperature:** -40 to +85°C.

**Terminal Strip Cover:** Clips on.

**Cooling:** Forced-air cooled (ball bearing fan); air enters back of power supply and exits from front.

**Switching Frequency:** 55 kHz (Typical).

**Dielectric Withstand Voltage:**

**Input to output:** 1400 Vdc

**Input to case:** 1400 Vdc

**Output to case:** 400 Vdc

**Mounting:** Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket, or they may be used on a test bench or tabletop. To mount from the power supply side of the mounting surface or for DIN rail mounting, see accessory Mounting Kits on page 91.

### OPTIONS

**230 Volt Input:** For applications where operation on an input of 180-264 VAC, 49-61 Hz, is desired. To order, add suffix “-230” to the model number and \$40.00 to the standard price. The “-230” option requires two additional days.

### WIDE ADJUST OUTPUT MODELS

| Output Voltage Range | Output Current Amps. at |      | Ripple mV (@ 25 MHz BW) |     | Eff. (Typ.) %** | (\$)<br>Price | Model     | Case Size |
|----------------------|-------------------------|------|-------------------------|-----|-----------------|---------------|-----------|-----------|
|                      | 40°C                    | 71°C | RMS                     | P-P |                 |               |           |           |
| 5-15                 | 23                      | 16   | 15                      | 100 | 76              | 775           | W515MT23  | WM6       |
|                      | 36                      | 25   | 15                      | 100 | 76              | 980           | W515MT36  | WM9       |
|                      | 54                      | 38   | 15                      | 100 | 76              | 1090          | W515GT54  | WG7       |
| 5-30                 | 13                      | 9    | 25                      | 150 | 81              | 775           | W530MT13  | WM6       |
|                      | 19                      | 13   | 25                      | 150 | 81              | 980           | W530MT19  | WM9       |
|                      | 30                      | 20   | 25                      | 150 | 81              | 1090          | W530GT30  | WG7       |
| 15-50                | 8                       | 5    | 25                      | 150 | 82              | 775           | W1550MT8  | WM6       |
|                      | 12                      | 8.5  | 25                      | 150 | 82              | 980           | W1550MT12 | WM9       |
|                      | 18                      | 12   | 25                      | 150 | 82              | 1090          | W1550GT18 | WG7       |

\*\* At maximum output voltage

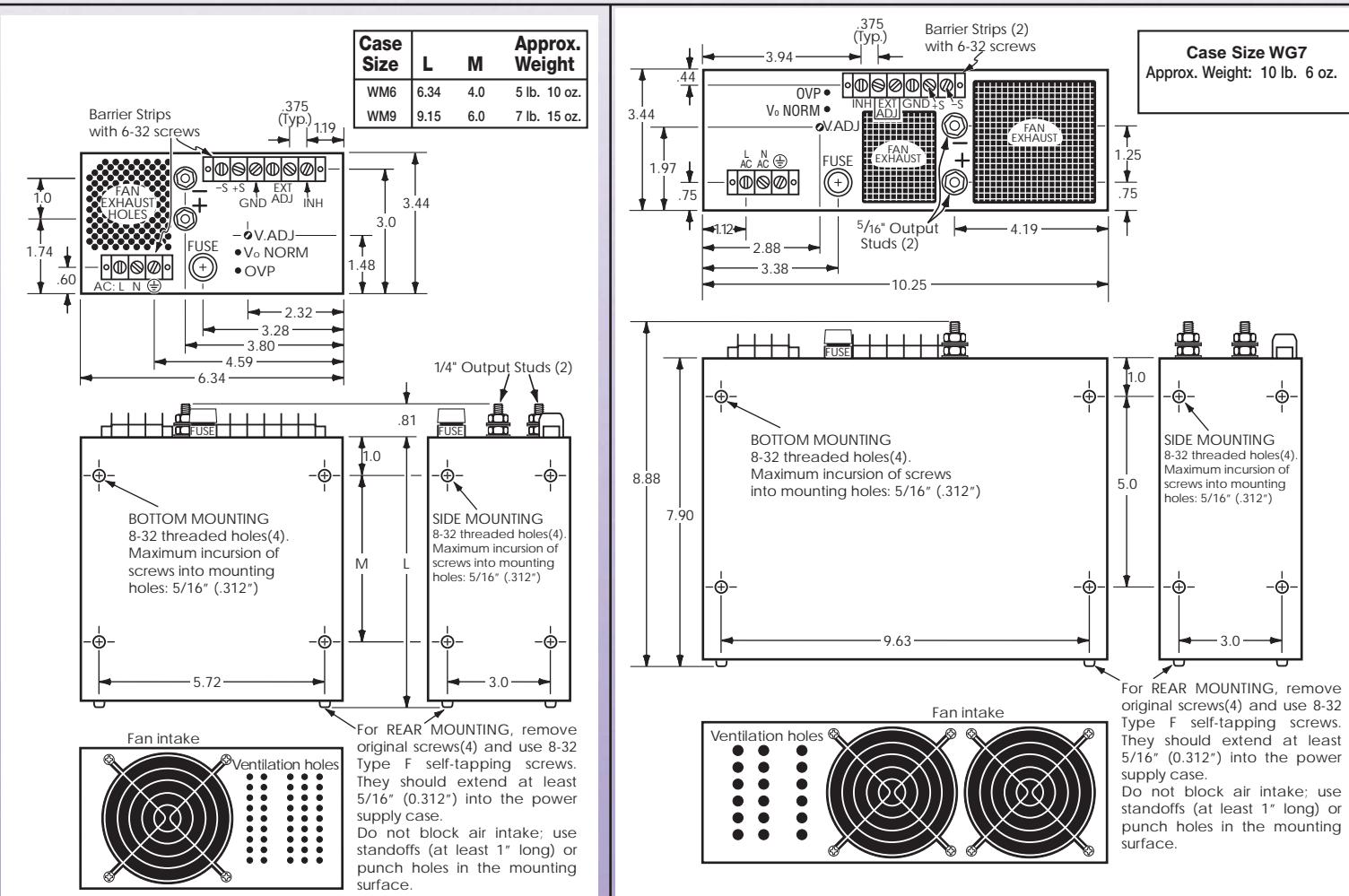
\*or 5 mV, whichever is greater

# SINGLE OUTPUT MODELS

| Nominal Output Voltage | Adjust Range $\pm$ V | Output Current Amps. at |      | Ripple mV (@ 25 MHz BW) |     | Effic. (Typ.) % | (\$) | Model     | Case Size |
|------------------------|----------------------|-------------------------|------|-------------------------|-----|-----------------|------|-----------|-----------|
|                        |                      | 40°C                    | 71°C | RMS                     | P-P |                 |      |           |           |
| 3.3                    | .25                  | 65                      | 45   | 13                      | 80  | 65              | 715  | W3.3MT65  | WM6       |
| 3.3                    | .25                  | 100                     | 70   | 13                      | 80  | 65              | 925  | W3.3MT100 | WM9       |
| 3.3                    | .25                  | 150                     | 105  | 13                      | 80  | 65              | 1030 | W3.3GT150 | WG7       |
| 5                      | .25                  | 65                      | 45   | 13                      | 80  | 70              | 715  | W5MT65    | WM6       |
| 5                      | .25                  | 100                     | 70   | 13                      | 80  | 70              | 925  | W5MT100   | WM9       |
| 5                      | .25                  | 150                     | 105  | 13                      | 80  | 70              | 1030 | W5GT150   | WG7       |
| 6                      | .25                  | 56                      | 39   | 13                      | 80  | 71              | 715  | W6MT56    | WM6       |
| 6                      | .25                  | 86                      | 60   | 13                      | 80  | 71              | 925  | W6MT86    | WM9       |
| 8                      | .25                  | 41                      | 28   | 15                      | 100 | 73              | 715  | W8MT41    | WM6       |
| 8                      | .25                  | 63                      | 44   | 15                      | 100 | 73              | 925  | W8MT63    | WM9       |
| 9                      | .25                  | 37                      | 26   | 15                      | 100 | 73              | 715  | W9MT37    | WM6       |
| 9                      | .25                  | 57                      | 40   | 15                      | 100 | 73              | 925  | W9MT57    | WM9       |
| 10                     | .5                   | 34                      | 24   | 15                      | 100 | 74              | 715  | W10MT34   | WM6       |
| 10                     | .5                   | 52                      | 36   | 15                      | 100 | 74              | 925  | W10MT52   | WM9       |
| 12                     | .5                   | 29                      | 20   | 15                      | 100 | 76              | 715  | W12MT29   | WM6       |
| 12                     | .5                   | 45                      | 32   | 15                      | 100 | 76              | 925  | W12MT45   | WM9       |
| 12                     | .5                   | 68                      | 47   | 15                      | 100 | 76              | 1030 | W12GT68   | WG7       |
| 12                     | .5                   | 95                      | 66   | 15                      | 100 | 76              | 1135 | W12GT95   | WG7       |
| 15                     | .5                   | 23                      | 16   | 15                      | 100 | 76              | 715  | W15MT23   | WM6       |
| 15                     | .5                   | 36                      | 25   | 15                      | 100 | 76              | 925  | W15MT36   | WM9       |
| 15                     | .5                   | 54                      | 38   | 15                      | 100 | 76              | 1030 | W15GT54   | WG7       |
| 15                     | .5                   | 78                      | 54   | 15                      | 100 | 76              | 1135 | W15GT78   | WG7       |
| 18                     | .5                   | 20                      | 14   | 15                      | 100 | 78              | 715  | W18MT20   | WM6       |
| 18                     | .5                   | 31                      | 22   | 15                      | 100 | 78              | 925  | W18MT31   | WM9       |
| 20                     | 1                    | 19                      | 13   | 15                      | 100 | 79              | 715  | W20MT19   | WM6       |
| 20                     | 1                    | 28                      | 19   | 15                      | 100 | 79              | 925  | W20MT28   | WM9       |
| 24                     | 1                    | 16                      | 11   | 15                      | 100 | 81              | 715  | W24MT16   | WM6       |
| 24                     | 1                    | 25                      | 18   | 15                      | 100 | 81              | 925  | W24MT25   | WM9       |
| 24                     | 1                    | 38                      | 26   | 15                      | 100 | 81              | 1030 | W24GT38   | WG7       |
| 24                     | 1                    | 50                      | 35   | 15                      | 100 | 81              | 1135 | W24GT50   | WG7       |
| 28                     | 1                    | 14                      | 10   | 15                      | 100 | 81              | 715  | W28MT14   | WM6       |
| 28                     | 1                    | 21                      | 15   | 15                      | 100 | 81              | 925  | W28MT21   | WM9       |
| 28                     | 1                    | 32                      | 22   | 15                      | 100 | 81              | 1030 | W28GT32   | WG7       |
| 28                     | 1                    | 42                      | 29   | 15                      | 100 | 81              | 1135 | W28GT42   | WG7       |
| 30                     | 1                    | 13                      | 9    | 25                      | 150 | 81              | 715  | W30MT13   | WM6       |
| 30                     | 1                    | 19                      | 13   | 25                      | 150 | 81              | 925  | W30MT19   | WM9       |
| 36                     | 1                    | 10                      | 7    | 25                      | 150 | 81              | 715  | W36MT10   | WM6       |
| 36                     | 1                    | 15                      | 11   | 25                      | 150 | 81              | 925  | W36MT15   | WM9       |

| Nominal Output Voltage | Adjust Range $\pm$ V | Output Current Amps. at |      | Ripple mV (@ 25 MHz BW) |     | Effic. (Typ.) % | (\$) | Model     | Case Size |
|------------------------|----------------------|-------------------------|------|-------------------------|-----|-----------------|------|-----------|-----------|
|                        |                      | 40°C                    | 71°C | RMS                     | P-P |                 |      |           |           |
| 40                     | 1                    | 9                       | 6    | 25                      | 150 | 82              | 715  | W40MT9    | WM6       |
| 40                     | 1                    | 14                      | 10   | 25                      | 150 | 82              | 925  | W40MT14   | WM9       |
| 48                     | 1                    | 8                       | 5    | 25                      | 150 | 82              | 715  | W48MT8    | WM6       |
| 48                     | 1                    | 12                      | 8.5  | 25                      | 150 | 82              | 925  | W48MT12   | WM9       |
| 48                     | 1                    | 19                      | 13   | 25                      | 150 | 82              | 1030 | W48GT19   | WG7       |
| 48                     | 1                    | 25                      | 17   | 25                      | 150 | 82              | 1135 | W48GT25   | WG7       |
| 50*                    | 1                    | 7.7                     | 5.4  | 50                      | 150 | 80              | 715  | W50MT7.7  | WM6       |
| 50*                    | 1                    | 12                      | 8.4  | 50                      | 150 | 80              | 925  | W50MT12   | WM9       |
| 50*                    | 1                    | 18.2                    | 12.8 | 50                      | 150 | 80              | 1030 | W50GT18.2 | WG7       |
| 55*                    | 1                    | 7                       | 4.9  | 50                      | 150 | 80              | 715  | W55MT7    | WM6       |
| 55*                    | 1                    | 10.9                    | 7.6  | 50                      | 150 | 80              | 925  | W55MT10.9 | WM9       |
| 55*                    | 1                    | 16.6                    | 11.6 | 50                      | 150 | 80              | 1030 | W55GT16.6 | WG7       |
| 60*                    | 1                    | 6.4                     | 4.5  | 50                      | 150 | 80              | 715  | W60MT6.4  | WM6       |
| 60*                    | 1                    | 10                      | 7.0  | 50                      | 150 | 80              | 925  | W60MT10   | WM9       |
| 60*                    | 1                    | 15.2                    | 10.6 | 50                      | 150 | 80              | 1030 | W60GT15.2 | WG7       |
| 70*                    | 1                    | 5.5                     | 3.8  | 67                      | 250 | 80              | 715  | W70MT5.5  | WM6       |
| 70*                    | 1                    | 8.6                     | 6    | 67                      | 250 | 80              | 925  | W70MT8.6  | WM9       |
| 70*                    | 1                    | 13                      | 9.1  | 67                      | 250 | 80              | 1030 | W70GT13   | WG7       |
| 75*                    | 1                    | 5.1                     | 3.6  | 67                      | 250 | 80              | 715  | W75MT5.1  | WM6       |
| 75*                    | 1                    | 8                       | 5.6  | 67                      | 250 | 80              | 925  | W75MT8    | WM9       |
| 75*                    | 1                    | 12.2                    | 8.5  | 67                      | 250 | 80              | 1030 | W75GT12.2 | WG7       |
| 80*                    | 1                    | 4.8                     | 3.4  | 67                      | 250 | 80              | 715  | W80MT4.8  | WM6       |
| 80*                    | 1                    | 7.5                     | 5.3  | 67                      | 250 | 80              | 925  | W80MT7.5  | WM9       |
| 80*                    | 1                    | 11.4                    | 8    | 67                      | 250 | 80              | 1030 | W80GT11.4 | WG7       |
| 90*                    | 1                    | 4.3                     | 3    | 100                     | 250 | 80              | 715  | W90MT4.3  | WM6       |
| 90*                    | 1                    | 6.7                     | 4.7  | 100                     | 250 | 80              | 925  | W90MT6.7  | WM9       |
| 90*                    | 1                    | 10.1                    | 7.1  | 100                     | 250 | 80              | 1030 | W90GT10.1 | WG7       |
| 100*                   | 2                    | 3.8                     | 2.7  | 150                     | 350 | 80              | 715  | W100MT3.8 | WM6       |
| 100*                   | 2                    | 6                       | 4.2  | 150                     | 350 | 80              | 925  | W100MT6   | WM9       |
| 100*                   | 2                    | 9.1                     | 6.4  | 150                     | 350 | 80              | 1030 | W100GT9.1 | WG7       |
| 110*                   | 2                    | 3.5                     | 2.4  | 150                     | 350 | 80              | 715  | W110MT3.5 | WM6       |
| 110*                   | 2                    | 5.5                     | 3.8  | 150                     | 350 | 80              | 925  | W110MT5.5 | WM9       |
| 110*                   | 2                    | 8.3                     | 5.8  | 150                     | 350 | 80              | 1030 | W110GT8.3 | WG7       |
| 120*                   | 2                    | 3.2                     | 2.2  | 150                     | 350 | 80              | 715  | W120MT3.2 | WM6       |
| 120*                   | 2                    | 5                       | 3.5  | 150                     | 350 | 80              | 925  | W120MT5   | WM9       |
| 120*                   | 2                    | 7.6                     | 5.3  | 150                     | 350 | 80              | 1030 | W120GT7.6 | WG7       |
| 125*                   | 2                    | 3.1                     | 2.2  | 150                     | 350 | 80              | 715  | W125MT3.1 | WM6       |
| 125*                   | 2                    | 4.8                     | 3.4  | 150                     | 350 | 80              | 925  | W125MT4.8 | WM9       |
| 125*                   | 2                    | 7.3                     | 5.1  | 150                     | 350 | 80              | 1030 | W125GT7.3 | WG7       |

\* Not U.L. recognized when this catalog was published.



## Gold Box UNREGULATED AC-DC single output & wide adjust output



- Shipped Within 3 Days
- U.L. Recognized
- Five Year Warranty

**Low-cost DC power** suitable for driving loads such as lamps, relays, and small motors is provided by these unregulated power supplies. All components are generously derated, insuring a long and trouble-free life; built-in fusing prevents damage due to prolonged

overloading or short circuits. Mechanically similar to the regulated supplies shown on pages 46 and 47, they are housed in extruded aluminum cases which can be mounted in any position. Many models are U.L. Recognized.

### STANDARD FEATURES

- Capacitive filtering
- Fused input
- May be used in series or parallel
- No derating or heat sinking required
- Completely serviceable

### SPECIFICATIONS

**Input Voltage:** 0-125 VAC, 50-400 Hz, single phase.

**Output Voltage Adjustment:** Adjustable voltage models are provided with a built-in continuously adjustable autotransformer.

**Load Regulation:** The nominal output voltages of single output models, and the maximum rated output voltages for models with wide adjust outputs, are based on 115 VAC input with approximately one-half load. At no load, they will increase by approximately 10%. At full load, they will be reduced by approximately 10%.

**Line Regulation:** Output voltage change due to line change directly proportional to input change.

**Polarity:** Output is floating; either positive or negative terminal may be grounded or floated up to 300 volts above ground.

**Ambient Operating Temperature:** -10 to +65°C.

No derating required.

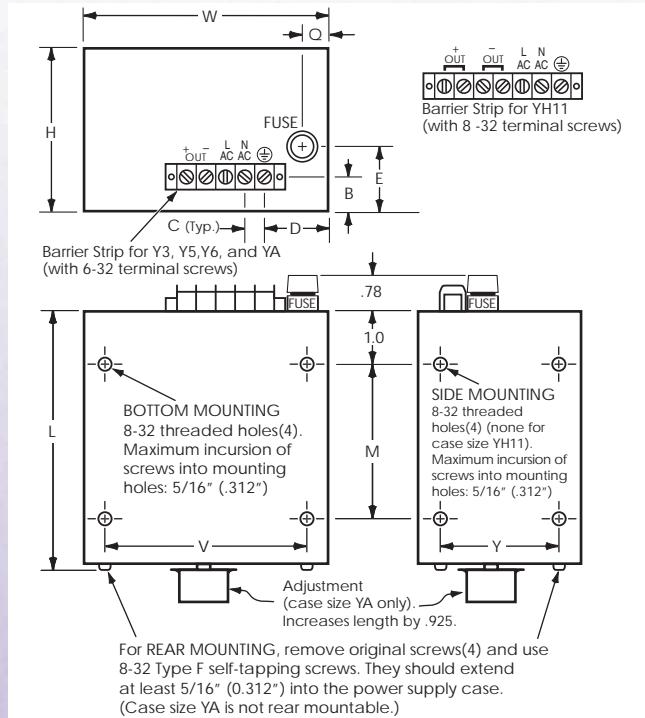
**Storage Temperature:** -55 to +85°C.

### OPTIONS

**Terminal Strip Cover:** Clips on. To order, add suffix "M" to model number and \$5.00 to price.

**230 Volt Input:** Provision for inputs of 0-250 VAC, 50-400 Hz, replacing the standard 0-125 VAC input voltage range, is available on single output models. To order, add suffix "-230" to model number and \$25.00 to price (for models in case size YH11 add \$40.00).

The "-230" option requires two additional days.



| Case Size | L     | W    | H    | M    | V    | Y    | Q    | E    | B    | D    | C    | Approx. Weight |
|-----------|-------|------|------|------|------|------|------|------|------|------|------|----------------|
| Y3        | 3.71  | 5.12 | 3.44 | 1.62 | 4.5  | 3.0  | .56  | 1.37 | .75  | 1.44 | .375 | 2 lb. 8 oz.    |
| Y5        | 5.09  | 5.12 | 3.44 | 3.0  | 4.5  | 3.0  | .56  | 1.37 | .75  | 1.44 | .375 | 4 lb. 8 oz.    |
| Y6        | 6.59  | 5.12 | 3.44 | 4.0  | 4.5  | 3.0  | .56  | 1.37 | .75  | 1.44 | .375 | 7 lb. 8 oz.    |
| YH11      | 11.25 | 7.37 | 5.12 | 8.0  | 6.75 | 4.56 | 1.10 | 2.64 | 1.25 | 2.25 | .562 | 18 to 23 lb.   |
| YA        | 6.59  | 5.12 | 3.44 | 4.0  | 4.5  | 3.0  | .56  | 1.37 | .75  | 1.44 | .375 | 4 to 5 lb.     |

**Mounting:** Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket, or they may be used on a test bench or tabletop. To mount from the power supply side of the mounting surface or for DIN rail mounting, see accessory Mounting Kits on page 91.

## SINGLE OUTPUT

| Nominal Output Voltage | Output Current Amps. | Output Voltage N/L-F/L | Ripple Volts RMS | (\$)  | Price    | Model | Case Size |
|------------------------|----------------------|------------------------|------------------|-------|----------|-------|-----------|
| 4                      | .200                 | 4.4 to 3.6             | .2               | \$210 | U4Y20    | Y3    |           |
| 5                      | 10.0 (@ 5.0)         | 6.7 to 3.6 (5.0)       | 1.8 (1.3)        | \$265 | U5Y1000  | Y6    |           |
| 6                      | 2.0                  | 7.7 to 4.8             | 2.0              | \$210 | U6Y200   | Y3    |           |
| 6                      | 5.0                  | 7.5 to 5.0             | 1.8              | \$265 | U6Y500   | Y5    |           |
| 7                      | 8.0                  | 8.0 to 5.4             | 1.5              | \$265 | U7Y800   | Y6    |           |
| 9                      | 10.0 (@ 5.0)         | 11.5 to 7.5 (9.0)      | 2.3 (1.3)        | \$265 | U9Y1000  | Y6    |           |
| 10                     | 10.0 (@ 5.0)         | 12.4 to 8.0 (9.8)      | 2.3 (1.3)        | \$265 | U10Y1000 | Y6    |           |
| 12                     | 1.5                  | 14.9 to 10.9           | 2.5              | \$210 | U12Y150  | Y3    |           |
| 12                     | 5.0                  | 14.8 to 10.5           | 1.8              | \$250 | U12Y500  | Y5    |           |
| 12                     | 10.0 (@ 5.0)         | 14.1 to 9.8 (11.5)     | 2.3 (1.3)        | \$270 | U12Y1000 | Y6    |           |
| 14                     | 1.0                  | 15.4 to 12.6           | .7               | \$210 | U14Y100  | Y3    |           |
| 14                     | 10.0 (@ 5.0)         | 16.4 to 12.1 (14.0)    | 2.3 (1.3)        | \$270 | U14Y1000 | Y6    |           |
| 15                     | 10.0 (@ 5.0)         | 17.2 to 12.8 (14.5)    | 2.3 (1.3)        | \$270 | U15Y1000 | Y6    |           |
| 16                     | 1.0                  | 17.6 to 14.4           | .7               | \$210 | U16Y100  | Y3    |           |
| 16                     | 10.0 (@ 5.0)         | 18.8 to 14.2 (16.0)    | 2.3 (1.3)        | \$270 | U16Y1000 | Y6    |           |
| 18                     | 1.0                  | 19.8 to 16.2           | .7               | \$210 | U18Y100  | Y3    |           |
| 18                     | 10.0 (@ 5.0)         | 21.0 to 15.8 (18.0)    | 2.4 (1.4)        | \$270 | U18Y1000 | Y6    |           |
| 20                     | 4.0                  | 22.0 to 17.5           | 2.0              | \$250 | U20Y400  | Y5    |           |
| 20                     | 10.0 (@ 5.0)         | 23.7 to 18.3 (20.4)    | 2.4 (1.4)        | \$270 | U20Y1000 | Y6    |           |
| 24                     | 1.0                  | 26.4 to 21.6           | 1.7              | \$210 | U24Y100  | Y3    |           |
| 24                     | 3.5                  | 26.0 to 21.0           | 2.0              | \$250 | U24Y350  | Y5    |           |
| 24                     | 5.0                  | 26.5 to 21.0           | 2.5              | \$270 | U24Y500  | Y6    |           |
| 24                     | 10.0                 | 26.8 to 21.4           | 2.4              | \$305 | U24Y1000 | Y6    |           |
| 24                     | 17.0                 | 26.4 to 21.6           | 1.5              | \$455 | U24Y1700 | YH11  |           |
| 24                     | 23.0                 | 27.0 to 21.0           | 1.5              | \$485 | U24Y2300 | YH11  |           |
| 25                     | 5.0                  | 28.1 to 22.3           | 2.5              | \$270 | U25Y500  | Y6    |           |
| 27                     | 5.0                  | 30.0 to 24.0           | 2.6              | \$270 | U27Y500  | Y6    |           |
| 28                     | 1.0                  | 30.8 to 25.2           | 1.7              | \$210 | U28Y100  | Y3    |           |
| 28                     | 3.0                  | 30.8 to 26.0           | 2.0              | \$250 | U28Y300  | Y5    |           |
| 28                     | 5.0                  | 31.2 to 24.8           | 2.6              | \$270 | U28Y500  | Y6    |           |
| 28                     | 8.0                  | 30.2 to 25.0           | 2.4              | \$305 | U28Y800  | Y6    |           |
| 28                     | 15.0                 | 30.8 to 25.2           | 1.5              | \$455 | U28Y1500 | YH11  |           |
| 28                     | 20.0                 | 30.4 to 24.5           | 1.5              | \$485 | U28Y2000 | YH11  |           |
| 30                     | 2.0                  | 33.0 to 27.0           | 1.5              | \$245 | U30Y200  | Y5    |           |
| 32                     | .400                 | 35.2 to 28.8           | .6               | \$210 | U32Y40   | Y3    |           |
| 32                     | 5.0                  | 35.5 to 28.0           | 3.3              | \$275 | U32Y500  | Y6    |           |
| 35                     | 5.0                  | 38.0 to 30.0           | 3.3              | \$275 | U35Y500  | Y6    |           |
| 37                     | 5.0                  | 40.5 to 32.2           | 3.3              | \$275 | U37Y500  | Y6    |           |
| 38                     | 5.0                  | 43.0 to 34.0           | 3.3              | \$275 | U38Y500  | Y6    |           |
| 40                     | 1.0                  | 44.0 to 36.0           | 1.6              | \$225 | U40Y100  | Y3    |           |
| 40                     | 2.0                  | 44.0 to 36.0           | 1.5              | \$250 | U40Y200  | Y5    |           |
| 40                     | 5.0                  | 45.0 to 37.0           | 3.3              | \$275 | U40Y500  | Y6    |           |

| Nominal Output Voltage | Output Current Amps. | Output Voltage N/L-F/L | Ripple Volts RMS | (\$)  | Price    | Model | Case Size |
|------------------------|----------------------|------------------------|------------------|-------|----------|-------|-----------|
| 41                     | .400                 | 45.1 to 36.9           | .6               | \$210 | U41Y40   | Y3    |           |
| 42                     | 5.0                  | 48.0 to 36.0           | 6.5              | \$275 | U42Y500  | Y6    |           |
| 44                     | 2.0                  | 48.4 to 39.6           | 1.5              | \$250 | U44Y200  | Y5    |           |
| 45                     | 1.0                  | 49.5 to 40.5           | 1.6              | \$235 | U45Y100  | Y3    |           |
| 45                     | 5.0                  | 51.0 to 38.5           | 6.5              | \$275 | U45Y500  | Y6    |           |
| 48                     | .400                 | 52.8 to 43.2           | .6               | \$220 | U48Y40   | Y3    |           |
| 50                     | 1.0                  | 55 to 45               | 1.6              | \$235 | U50Y100  | Y3    |           |
| 52                     | .400                 | 57.2 to 46.8           | .6               | \$225 | U52Y40   | Y3    |           |
| 55                     | .250                 | 60.5 to 49.5           | .4               | \$220 | U55Y25   | Y3    |           |
| 60                     | 1.0                  | 65.3 to 53.0           | 2.8              | \$245 | U60Y100  | Y5    |           |
| 62                     | .400                 | 69.0 to 58.0           | 1.5              | \$225 | U62Y40   | Y3    |           |
| 80                     | .300                 | 88.0 to 72.0           | 1.0              | \$225 | U80Y30   | Y3    |           |
| 90                     | .400                 | 99.0 to 81.0           | 2.2              | \$225 | U90Y40   | Y3    |           |
| 95                     | .150                 | 105 to 85              | 1.1              | \$225 | U95Y15   | Y3    |           |
| 100                    | .200                 | 110 to 93              | 1.0              | \$225 | U100Y20  | Y3    |           |
| 110                    | .200                 | 121 to 100             | 1.0              | \$225 | U110Y20  | Y3    |           |
| 120                    | .200                 | 132 to 110             | 1.0              | \$225 | U120Y20  | Y3    |           |
| 140                    | .200                 | 154 to 126             | 1.7              | \$235 | U140Y20  | Y3    |           |
| 150                    | .200                 | 165 to 135             | 1.7              | \$235 | U150Y20  | Y3    |           |
| 165                    | .200                 | 176 to 144             | 1.7              | \$235 | U165Y20  | Y3    |           |
| 170                    | .200                 | 187 to 153             | 2.0              | \$235 | U170Y20  | Y3    |           |
| 180                    | .200                 | 190 to 162             | 2.0              | \$235 | U180Y20  | Y3    |           |
| 200                    | .200                 | 220 to 180             | 2.0              | \$240 | U200Y20  | Y3    |           |
| 250                    | .200                 | 275 to 225             | 4.0              | \$240 | U250Y20  | Y3    |           |
| 275                    | .100                 | 303 to 247             | 3.0              | \$235 | U275Y10  | Y3    |           |
| 275                    | .200                 | 303 to 247             | 4.0              | \$245 | U275Y20  | Y5    |           |
| 300                    | .200                 | 330 to 270             | 5.0              | \$245 | U300Y20  | Y5    |           |
| 325                    | .200                 | 360 to 295             | 6.0              | \$245 | U325Y20  | Y5    |           |
| 340                    | .100                 | 374 to 306             | 3.0              | \$235 | U340Y10  | Y3    |           |
| 360                    | .100                 | 396 to 324             | 3.0              | \$235 | U360Y10  | Y3    |           |
| 370                    | .100                 | 407 to 333             | 3.0              | \$235 | U370Y10  | Y3    |           |
| 400                    | .200                 | 440 to 360             | 6.0              | \$250 | U400Y20  | Y5    |           |
| 420                    | .100                 | 462 to 378             | 6.7              | \$235 | U420Y10  | Y3    |           |
| 475                    | .020                 | 523 to 426             | 3.1              | \$235 | U475Y02  | Y3    |           |
| 500                    | .200                 | 550 to 450             | 9.1              | \$265 | U500Y20  | Y5    |           |
| 550*                   | .100                 | 605 to 495             | 4.8              | \$265 | U550Y10  | Y5    |           |
| 580*                   | .020                 | 638 to 522             | 3.1              | \$235 | U580Y02  | Y3    |           |
| 600*                   | .100                 | 660 to 540             | 10.0             | \$270 | U600Y10  | Y5    |           |
| 750*                   | .020                 | 825 to 675             | 3.1              | \$235 | U750Y02  | Y3    |           |
| 800*                   | .100                 | 880 to 720             | 13.0             | \$270 | U800Y10  | Y5    |           |
| 900*                   | .020                 | 990 to 810             | 5.0              | \$240 | U900Y02  | Y3    |           |
| 900*                   | .100                 | 990 to 810             | 13.0             | \$270 | U900Y10  | Y5    |           |
| 1000*                  | .100                 | 1100 to 900            | 13.0             | \$270 | U1000Y10 | Y5    |           |

\*Not U.L. recognized when this catalog was published.

## WIDE ADJUST OUTPUT

| Output Voltage Range | Output Current Amps. | Ripple Volts RMS | (\$)  | Price    | Model | Case Size |
|----------------------|----------------------|------------------|-------|----------|-------|-----------|
| 0-8*                 | 2.0                  | 2                | \$420 | U8YA200  | YA    |           |
| 0-15*                | 1.5                  | 2.5              | \$420 | U15YA150 | YA    |           |
| 0-54*                | 1.0                  | 1.6              | \$420 | U54YA100 | YA    |           |
| 0-95*                | .300                 | 2.2              | \$420 | U95YA30  | YA    |           |
| 0-125*               | .200                 | 1.5              | \$420 | U125YA20 | YA    |           |
| 0-220*               | .200                 | 2                | \$420 | U220YA20 | YA    |           |
| 0-260*               | .200                 | 4                | \$420 | U260YA20 | YA    |           |
| 0-370*               | .100                 | 3                | \$420 | U370YA10 | YA    |           |
| 0-450*               | .100                 | 6.7              | \$420 | U450YA10 | YA    |           |
| 0-800*               | .020                 | 3.1              | \$420 | U800YA02 | YA    |           |
| 0-950*               | .020                 | 5                | \$420 | U950YA02 | YA    |           |

\*Not U.L. recognized when this catalog was published.

**Gold Box & Narrow Profile**  
**WIDE ADJUST OUTPUT**  
**LINEAR REGULATED**  
**AC-DC**  
 (fixed & adjustable current limiting)

- Shipped Within 3 Days
- All models U.L. Recognized
- **CE** (Gold Box models)
- Five Year Warranty

**These power supplies have the broad adjustment** capability required for analog instrumentation and circuitry, electronic system development, basic research, and similar applications.

#### SPECIFICATIONS

**Input Voltage:** 105-125 VAC, 50-400 Hz, single phase.

**Regulation, Ripple (in constant voltage mode):**

Line Regulation:  $\pm 0.005\%$  or 2 mV, whichever is greater.  
 Load Regulation:  $\pm 0.005\%$  or 2 mV, whichever is greater.  
 Ripple: 0.25 mV rms.

**Regulation, Ripple (in constant current mode):**

Line Regulation:  $\pm 0.1\%$  or 2 mA.  
 Load Regulation:  $\pm 0.2\%$  or 5 mA.  
 Ripple: 0.1% rms.

**Remote Voltage Sensing:** Provision for sensing the output voltage across the load, to compensate voltage drops in output wiring, is a standard feature.

**Remote Voltage Programming:** The output voltage of all models may be controlled by means of external resistance connected in series with the  $-S$  lead.

**Voltage Programming Coefficient:** See table.  
 Calibration tolerance,  $\pm 2\%$ .

**Current Limiting:** Models with fixed current limiting have a rolloff characteristic with automatic recovery. All others have current limiting with a constant-voltage/constant-current crossover characteristic.

**Polarity:** Output is floating; either positive or negative terminal may be grounded or floated up to 300 volts above ground.

**Temperature Coefficient (in constant voltage mode):**  
 $0.015\%/\text{ }^{\circ}\text{C}$  (Typical).

**Ambient Operating Temperature:**  $-20$  to  $+71\text{ }^{\circ}\text{C}$ .

**Storage Temperature:**  $-55$  to  $+85\text{ }^{\circ}\text{C}$ .



For applications requiring a constant current or adjustable current limiting, a power supply with a true constant-current characteristic, such as those with model numbers beginning with the letter P, should be used.

**Mounting:** Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket. To mount from the power supply side of the mounting surface or for DIN rail mounting, see accessory Mounting Kits on page 91.

#### OPTIONS

**Remote Current Limiting Adjustment:** All models having numbers beginning with the letter P have a built-in (front panel) current limit control. Provision for control of the current limit setting by adjustment of an external resistance is available as an option. To order, add the prefix letter "E" to the model number, and add \$10.00 to the standard price.

The current limit setting is inversely related to resistance. Use a 200 ohm,  $\frac{1}{2}$  W potentiometer.

**Overvoltage Protection:** An internally mounted overvoltage protection circuit, set approximately 20% above the maximum output voltage rating of the supply, is available on all models. To order, add prefix "V" to the model number, and increase standard price as follows:

|                                 |         |          |
|---------------------------------|---------|----------|
| Maximum output of . . . . .     | 6-60V   | 100-150V |
| All case sizes except H16 . . . | \$25.00 | \$35.00  |
| Case size H16 . . . . .         | 75.00   | 85.00    |

**Terminal Strip Cover:** Clips on. To order, add suffix "M" to model number and \$5.00 to price.

**230 Volt Input:** All models can be alternately furnished for operation on inputs of 210-250 VAC, 50-400 Hz. To order, add suffix "-230" to model number and \$25.00 to price. (For models in case sizes H11 and H16, add \$40.00.) The "-230" option requires two additional days.

## GOLD BOX MODELS

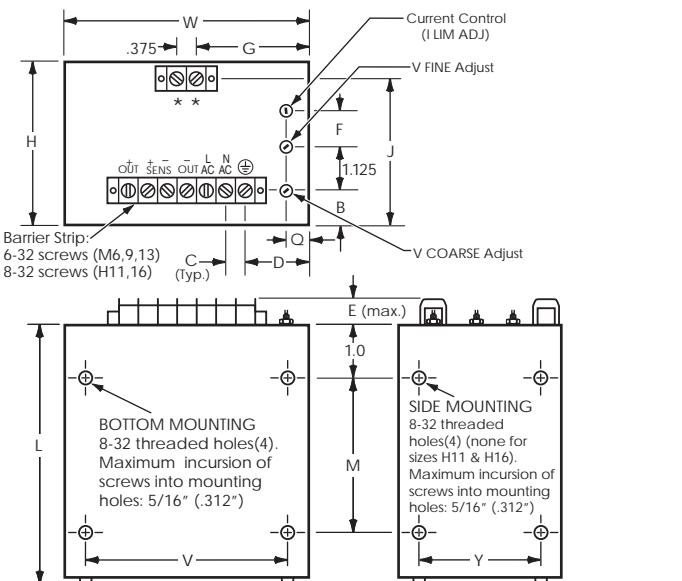
| Output Voltage Range | Output Current Amps. at |      |      | Voltage Prgm. Coeff. (Ω/V) | Case Size | Voltage Programmable Fixed Current Limiting |            | Voltage Programmable Adjust. Current Limiting |            |
|----------------------|-------------------------|------|------|----------------------------|-----------|---|------------|---|------------|
|                      | 40°C                    | 55°C | 71°C |                            |           | Model                                       | Price (\$) | Model   | Price (\$) |
| 0-6                  | 1.2                     | 1.2  | 1.2  | 820                        | M6        | A06MX120                                    | 225        | P06MX120                                      | 260        |
| 0-6                  | 2.0                     | 2.0  | 2.0  | 820                        | M6        | A06MX200                                    | 260        | P06MX200                                      | 280        |
| 0-6                  | 3.0                     | 2.5  | 2.0  | 820                        | M6        | A06MX300                                    | 295        | P06MX300                                      | 325        |
| 0-6                  | 5.0                     | 4.0  | 3.0  | 820                        | M9        | A06MX500                                    | 350        | P06MX500                                      | 385        |
| 0-6                  | 8.0                     | 7.0  | 6.0  | 820                        | M13       | A06MX800                                    | 405        | P06MX800                                      | 425        |
| 0-6                  | 12.0                    | 10.0 | 7.0  | 820                        | H11       | A06HX1200                                   | 505        | P06HX1200                                     | 525        |
| 0-6                  | 16.0                    | 13.0 | 10.0 | 820                        | H16       | A06HX1600                                   | 590        | P06HX1600                                     | 615        |
| 0-15                 | 1.0                     | 1.0  | 1.0  | 330                        | M6        | A015MX100                                   | 215        | P015MX100                                     | 235        |
| 0-15                 | 2.0                     | 1.6  | 1.2  | 330                        | M6        | A015MX200                                   | 280        | P015MX200                                     | 310        |
| 0-15                 | 3.0                     | 2.4  | 1.8  | 330                        | M9        | A015MX300                                   | 350        | P015MX300                                     | 385        |
| 0-15                 | 5.0                     | 4.0  | 2.5  | 330                        | M13       | A015MX500                                   | 405        | P015MX500                                     | 425        |
| 0-15                 | 8.0                     | 6.0  | 4.0  | 330                        | H11       | A015HX800                                   | 520        | P015HX800                                     | 540        |
| 0-15                 | 10.0                    | 8.0  | 6.0  | 330                        | H16       | A015HX1000                                  | 590        | P015HX1000                                    | 615        |
| 0-30                 | .50                     | .50  | .50  | 160                        | M6        | A030MX50                                    | 235        | P030MX50                                      | 270        |
| 0-30                 | 1.0                     | 1.0  | 1.0  | 160                        | M6        | A030MX100                                   | 280        | P030MX100                                     | 310        |
| 0-30                 | 1.6                     | 1.4  | 1.2  | 160                        | M9        | A030MX160                                   | 335        | P030MX160                                     | 355        |
| 0-30                 | 2.5                     | 2.0  | 1.5  | 160                        | M13       | A030MX250                                   | 400        | P030MX250                                     | 420        |
| 0-30                 | 4.0                     | 3.0  | 2.0  | 160                        | H11       | A030HX400                                   | 530        | P030HX400                                     | 555        |
| 0-30                 | 5.0                     | 4.0  | 3.0  | 160                        | H16       | A030HX500                                   | 610        | P030HX500                                     | 630        |
| 0-50                 | .35                     | .34  | .33  | 1000                       | M6        | A050MX35                                    | 270        | P050MX35                                      | 295        |
| 0-50                 | .60                     | .50  | .40  | 1000                       | M6        | A050MX60                                    | 335        | P050MX60                                      | 355        |
| 0-50                 | .85                     | .75  | .65  | 1000                       | M9        | A050MX85                                    | 390        | P050MX85                                      | 410        |
| 0-50                 | 1.2                     | .96  | .72  | 1000                       | M13       | A050MX120                                   | 455        | P050MX120                                     | 480        |
| 0-50                 | 2.4                     | 1.9  | 1.4  | 1000                       | H11       | A050HX240                                   | 580        | P050HX240                                     | 615        |
| 0-50                 | 3.0                     | 2.4  | 1.8  | 1000                       | H16       | A050HX300                                   | 675        | P050HX300                                     | 705        |
| 0-100                | .10                     | .09  | .08  | 500                        | M6        | A0100MX10                                   | 335        | P0100MX10                                     | 355        |
| 0-100                | .25                     | .20  | .15  | 500                        | M6        | A0100MX25                                   | 390        | P0100MX25                                     | 410        |
| 0-100                | .45                     | .36  | .27  | 500                        | M9        | A0100MX45                                   | 435        | P0100MX45                                     | 470        |
| 0-100                | .60                     | .48  | .36  | 500                        | M13       | A0100MX60                                   | 505        | P0100MX60                                     | 530        |
| 0-100                | 1.2                     | .96  | .72  | 500                        | H11       | A0100HX120                                  | 635        | P0100HX120                                    | 665        |
| 0-100                | 1.5                     | 1.2  | .90  | 500                        | H16       | A0100HX150                                  | 730        | P0100HX150                                    | 755        |

## NARROW PROFILE MODELS (for limited space applications)

| Output Voltage Range | Output Current Amps. (to +71°C) | Voltage Prgm. Coeff. (Ω/V) | Case Size | Model     | (\$ Price) |
|----------------------|---------------------------------|----------------------------|-----------|-----------|------------|
| 0-7*                 | 1.0                             | 700                        | N8T       | A07XN100  | 215        |
| 0-7*                 | 2.1                             | 700                        | N8H       | A07NX210  | 265        |
| 0-18*                | .400                            | 270                        | N8T       | A018XN40  | 210        |
| 0-18*                | 1.0                             | 270                        | N8H       | A018NX100 | 245        |
| 0-32*                | .250                            | 150                        | N8T       | A032XN25  | 185        |
| 0-32*                | .600                            | 150                        | N8H       | A032NX60  | 245        |
| 0-60*                | .125                            | 820                        | N8T       | A060NX12  | 220        |
| 0-60*                | .250                            | 820                        | N8H       | A060NX25  | 275        |
| 0-150*               | .050                            | 330                        | N8T       | A0150NX05 | 265        |
| 0-150*               | .100                            | 330                        | N8H       | A0150NX10 | 315        |

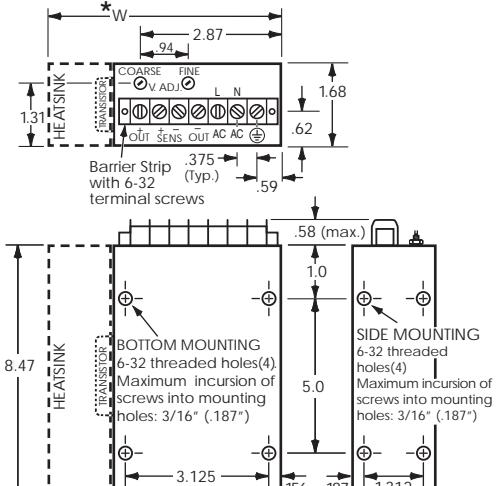
\* Not CE certified.

### Gold Box



| Case Size | L     | W    | H    | M    | V    | Y    | E   | Q    | B    | C    | D    | F    | G    | J    | Approx. Weight |
|-----------|-------|------|------|------|------|------|-----|------|------|------|------|------|------|------|----------------|
| M6        | 6.59  | 5.12 | 3.44 | 4.0  | 4.5  | 3.0  | .58 | .5   | .75  | .375 | 1.44 | .75  | 2.37 | 3.09 | 5 lb. 5 oz.    |
| M9        | 9.25  | 5.12 | 3.44 | 6.0  | 4.5  | 3.0  | .58 | .5   | .75  | .375 | 1.44 | .75  | 2.37 | 3.09 | 6 lb. 3 oz.    |
| M13       | 13.25 | 5.12 | 3.44 | 10.0 | 4.5  | 3.0  | .58 | .5   | .75  | .375 | 1.44 | .75  | 2.37 | 3.09 | 8 lb. 3 oz.    |
| H11       | 11.25 | 7.37 | 5.12 | 8.0  | 6.75 | 4.56 | .78 | 1.12 | 1.25 | .562 | 2.25 | 1.12 | 3.75 | 4.72 | 12 lb. 14 oz.  |
| H16       | 16.00 | 7.37 | 5.12 | 11.0 | 6.75 | 4.56 | .78 | 1.12 | 1.25 | .562 | 2.25 | 1.12 | 3.75 | 4.72 | 17 lb. 12 oz.  |

### Narrow Profile



For REAR MOUNTING, remove 6-32 screws (4). These screws may then be used for mounting, provided they extend at least 1/4" (.250) into the power supply case.

| Case Size | W*   | Approx. Weight |
|-----------|------|----------------|
| N8T       | 3.84 | 3 lb. 2 oz.    |
| N8H       | 4.68 | 3 lb. 14 oz.   |

\* W dimension includes TRANSISTOR on N8T case and HEATSINK on N8H case.

## Gold Box & Rack Mounting

### WIDE ADJUST OUTPUT

### PROGRAMMABLE (with a control voltage or a potentiometer)

LINEAR REGULATED  
AC-DC

- Shipped Within 3 Days (Gold Box models)
- Shipped Within 9 Days (Rack models)
- Five Year Warranty

**These power supplies have the broad adjustment** capability required for analog instrumentation and circuitry, process controls, basic research, and similar applications.

#### SPECIFICATIONS

**Input Voltage:** 105-125 VAC, 50-400 Hz, single phase.

#### Regulation, Ripple:

Line Regulation:  $\pm 0.005\%$  or 2 mV, whichever is greater.  
Load Regulation:  $\pm 0.005\%$  or 2 mV, whichever is greater.  
Ripple: 0.25 mV rms.

**Remote Voltage Sensing:** Provision for sensing the output voltage across the load, to compensate voltage drops in output wiring, is a standard feature.

**Controls:** Coarse and fine voltage adjustments are located on the front panel of Gold Box models and on the rear panel of Rack Mounting models.

#### Output Voltage Programming:

**With a Control Voltage:** The output voltage may be programmed from 0 to full rating by means of control voltage inputs of 0 to +10Vdc. Linearity, 1%.

Contact factory for information on other input ranges.

**With a Potentiometer:** The output voltage may be programmed by means of a remotely located 5K potentiometer.

**Current Limiting:** Rolloff characteristic with automatic recovery.

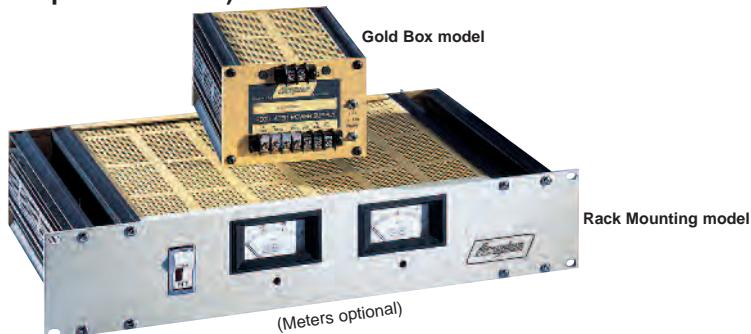
**Polarity:** Output is floating; either positive or negative terminal may be grounded or floated up to 300 volts above ground. When using a control voltage input, its negative side must be connected to the -S (sense) terminal.

**Temperature Coefficient:** 0.02%/°C (Typical).

**Ambient Operating Temperature:** -20 to +71°C.

**Storage Temperature:** -55 to +85°C.

**Mounting (Gold Box models):** Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket. To mount from the power supply side of the mounting surface or for DIN rail mounting, see accessory Mounting Kits on page 91.



The output voltage may be manually controlled either at the power supply or remotely, or it may be programmed with the analog output from a PLC or digital-to-analog converter.

#### OPTIONS

**Overvoltage Protection:** An internally mounted overvoltage protection circuit, set approximately 20% above the maximum output voltage rating of the supply, is available on all models. To order, add prefix "V" to the model number, and increase standard price as follows:

| Maximum output of ..... | 6-50V   | 100V    |
|-------------------------|---------|---------|
| Case size M6 .....      | \$25.00 | \$35.00 |
| Case size M9 .....      | 25.00   | 35.00   |
| Case size M13 .....     | 25.00   | 35.00   |
| Case size H11 .....     | 25.00   | 35.00   |
| Case size H16 .....     | 75.00   | 85.00   |
| Case size 3P11 .....    | 35.00   | 45.00   |
| Case size 5P12 .....    | 35.00   | 45.00   |
| Case size 3P17 .....    | 35.00   |         |
| Case size 5P17 .....    | 85.00   |         |

**Terminal Strip Cover:** Clips on. To order, add suffix "M" to model number and \$5.00 to price.

**230 Volt Input:** All models can be alternately furnished for operation on inputs of 210-250 VAC, 50-400 Hz. To order, add suffix "-230" to model number and \$40.00 to price. (For models in case sizes M6, M9 and M13, add \$25.00.) The "-230" option requires two additional days.

**Ammeter (Rack Mounting models):** Add suffix "A" to model number and \$60.00 to price.

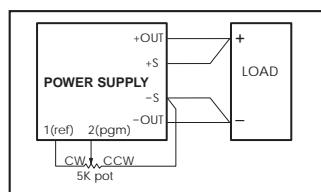
**Voltmeter (Rack Mounting models):** Add suffix "F" to model number and \$60.00 to price.

**Handles (Rack Mounting models):** Add suffix "H" to model number and \$30.00 to price.

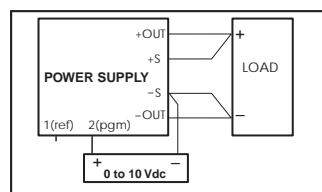
**Front Panel Controls (Rack Mounting models):** For voltage controls (coarse and fine) mounted on the front panel, instead of the standard screwdriver-slot adjustments at the rear, add suffix "P" to the model number and \$25.00 to price.

## GOLD BOX MODELS

| Output Voltage Range | Output Current Amps. at |      |      | Case Size | Model      | Price (\$) |
|----------------------|-------------------------|------|------|-----------|------------|------------|
|                      | 40°C                    | 55°C | 71°C |           |            |            |
| 0-6                  | 1.2                     | 1.2  | 1.2  | M6        | Y06MX120   | 280        |
| 0-6                  | 2.0                     | 2.0  | 2.0  | M6        | Y06MX200   | 300        |
| 0-6                  | 3.0                     | 2.5  | 2.0  | M6        | Y06MX300   | 345        |
| 0-6                  | 5.0                     | 4.0  | 3.0  | M9        | Y06MX500   | 405        |
| 0-6                  | 8.0                     | 7.0  | 6.0  | M13       | Y06MX800   | 455        |
| 0-6                  | 12.0                    | 10.0 | 7.0  | H11       | Y06HX1200  | 550        |
| 0-6                  | 16.0                    | 13.0 | 10.0 | H16       | Y06HX1600  | 635        |
| 0-15                 | 1.0                     | 1.0  | 1.0  | M6        | Y015MX100  | 260        |
| 0-15                 | 2.0                     | 1.6  | 1.2  | M6        | Y015MX200  | 335        |
| 0-15                 | 3.0                     | 2.4  | 1.8  | M9        | Y015MX300  | 405        |
| 0-15                 | 5.0                     | 4.0  | 2.5  | M13       | Y015MX500  | 455        |
| 0-15                 | 8.0                     | 6.0  | 4.0  | H11       | Y015HX800  | 570        |
| 0-15                 | 10.0                    | 8.0  | 6.0  | H16       | Y015HX1000 | 635        |
| 0-30                 | .50                     | .50  | .50  | M6        | Y030MX50   | 295        |
| 0-30                 | 1.0                     | 1.0  | 1.0  | M6        | Y030MX100  | 335        |
| 0-30                 | 1.6                     | 1.4  | 1.2  | M9        | Y030MX160  | 380        |
| 0-30                 | 2.5                     | 2.0  | 1.5  | M13       | Y030MX250  | 450        |
| 0-30                 | 4.0                     | 3.0  | 2.0  | H11       | Y030HX400  | 580        |
| 0-30                 | 5.0                     | 4.0  | 3.0  | H16       | Y030HX500  | 650        |
| 0-50                 | .35                     | .34  | .33  | M6        | Y050MX35   | 315        |
| 0-50                 | .60                     | .50  | .40  | M6        | Y050MX60   | 380        |
| 0-50                 | .85                     | .75  | .65  | M9        | Y050MX85   | 435        |
| 0-50                 | 1.2                     | .96  | .72  | M13       | Y050MX120  | 510        |
| 0-50                 | 2.4                     | 1.9  | 1.4  | H11       | Y050HX240  | 640        |
| 0-50                 | 3.0                     | 2.4  | 1.8  | H16       | Y050HX300  | 740        |
| 0-100                | .10                     | .09  | .08  | M6        | Y100MX10   | 380        |
| 0-100                | .25                     | .20  | .15  | M6        | Y100MX25   | 435        |
| 0-100                | .45                     | .36  | .27  | M9        | Y100MX45   | 500        |
| 0-100                | .60                     | .48  | .36  | M13       | Y100MX60   | 560        |
| 0-100                | 1.2                     | .96  | .72  | H11       | Y100HX120  | 690        |
| 0-100                | 1.5                     | 1.2  | .90  | H16       | Y100HX150  | 785        |



Programming with a Potentiometer

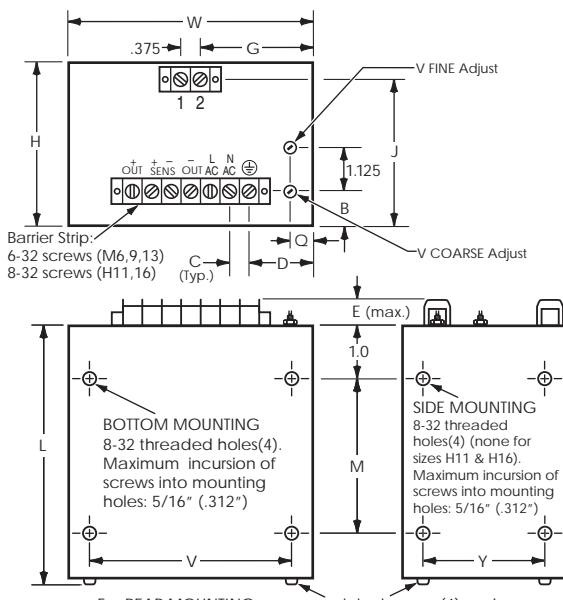


Programming with a Control Voltage

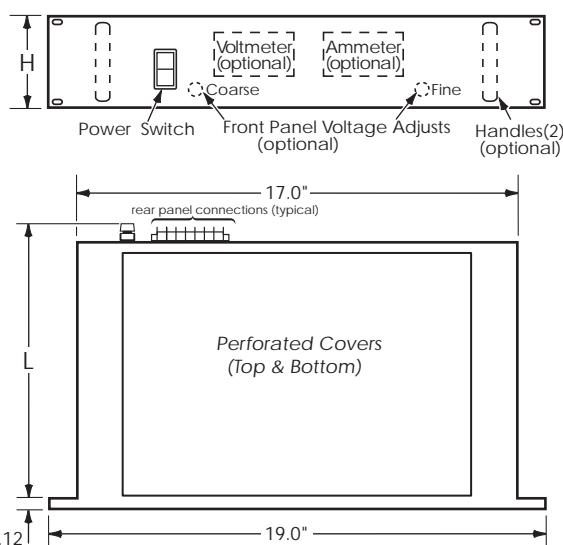
## RACK MOUNTING MODELS

| Output Voltage Range | Output Current Amps. at |      |      | Case Size | Model     | Price (\$) |
|----------------------|-------------------------|------|------|-----------|-----------|------------|
|                      | 40°C                    | 55°C | 71°C |           |           |            |
| 0-6                  | 10.0                    | 8.0  | 6.0  | 3P11      | Y06PX10   | 625        |
| 0-6                  | 16.0                    | 12.8 | 9.6  | 5P12      | Y06PX16   | 750        |
| 0-6                  | 23.0                    | 18.4 | 13.8 | 3P17      | Y06PX23   | 910        |
| 0-6                  | 30.0                    | 24.0 | 18.0 | 5P17      | Y06PX30   | 1050       |
| 0-15                 | 7.0                     | 5.6  | 4.2  | 3P11      | Y015PX7   | 625        |
| 0-15                 | 10.0                    | 8.0  | 6.0  | 5P12      | Y015PX10  | 750        |
| 0-15                 | 13.0                    | 10.4 | 7.8  | 3P17      | Y015PX13  | 910        |
| 0-30                 | 4.0                     | 3.2  | 2.4  | 3P11      | Y030PX4   | 625        |
| 0-30                 | 5.0                     | 4.0  | 3.0  | 5P12      | Y030PX5   | 750        |
| 0-30                 | 7.0                     | 5.6  | 4.2  | 3P17      | Y030PX7   | 910        |
| 0-30                 | 9.0                     | 7.2  | 5.4  | 5P17      | Y030PX9   | 1050       |
| 0-50                 | 2.4                     | 1.9  | 1.5  | 3P11      | Y050PX2   | 625        |
| 0-50                 | 3.0                     | 2.4  | 1.8  | 5P12      | Y050PX3   | 750        |
| 0-50                 | 5.0                     | 4.0  | 3.0  | 5P17      | Y050PX5   | 1050       |
| 0-100                | 1.2                     | .9   | .7   | 3P11      | Y100PX1.2 | 680        |
| 0-100                | 1.5                     | 1.2  | .9   | 5P12      | Y100PX1.5 | 860        |

### Gold Box



### Rack Mounting



| Case Size | L     | W    | H    | M    | V    | Y    | E   | Q    | B    | C    | D    | G    | J    | Approx. Weight |
|-----------|-------|------|------|------|------|------|-----|------|------|------|------|------|------|----------------|
| M6        | 6.59  | 5.12 | 3.44 | 4.0  | 4.5  | 3.0  | .58 | .5   | .75  | .375 | 1.44 | 2.37 | 3.09 | 5 lb. 10 oz.   |
| M9        | 9.25  | 5.12 | 3.44 | 6.0  | 4.5  | 3.0  | .58 | .5   | .75  | .375 | 1.44 | 2.37 | 3.09 | 6 lb. 7 oz.    |
| M13       | 13.25 | 5.12 | 3.44 | 10.0 | 4.5  | 3.0  | .58 | .5   | .75  | .375 | 1.44 | 2.37 | 3.09 | 8 lb. 8 oz.    |
| H11       | 11.25 | 7.37 | 5.12 | 8.0  | 6.75 | 4.56 | .78 | 1.12 | 1.25 | .562 | 2.25 | 3.75 | 4.72 | 13 lb. 3 oz.   |
| H16       | 16.00 | 7.37 | 5.12 | 11.0 | 6.75 | 4.56 | .78 | 1.12 | 1.25 | .562 | 2.25 | 3.75 | 4.72 | 18 lb.         |

# Gold Box & Narrow Profile DUAL TRACKING OUTPUTS

## LINEAR REGULATED AC-DC

- Shipped Within 3 Days
- All Models U.L. Recognized
- **CE** (Gold Box models)
- Five Year Warranty



**These dual output power supplies** are a convenient source of the tracking voltages required for powering operational amplifiers and related circuits. Their positive/common/negative output terminal configuration

minimizes system wiring. Provision for remote sensing permits compensation of load line effects. Although moderately priced, they are sturdily constructed and conservatively rated.

### SPECIFICATIONS

**Input Voltage:** 105-125 VAC, 50-400 Hz, single phase.

**Output Voltages:** Tracking within 1%.

**Load Regulation:**  $\pm 0.1\%$ .

**Line Regulation:**  $\pm 0.1\%$ .

**Ripple:** 1.5 mV rms.

**Polarity:** Positive output, common, and negative output.

**Remote Voltage Sensing:** Standard.

**Overload/Short Circuit Protection:** Electronic current limiting.

**Temperature Coefficient:** 0.02%/°C (Typical).

**Ambient Operating Temperature:** -10 to +71°C.

**Storage Temperature:** -55 to +85°C.

**Dimensions:** See page 63 for case dimensions.

**Mounting:** Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket. To mount from the power supply side of the mounting surface or for DIN rail mounting, see accessory Mounting Kits on page 91.

### OPTIONS

**Overvoltage Protection:** A built-in preset overvoltage protection circuit is available on all models. If either output fails, both outputs are 'crowbarred'. To order, add prefix "V" to the model number, and increase standard price by \$30.00.

**Terminal Strip Cover:** Clips on. To order, add suffix "M" to model number and \$5.00 to price.

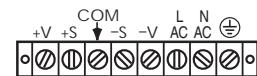
**230 Volt Input:** All models can be alternately furnished for operation on inputs of 210-250 VAC, 50-400 Hz. To order, add suffix "-230" to model number and \$25.00 to price. The "-230" option requires two additional days.

### GOLD BOX MODELS

| Nominal Output Voltages | Adjust Range $\pm V$ | Amps. per Output at |      |      | (\$ Price | Model    | Case Size |
|-------------------------|----------------------|---------------------|------|------|-----------|----------|-----------|
|                         |                      | 40°C                | 55°C | 71°C |           |          |           |
| $\pm 5$                 | .5                   | .750                | .650 | .550 | 265       | TD5-75   | TG5       |
| $\pm 5$                 | .5                   | 1.5                 | 1.25 | 1.0  | 305       | TD5-150  | TG6       |
| $\pm 5$                 | .5                   | 2.5                 | 2.0  | 1.5  | 370       | TD5-250  | TG9       |
| $\pm 12$                | 1                    | 1.0                 | .900 | .800 | 270       | TD12-100 | TG5       |
| $\pm 12$                | 1                    | 1.6                 | 1.4  | 1.0  | 310       | TD12-160 | TG6       |
| $\pm 12$                | 1                    | 2.5                 | 2.0  | 1.5  | 370       | TD12-250 | TG9       |
| $\pm 12$                | .5                   | 4.5                 | 3.7  | 3.0  | 450       | TD12-450 | TG13      |
| $\pm 12$                | .5                   | 8.5                 | 7.0  | 5.5  | 570       | TD12-850 | TH11      |
| $\pm 15$                | 1                    | .400                | .400 | .400 | 210       | TD15-40  | TG5       |
| $\pm 15$                | 1                    | 1.0                 | .900 | .800 | 270       | TD15-100 | TG5       |
| $\pm 15$                | 1                    | 1.6                 | 1.4  | 1.0  | 310       | TD15-160 | TG6       |
| $\pm 15$                | 1                    | 2.5                 | 2.0  | 1.5  | 370       | TD15-250 | TG9       |
| $\pm 15$                | .5                   | 4.5                 | 3.7  | 3.0  | 450       | TD15-450 | TG13      |
| $\pm 15$                | .5                   | 8.5                 | 7.0  | 5.5  | 570       | TD15-850 | TH11      |

### FRONT COVER CONNECTIONS:

(See page 63 for complete drawing.)

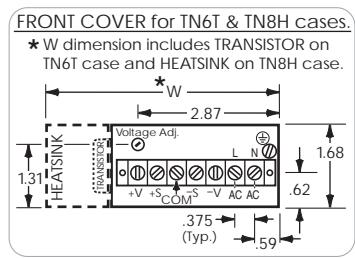


### NARROW PROFILE MODELS (for limited space applications)

| Nominal Output Voltages | Adjust Range $\pm V$ | Amps. per Output at |      |      | (\$ Price | Model    | Case Size |
|-------------------------|----------------------|---------------------|------|------|-----------|----------|-----------|
|                         |                      | 40°C                | 55°C | 71°C |           |          |           |
| $\pm 12^*$              | 1                    | .500                | .500 | .400 | 225       | FD12-50A | TN6T      |
| $\pm 12^*$              | .5                   | 1.0                 | .900 | .800 | 300       | LD12-100 | TN8H      |
| $\pm 15^*$              | 1                    | .500                | .500 | .400 | 225       | FD15-50A | TN6T      |
| $\pm 15^*$              | .5                   | 1.0                 | .900 | .800 | 300       | LD15-100 | TN8H      |

\* Not CE certified.

See page 63 for complete drawing.



## Gold Box

# DUAL ISOLATED OUTPUTS (User-selectable)

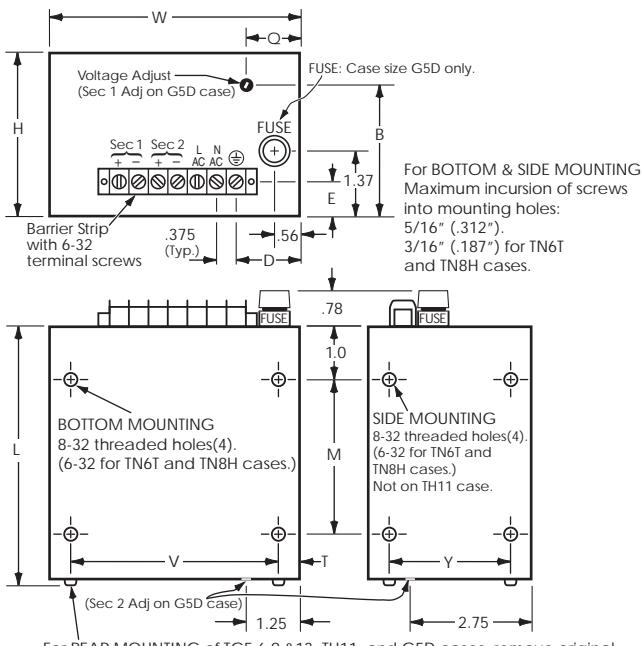
LINEAR REGULATED  
AC-DC

- Shipped Within 3 Days
- All Models U.L. Recognized
- Five Year Warranty

**Acopian general purpose duals** furnish two completely independent outputs, either identical or different, in less space and at less cost than two equivalent single output supplies. Thousands of output voltage/current rating combinations are available. Mounting and system wiring are simplified. Quality components, generously derated, insure long-term reliability.



### Dual Tracking & Dual Isolated Case Sizes: (on page 62) (on page 63)



For REAR MOUNTING of TG5, 6, 9 & 13, TH11, and G5D cases, remove original screws(4) and use 8-32 Type F self-tapping screws. They should extend at least 5/16" (.312") into the power supply case.

(When rear mounting G5D case, a hole is required in the mounting surface for access to the Section 2 output adjustment.)

For REAR MOUNTING of TN6T and TN8H cases, remove original 6-32 screws(4). These screws may then be used for mounting, provided they extend at least 1/4" (.250") into the power supply case.

**HOW TO ORDER:** Select two **sections** (from the same table) on pages 64 and 65. The complete model number is the combination of the two **sections** selected. Example: The combination of section 5GT20D and section 8GT50D is Model 5GT20D-8GT50D. Always assign the lower voltage section first. (Two of the same section can also be selected.) For pricing purposes, add the costs of the individual sections selected.

### SPECIFICATIONS

**Input Voltage:** 105-125 VAC, 50-400 Hz, single phase.

**Output Specifications:** See pages 64 and 65.

**Short Circuit Protection:** Delivers current surges without damage—built-in fuse protects supply against prolonged overloads and shorts.

**Polarity:** Outputs are floating. Each output may be independently connected to provide any combination of positive and negative voltages. Outputs may be floated up to 300 volts above ground.

**Temperature Coefficient:** 0.02%/°C (Typical).

**Ambient Operating Temperature:** -10 to +71°C.  
No derating required.

**Storage Temperature:** -55 to +85°C.

**Case size:** G5D.

**Mounting:** Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket. To mount from the power supply side of the mounting surface or for DIN rail mounting, see accessory Mounting Kits on page 91.

### OPTIONS

**Oversupply Protection:** Two separate, preset overvoltage protection circuits, one for each output. To order, add prefix "V" to model number and add \$30.00 to the standard price for 1.5 to 70 volt outputs; add \$50.00 if either or both outputs are greater than 70 volts.

**Terminal Strip Cover:** Clips on. To order, add suffix "M" to model number and \$5.00 to price.

**230 Volt Input:** All models can be alternately furnished for operation on inputs of 210-250 VAC, 50-400 Hz. To order, add suffix "-230" to model number and \$25.00 to the standard price. The "-230" option requires two additional days.

| Case Size | L     | W     | H    | M    | V    | Y    | E   | Q    | B    | D    | T   | Approx. Weight |
|-----------|-------|-------|------|------|------|------|-----|------|------|------|-----|----------------|
| G5D       | 5.09  | 5.12  | 3.44 | 3.0  | 4.50 | 3.0  | .75 | 1.25 | 2.73 | 1.44 | .31 | 4 lb.          |
| TG5       | 5.09  | 5.12  | 3.44 | 3.0  | 4.50 | 3.0  | .75 | 1.25 | 2.73 | 1.44 | .31 | 3 lb. 4 oz.    |
| TG6       | 6.59  | 5.12  | 3.44 | 4.0  | 4.50 | 3.0  | .75 | 1.25 | 2.73 | 1.44 | .31 | 4 lb. 4 oz.    |
| TG9       | 9.25  | 5.12  | 3.44 | 6.0  | 4.50 | 3.0  | .75 | 1.25 | 2.73 | 1.44 | .31 | 6 lb. 8 oz.    |
| TG13      | 13.25 | 5.12  | 3.44 | 10.0 | 4.50 | 3.0  | .75 | 1.25 | 2.73 | 1.44 | .31 | 12 lb.         |
| TH11      | 11.25 | 7.37  | 5.12 | 8.0  | 6.75 | 4.56 | .75 | 2.73 | 4.36 | 2.38 | .31 | 18 lb. 4 oz.   |
| TN6T      | 6.59  | 3.84* | 4.0  | 3.12 | 1.31 |      |     |      |      | .156 |     | 2 lb. 4 oz.    |
| TN8H      | 8.47  | 4.68* | 5.0  | 3.12 | 1.31 |      |     |      |      | .156 |     | 3 lb. 14 oz.   |

\* see page 62 for front cover drawing.

## DUAL OUTPUT (User-selectable)

### (OUTPUTS TO 500 MA)

| Nominal Output Voltage | Adjust Range $\pm$ V | Output Current Amps. | Regulation   |              | Ripple mV RMS | (see 'How to Order')   |          |
|------------------------|----------------------|----------------------|--------------|--------------|---------------|------------------------|----------|
|                        |                      |                      | Load $\pm$ % | Line $\pm$ % |               | Price per Section (\$) | Section  |
| 1.5                    | .5                   | .200                 | .4           | .05          | 1             | 115                    | 1.5GT20D |
| 1.5                    | .5                   | .400                 | .5           | .1           | 1             | 125                    | 1.5GT40D |
| 2.5                    | .5                   | .200                 | .4           | .05          | 1             | 115                    | 2.5GT20D |
| 2.5                    | .5                   | .400                 | .5           | .1           | 1             | 125                    | 2.5GT40D |
| 3                      | .5                   | .200                 | .3           | .05          | 1             | 115                    | 3GT20D   |
| 3                      | .5                   | .400                 | .5           | .1           | 1             | 125                    | 3GT40D   |
| 3.3                    | .5                   | .200                 | .2           | .05          | 1             | 115                    | 3.3GT20D |
| 3.3                    | .5                   | .400                 | .3           | .1           | 1             | 125                    | 3.3GT40D |
| 5                      | .5                   | .200                 | .2           | .05          | 1             | 115                    | 5GT20D   |
| 5                      | .5                   | .500                 | .3           | .05          | 1             | 125                    | 5GT50D   |
| 6                      | 1                    | .200                 | .05          | .05          | 1             | 115                    | 6GT20D   |
| 6                      | 1                    | .500                 | .15          | .05          | 1             | 125                    | 6GT50D   |
| 7                      | 1                    | .200                 | .05          | .05          | 1             | 115                    | 7GT20D   |
| 7                      | 1                    | .500                 | .15          | .05          | 1             | 125                    | 7GT50D   |
| 8                      | 1                    | .200                 | .05          | .05          | 1             | 115                    | 8GT20D   |
| 8                      | 1                    | .500                 | .1           | .05          | 1             | 125                    | 8GT50D   |
| 9                      | 1                    | .200                 | .05          | .05          | 1             | 115                    | 9GT20D   |
| 9                      | 1                    | .500                 | .1           | .05          | 1             | 125                    | 9GT50D   |
| 10                     | 1                    | .250                 | .05          | .05          | 1             | 115                    | 10GT25D  |
| 10                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 10GT50D  |
| 11                     | 1                    | .250                 | .05          | .05          | 1             | 115                    | 11GT25D  |
| 11                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 11GT50D  |
| 12                     | 1                    | .250                 | .05          | .05          | 1             | 115                    | 12GT25D  |
| 12                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 12GT50D  |
| 13                     | 1                    | .250                 | .05          | .05          | 1             | 115                    | 13GT25D  |
| 13                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 13GT50D  |
| 15                     | 1                    | .250                 | .05          | .05          | 1             | 115                    | 15GT25D  |
| 15                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 15GT50D  |
| 16                     | 1                    | .250                 | .05          | .05          | 1             | 115                    | 16GT25D  |
| 16                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 16GT50D  |
| 17                     | 1                    | .250                 | .05          | .05          | 1             | 115                    | 17GT25D  |
| 17                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 17GT50D  |
| 18                     | 1                    | .250                 | .05          | .05          | 1             | 115                    | 18GT25D  |
| 18                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 18GT50D  |
| 19                     | 1                    | .250                 | .05          | .05          | 1             | 115                    | 19GT25D  |
| 19                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 19GT50D  |
| 20                     | 1                    | .250                 | .05          | .05          | 1             | 115                    | 20GT25D  |
| 20                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 20GT50D  |
| 21                     | 1                    | .250                 | .05          | .05          | 1             | 115                    | 21GT25D  |
| 21                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 21GT50D  |
| 22                     | 1                    | .250                 | .05          | .05          | 1             | 115                    | 22GT25D  |
| 22                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 22GT50D  |
| 23                     | 1                    | .250                 | .05          | .05          | 1             | 115                    | 23GT25D  |
| 23                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 23GT50D  |
| 24                     | 1                    | .250                 | .05          | .05          | 1             | 115                    | 24GT25D  |
| 24                     | 1                    | .500                 | .05          | .05          | 1             | 125                    | 24GT50D  |
| 25                     | 1                    | .250                 | .05          | .05          | 1             | 115                    | 25GT25D  |
| 25                     | 1                    | .500                 | .05          | .05          | 1             | 125                    | 25GT50D  |
| 26                     | 1                    | .250                 | .05          | .05          | 1             | 115                    | 26GT25D  |
| 26                     | 1                    | .400                 | .05          | .05          | 1             | 125                    | 26GT40D  |
| 28                     | 1                    | .250                 | .05          | .05          | 1             | 115                    | 28GT25D  |
| 28                     | 1                    | .400                 | .05          | .05          | 1             | 125                    | 28GT40D  |
| 30                     | 1                    | .250                 | .05          | .05          | 1             | 115                    | 30GT25D  |
| 30                     | 1                    | .400                 | .05          | .05          | 1             | 125                    | 30GT40D  |
| 31                     | 1                    | .100                 | .05          | .05          | 1             | 115                    | 31GT10D  |
| 31                     | 1                    | .300                 | .05          | .05          | 1             | 125                    | 31GT30D  |
| 32                     | 1                    | .100                 | .05          | .05          | 1             | 115                    | 32GT10D  |
| 32                     | 1                    | .300                 | .05          | .05          | 1             | 125                    | 32GT30D  |
| 33                     | 1                    | .100                 | .05          | .05          | 1             | 115                    | 33GT10D  |
| 33                     | 1                    | .300                 | .05          | .05          | 1             | 125                    | 33GT30D  |

| Nominal Output Voltage | Adjust Range $\pm$ V | Output Current Amps. | Regulation   |              | Ripple mV RMS | (see 'How to Order')   |          |
|------------------------|----------------------|----------------------|--------------|--------------|---------------|------------------------|----------|
|                        |                      |                      | Load $\pm$ % | Line $\pm$ % |               | Price per Section (\$) | Section  |
| 34                     | 1                    | .100                 | .05          | .05          | 1             | 115                    | 34GT10D  |
| 34                     | 1                    | .300                 | .05          | .05          | 1             | 125                    | 34GT30D  |
| 35                     | 1                    | .100                 | .05          | .05          | 1             | 115                    | 35GT10D  |
| 35                     | 1                    | .200                 | .05          | .05          | 1             | 125                    | 35GT20D  |
| 36                     | 1                    | .100                 | .05          | .05          | 1             | 115                    | 36GT10D  |
| 36                     | 1                    | .200                 | .05          | .05          | 1             | 125                    | 36GT20D  |
| 38                     | 1                    | .100                 | .05          | .05          | 1             | 115                    | 38GT10D  |
| 38                     | 1                    | .200                 | .05          | .05          | 1             | 125                    | 38GT20D  |
| 40                     | 1                    | .100                 | .05          | .05          | 1             | 115                    | 40GT10D  |
| 40                     | 1                    | .200                 | .05          | .05          | 1             | 125                    | 40GT20D  |
| 42                     | 1                    | .100                 | .05          | .05          | 1             | 115                    | 42GT10D  |
| 42                     | 1                    | .200                 | .05          | .05          | 1             | 125                    | 42GT20D  |
| 44                     | 1                    | .100                 | .05          | .05          | 1             | 115                    | 44GT10D  |
| 44                     | 1                    | .200                 | .05          | .05          | 1             | 125                    | 44GT20D  |
| 45                     | 1                    | .100                 | .05          | .05          | 1             | 115                    | 45GT10D  |
| 45                     | 1                    | .200                 | .05          | .05          | 1             | 125                    | 45GT20D  |
| 46                     | 1                    | .100                 | .05          | .05          | 1             | 115                    | 46GT10D  |
| 46                     | 1                    | .200                 | .05          | .05          | 1             | 125                    | 46GT20D  |
| 48                     | 1                    | .100                 | .05          | .05          | 1             | 120                    | 48GT10D  |
| 48                     | 1                    | .200                 | .05          | .05          | 1             | 130                    | 48GT20D  |
| 50                     | 1                    | .100                 | .05          | .05          | 1             | 120                    | 50GT10D  |
| 50                     | 1                    | .200                 | .05          | .05          | 1             | 130                    | 50GT20D  |
| 52                     | 1                    | .100                 | .05          | .05          | 1             | 125                    | 52GT10D  |
| 52                     | 1                    | .200                 | .05          | .05          | 1             | 135                    | 52GT20D  |
| 54                     | 1                    | .100                 | .05          | .05          | 1             | 125                    | 54GT10D  |
| 54                     | 1                    | .200                 | .05          | .05          | 1             | 135                    | 54GT20D  |
| 55                     | 1                    | .100                 | .05          | .05          | 1             | 125                    | 55GT10D  |
| 55                     | 1                    | .200                 | .05          | .05          | 1             | 135                    | 55GT20D  |
| 56                     | 1                    | .050                 | .05          | .05          | 1             | 125                    | 56GT05D  |
| 56                     | 1                    | .100                 | .05          | .05          | 1             | 135                    | 56GT10D  |
| 58                     | 1                    | .050                 | .05          | .05          | 1             | 125                    | 58GT05D  |
| 58                     | 1                    | .100                 | .05          | .05          | 1             | 135                    | 58GT10D  |
| 60                     | 1                    | .050                 | .05          | .05          | 1             | 125                    | 60GT05D  |
| 60                     | 1                    | .100                 | .05          | .05          | 1             | 135                    | 60GT10D  |
| 62                     | 1                    | .050                 | .05          | .05          | 1             | 125                    | 62GT05D  |
| 62                     | 1                    | .100                 | .05          | .05          | 1             | 135                    | 62GT10D  |
| 64                     | 1                    | .050                 | .05          | .05          | 1             | 125                    | 64GT05D  |
| 64                     | 1                    | .100                 | .05          | .05          | 1             | 135                    | 64GT10D  |
| 65                     | 1                    | .050                 | .05          | .05          | 1             | 125                    | 65GT05D  |
| 65                     | 1                    | .100                 | .05          | .05          | 1             | 135                    | 65GT10D  |
| 67                     | 1                    | .050                 | .05          | .05          | 1             | 125                    | 67GT05D  |
| 67                     | 1                    | .100                 | .05          | .05          | 1             | 135                    | 67GT10D  |
| 68                     | 1                    | .050                 | .05          | .05          | 1             | 125                    | 68GT05D  |
| 68                     | 1                    | .100                 | .05          | .05          | 1             | 135                    | 68GT10D  |
| 69                     | 1                    | .050                 | .05          | .05          | 1             | 125                    | 69GT05D  |
| 69                     | 1                    | .100                 | .05          | .05          | 1             | 135                    | 69GT10D  |
| 70                     | 1                    | .050                 | .05          | .05          | 1             | 125                    | 70GT05D  |
| 70                     | 1                    | .100                 | .05          | .05          | 1             | 135                    | 70GT10D  |
| 75                     | 1                    | .050                 | .05          | .05          | 1             | 125                    | 75GT05D  |
| 75                     | 1                    | .100                 | .05          | .05          | 1             | 135                    | 75GT10D  |
| 76                     | 1                    | .020                 | .05          | .05          | 1             | 125                    | 76GT02D  |
| 76                     | 1                    | .050                 | .05          | .05          | 1             | 135                    | 76GT05D  |
| 80                     | 1                    | .020                 | .05          | .05          | 1             | 125                    | 80GT02D  |
| 80                     | 1                    | .050                 | .05          | .05          | 1             | 135                    | 80GT05D  |
| 85                     | 1                    | .020                 | .05          | .05          | 1             | 130                    | 85GT02D  |
| 85                     | 1                    | .050                 | .05          | .05          | 1             | 150                    | 85GT05D  |
| 90                     | 1                    | .020                 | .05          | .05          | 1             | 130                    | 90GT02D  |
| 90                     | 1                    | .050                 | .05          | .05          | 1             | 150                    | 90GT05D  |
| 95                     | 1                    | .020                 | .05          | .05          | 1             | 135                    | 95GT02D  |
| 95                     | 1                    | .050                 | .05          | .05          | 1             | 155                    | 95GT05D  |
| 100                    | 1                    | .020                 | .05          | .05          | 1             | 150                    | 100GT02D |
| 100                    | 1                    | .050                 | .05          | .05          | 1             | 160                    | 100GT05D |

## DUAL OUTPUT (User-selectable)

(OUTPUTS TO 2 AMPS.)

| Nominal Output Voltage | Adjust Range $\pm$ V | Output Current Amps. | Regulation   |              | Ripple mV RMS | (see 'How to Order')   |           |
|------------------------|----------------------|----------------------|--------------|--------------|---------------|------------------------|-----------|
|                        |                      |                      | Load $\pm$ % | Line $\pm$ % |               | Price per Section (\$) | Section   |
| 1.5                    | .5                   | .400                 | .5           | .1           | 1             | 125                    | 1.5GT40D  |
| 2.5                    | .5                   | .400                 | .5           | .1           | 1             | 125                    | 2.5GT40D  |
| 3                      | .5                   | .400                 | .5           | .1           | 1             | 125                    | 3GT40D    |
| 3                      | .5                   | .700                 | .5           | .1           | 1             | 130                    | 3GT70D    |
| 3                      | .5                   | 1.0                  | .5           | .1           | 1             | 135                    | 3GT100D   |
| 3.3                    | .5                   | .400                 | .3           | .1           | 1             | 125                    | 3.3GT40D  |
| 3.3                    | .5                   | .700                 | .4           | .1           | 1             | 130                    | 3.3GT70D  |
| 3.3                    | .5                   | 1.0                  | .5           | .1           | 1             | 135                    | 3.3GT100D |
| 5                      | .5                   | .500                 | .3           | .05          | 1             | 125                    | 5GT50D    |
| 5                      | .5                   | .700                 | .4           | .05          | 1             | 130                    | 5GT70D    |
| 5                      | .5                   | 1.0                  | .5           | .05          | 1             | 135                    | 5GT100D   |
| 5                      | .25                  | 2.0                  | .5           | .05          | 1             | 160                    | 5GT200D   |
| 6                      | 1                    | .500                 | .15          | .05          | 1             | 125                    | 6GT50D    |
| 6                      | .5                   | .700                 | .2           | .05          | 1             | 130                    | 6GT70D    |
| 6                      | .5                   | 1.0                  | .3           | .05          | 1             | 135                    | 6GT100D   |
| 7                      | 1                    | .500                 | .15          | .05          | 1             | 125                    | 7GT50D    |
| 7                      | .5                   | .700                 | .2           | .05          | 1             | 130                    | 7GT70D    |
| 7                      | .5                   | 1.0                  | .3           | .05          | 1             | 135                    | 7GT100D   |
| 8                      | 1                    | .500                 | .1           | .05          | 1             | 125                    | 8GT50D    |
| 8                      | .5                   | .700                 | .15          | .05          | 1             | 130                    | 8GT70D    |
| 8                      | .5                   | 1.0                  | .2           | .05          | 1             | 135                    | 8GT100D   |
| 9                      | 1                    | .500                 | .1           | .05          | 1             | 125                    | 9GT50D    |
| 9                      | .5                   | .700                 | .15          | .05          | 1             | 130                    | 9GT70D    |
| 9                      | .5                   | 1.0                  | .2           | .05          | 1             | 135                    | 9GT100D   |
| 10                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 10GT50D   |
| 10                     | .5                   | .700                 | .15          | .05          | 1             | 130                    | 10GT70D   |
| 10                     | .5                   | 1.0                  | .2           | .05          | 1             | 135                    | 10GT100D  |
| 12                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 12GT50D   |
| 12                     | .5                   | .700                 | .1           | .05          | 1             | 130                    | 12GT70D   |
| 12                     | .5                   | 1.0                  | .1           | .05          | 1             | 135                    | 12GT100D  |
| 14                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 14GT50D   |
| 14                     | .5                   | .700                 | .1           | .05          | 1             | 130                    | 14GT70D   |
| 14                     | .5                   | 1.0                  | .1           | .05          | 1             | 135                    | 14GT100D  |
| 15                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 15GT50D   |
| 15                     | .5                   | .700                 | .1           | .05          | 1             | 130                    | 15GT70D   |
| 15                     | .5                   | 1.0                  | .1           | .05          | 1             | 135                    | 15GT100D  |
| 16                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 16GT50D   |
| 16                     | .5                   | .700                 | .1           | .05          | 1             | 130                    | 16GT70D   |
| 16                     | .5                   | 1.0                  | .1           | .05          | 1             | 150                    | 16GT100D  |
| 18                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 18GT50D   |
| 18                     | .5                   | .700                 | .1           | .05          | 1             | 130                    | 18GT70D   |
| 18                     | .5                   | 1.0                  | .1           | .05          | 1             | 150                    | 18GT100D  |
| 19                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 19GT50D   |
| 19                     | .5                   | .750                 | .1           | .05          | 1             | 135                    | 19GT75D   |
| 20                     | 1                    | .500                 | .1           | .05          | 1             | 125                    | 20GT50D   |
| 20                     | .5                   | .750                 | .1           | .05          | 1             | 135                    | 20GT75D   |

(90 TO 150 VOLTS)

| Nominal Output Voltage | Adjust Range $\pm$ V | Output Current Amps. | Regulation   |              | Ripple mV RMS | (see 'How to Order')   |          |
|------------------------|----------------------|----------------------|--------------|--------------|---------------|------------------------|----------|
|                        |                      |                      | Load $\pm$ % | Line $\pm$ % |               | Price per Section (\$) | Section  |
| 90                     | 1                    | .050                 | .05          | .05          | 1             | 150                    | 90GT05D  |
| 90                     | 1                    | .100                 | .05          | .05          | 1             | 170                    | 90GT10D  |
| 95                     | 1                    | .050                 | .05          | .05          | 1             | 155                    | 95GT05D  |
| 95                     | 1                    | .100                 | .05          | .05          | 1             | 175                    | 95GT10D  |
| 100                    | 1                    | .050                 | .05          | .05          | 1             | 160                    | 100GT05D |
| 100                    | 1                    | .100                 | .05          | .05          | 1             | 180                    | 100GT10D |
| 105                    | 1                    | .050                 | .05          | .05          | 1             | 160                    | 105GT05D |
| 105                    | 1                    | .100                 | .05          | .05          | 1             | 180                    | 105GT10D |
| 110                    | 1                    | .050                 | .05          | .05          | 1             | 170                    | 110GT05D |
| 110                    | 1                    | .100                 | .05          | .05          | 1             | 185                    | 110GT10D |
| 115                    | 1                    | .050                 | .05          | .05          | 1             | 170                    | 115GT05D |
| 115                    | 1                    | .100                 | .05          | .05          | 1             | 185                    | 115GT10D |
| 120                    | 1                    | .050                 | .05          | .05          | 1             | 175                    | 120GT05D |
| 120                    | 1                    | .100                 | .05          | .05          | 1             | 190                    | 120GT10D |
| 125                    | 1                    | .050                 | .05          | .05          | 1             | 180                    | 125GT05D |
| 125                    | 1                    | .100                 | .05          | .05          | 1             | 195                    | 125GT10D |
| 130                    | 1                    | .050                 | .05          | .05          | 1             | 180                    | 130GT05D |
| 130                    | 1                    | .100                 | .05          | .05          | 1             | 195                    | 130GT10D |
| 135                    | 1                    | .050                 | .05          | .05          | 1             | 180                    | 135GT05D |
| 135                    | 1                    | .100                 | .05          | .05          | 1             | 195                    | 135GT10D |
| 140                    | 1                    | .050                 | .05          | .05          | 1             | 180                    | 140GT05D |
| 140                    | 1                    | .100                 | .05          | .05          | 1             | 195                    | 140GT10D |
| 145                    | 1                    | .050                 | .05          | .05          | 1             | 180                    | 145GT05D |
| 145                    | 1                    | .100                 | .05          | .05          | 1             | 195                    | 145GT10D |
| 150                    | 1                    | .050                 | .05          | .05          | 1             | 180                    | 150GT05D |
| 150                    | 1                    | .100                 | .05          | .05          | 1             | 195                    | 150GT10D |

## Gold Box

# DUAL ISOLATED OUTPUTS (5v/12v combinations)

LINEAR REGULATED  
AC-DC

- Shipped Within 3 Days
- All Models U.L. Recognized
- CE
- Five Year Warranty

**Dual isolated output power supplies** may be connected to provide any desired arrangement of positive and negative output voltages. Each voltage is independently

## SPECIFICATIONS

**Input Voltage:** 105-125 VAC, 50-400 Hz, single phase.

**Polarity:** Outputs are floating. Each may be independently connected to provide any combination of positive and negative voltages. Outputs may be floated up to 300 volts above ground.

**Temperature Coefficient:** 0.02%/°C (Typical).

**Ambient Operating Temperature:** -10 to +60°C.

No derating required.

**Storage Temperature:** -55 to +85°C.

**Mounting:** Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket. To mount from the power supply side of the mounting surface or for DIN rail mounting, see accessory Mounting Kits on page 91.

## OPTIONS

**Overvoltage Protection:** Two separate, preset overvoltage protection circuits, one for each output. To order, add prefix "V" to model number and add \$45.00 to the standard price.

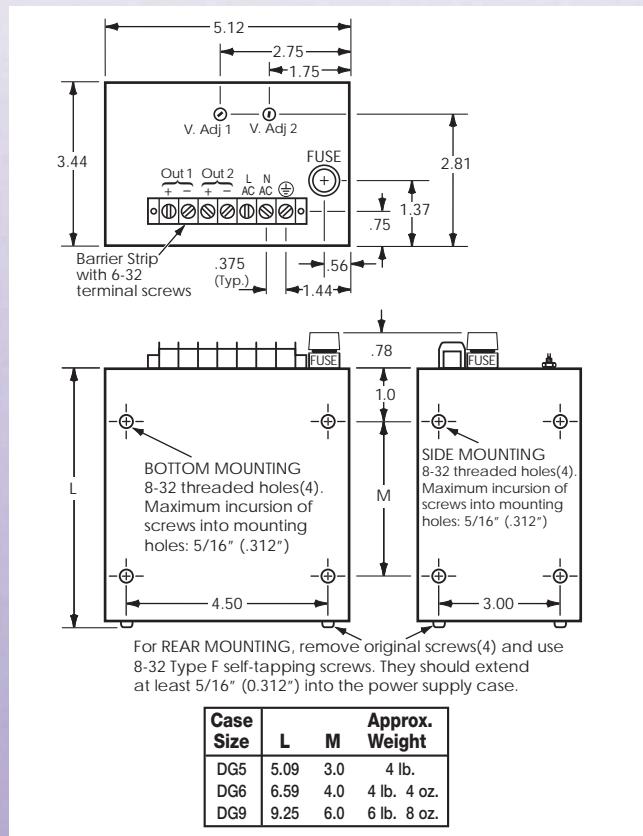
**Terminal Strip Cover:** Clips on. To order, add suffix "M" to model number and \$5.00 to price.

**230 Volt Input:** All models can be alternately furnished for operation on inputs of 210-250 VAC, 50-400 Hz. To order, add suffix "-230" to model number and \$25.00 to the standard price. The "-230" option requires two additional days.



adjustable. No derating is required up to +60°C. A separate overvoltage protector on each output is available as a built-in option.

| Nominal Output Voltages | Adjust Range ± V | Output Current Amps. | Regulation |            | Ripple mV RMS | (\$ Price | Model  | Case Size |
|-------------------------|------------------|----------------------|------------|------------|---------------|-----------|--------|-----------|
|                         |                  |                      | Load ± %   | Line ± %   |               |           |        |           |
| 5<br>12                 | .25<br>1         | 2.0<br>.600          | .15<br>.15 | .15<br>.15 | 1<br>1        | 270       | 512D5A | DG5       |
| 5<br>12                 | .25<br>1         | 3.0<br>1.2           | .15<br>.15 | .15<br>.15 | 1<br>1        | 310       | 512D6A | DG6       |
| 5<br>12                 | .25<br>1         | 6.0<br>2.4           | .15<br>.15 | .15<br>.15 | 1<br>1        | 380       | 512D9A | DG9       |



| Case Size | L    | M   | Approx. Weight |
|-----------|------|-----|----------------|
| DG5       | 5.09 | 3.0 | 4 lb.          |
| DG6       | 6.59 | 4.0 | 4 lb. 4 oz.    |
| DG9       | 9.25 | 6.0 | 6 lb. 8 oz.    |

## Gold Box

# TRIPLE ISOLATED OUTPUTS

### LINEAR REGULATED AC-DC

- Shipped Within 3 Days
- All Models U.L. Recognized
- CE
- Five Year Warranty

**Triple isolated output power supplies** provide the features and characteristics of three supplies in one compact, easy-to-use package. They are available in the voltage combinations most frequently required for driving microprocessors and associated circuitry.

### SPECIFICATIONS

**Input Voltage:** 105-125 VAC, 50-400 Hz, single phase.  
**Polarity:** Outputs are floating. Each output may be independently connected to provide any combination of positive and negative voltages. Outputs may be floated up to 300 volts above ground.

**Temperature Coefficient:** 0.02%/°C (Typical).

**Ambient Operating Temperature:** -10 to +60°C.  
 No derating required.

**Storage Temperature:** -55 to +85°C.

**Accessory Mounting Kits:** See page 91.

### OPTIONS

**Overvoltage Protection:** Separate overvoltage protection circuit on each output. Add prefix "3V" to model number and increase standard price as follows:

Case sizes GT5 - GT13 . . . . . \$45.00

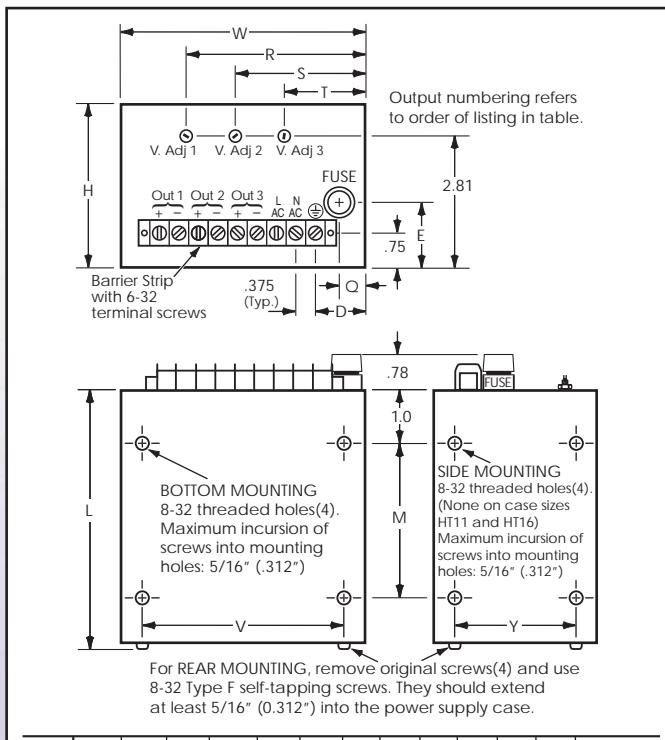
Case size HT11 . . . . . 65.00

Case size HT16 . . . . . 95.00

**Terminal Strip Cover:** Clips on. To order, add suffix "M" to model number and \$5.00 to price.

**230 Volt Input:** Add suffix "-230" to the model number and \$25.00 to the price. Requires two additional days.

| Nominal Output Voltages | Adjust Range $\pm$ V | Output Current Amps. | Regulation   |              | Ripple mV RMS | (\$) | Model     | Case Size |
|-------------------------|----------------------|----------------------|--------------|--------------|---------------|------|-----------|-----------|
|                         |                      |                      | Load $\pm$ % | Line $\pm$ % |               |      |           |           |
| 5                       | .25                  | 3.0                  | .15          | .15          | 1             | 330  | 5512T6A   | GT6       |
| 5                       | .25                  | 1.0                  | .15          | .15          | 1             |      |           |           |
| 12                      | 1                    | .600                 | .15          | .15          | 1             |      |           |           |
| 5                       | .25                  | 6.0                  | .15          | .15          | 1             |      |           |           |
| 5                       | .25                  | 2.0                  | .15          | .15          | 1             |      |           |           |
| 12                      | 1                    | 1.2                  | .15          | .15          | 1             |      |           |           |
| 5                       | .25                  | 6.0                  | .15          | .15          | 1             |      |           |           |
| 9                       | 1                    | 1.4                  | .15          | .15          | 1             |      |           |           |
| 12                      | 1                    | 1.2                  | .15          | .15          | 1             |      |           |           |
| 5                       | .25                  | 2.0                  | .15          | .15          | 1             |      |           |           |
| 12                      | 1                    | .300                 | .15          | .15          | 1             | 295  | 51212T5A  | GT5       |
| 12                      | 1                    | .300                 | .15          | .15          | 1             |      |           |           |
| 5                       | .25                  | 3.0                  | .15          | .15          | 1             |      |           |           |
| 12                      | 1                    | .600                 | .15          | .15          | 1             |      |           |           |
| 12                      | 1                    | .600                 | .15          | .15          | 1             | 330  | 51212T6A  | GT6       |
| 5                       | .25                  | 6.0                  | .15          | .15          | 1             |      |           |           |
| 12                      | 1                    | 1.2                  | .15          | .15          | 1             |      |           |           |
| 12                      | 1                    | 1.2                  | .15          | .15          | 1             | 400  | 51212T9A  | GT9       |
| 5                       | .25                  | 8.0                  | .15          | .15          | 1             |      |           |           |
| 12                      | 1                    | 1.3                  | .15          | .15          | 1             |      |           |           |
| 12                      | 1                    | 1.3                  | .15          | .15          | 1             | 450  | 51212T13A | GT13      |
| 5                       | .5                   | 15.0                 | .15          | .15          | 1             |      |           |           |
| 12                      | 1                    | 2.0                  | .15          | .15          | 1             | 530  | 51212T11A | HT11      |
| 12                      | 1                    | 2.0                  | .15          | .15          | 1             |      |           |           |



| Case Size | L     | W    | H    | M    | V    | Y    | D    | E    | Q    | R    | S    | T    | Approx. Weight |
|-----------|-------|------|------|------|------|------|------|------|------|------|------|------|----------------|
| GT5       | 5.09  | 5.12 | 3.44 | 3.0  | 4.50 | 3.0  | 1.06 | 1.37 | .56  | 3.75 | 2.75 | 1.75 | 4 lb. 14 oz.   |
| GT6       | 6.59  | 5.12 | 3.44 | 4.0  | 4.50 | 3.0  | 1.06 | 1.37 | .56  | 3.75 | 2.75 | 1.75 | 5 lb. 8 oz.    |
| GT9       | 9.25  | 5.12 | 3.44 | 6.0  | 4.50 | 3.0  | 1.06 | 1.37 | .56  | 3.75 | 2.75 | 1.75 | 7 lb. 4 oz.    |
| GT13      | 13.25 | 5.12 | 3.44 | 10.0 | 4.50 | 3.0  | 1.06 | 1.37 | .56  | 3.75 | 2.75 | 1.75 | 12 lb.         |
| HT11      | 11.25 | 7.37 | 5.12 | 8.0  | 6.75 | 4.56 | 2.18 | 3.25 | 1.13 | 4.88 | 3.88 | 2.88 | 18 lb. 4 oz.   |
| HT16      | 16.00 | 7.37 | 5.12 | 11.0 | 6.75 | 4.56 | 2.18 | 3.25 | 1.13 | 4.88 | 3.88 | 2.88 | 26 lb.         |

| Nominal Output Voltages | Adjust Range $\pm$ V | Output Current Amps. | Regulation   |              | Ripple mV RMS | (\$) | Model     | Case Size |
|-------------------------|----------------------|----------------------|--------------|--------------|---------------|------|-----------|-----------|
|                         |                      |                      | Load $\pm$ % | Line $\pm$ % |               |      |           |           |
| 5                       | .5                   | 20.0                 | .15          | .15          | 1             | 595  | 51212T16A | HT16      |
| 12                      | 1                    | 3.0                  | .15          | .15          | 1             |      |           |           |
| 12                      | 1                    | 3.0                  | .15          | .15          | 1             |      |           |           |
| 5                       | .25                  | 2.0                  | .15          | .15          | 1             | 295  | 51515T5A  | GT5       |
| 15                      | 1                    | .250                 | .15          | .15          | 1             |      |           |           |
| 15                      | 1                    | .250                 | .15          | .15          | 1             |      |           |           |
| 5                       | .25                  | 3.0                  | .15          | .15          | 1             | 330  | 51515T6A  | GT6       |
| 15                      | 1                    | .300                 | .15          | .15          | 1             |      |           |           |
| 15                      | 1                    | .300                 | .15          | .15          | 1             |      |           |           |
| 5                       | .25                  | 6.0                  | .15          | .15          | 1             |      |           |           |
| 15                      | 1                    | 1.0                  | .15          | .15          | 1             | 400  | 51515T9A  | GT9       |
| 15                      | 1                    | 1.1                  | .15          | .15          | 1             |      |           |           |
| 5                       | .25                  | 8.0                  | .15          | .15          | 1             | 450  | 51515T13A | GT13      |
| 15                      | 1                    | 1.1                  | .15          | .15          | 1             |      |           |           |
| 5                       | .5                   | 15.0                 | .15          | .15          | 1             | 530  | 51515T11A | HT11      |
| 15                      | 1                    | 2.5                  | .15          | .15          | 1             | 595  | 51515T16A | HT16      |

# High Voltage AC-DC

## RACK MOUNTING REGULATED

Output ranges: 0 - 1,000 volts to 0 - 30,000 volts

- Shipped Within 9 Days
- Five Year Warranty  
(internal encapsulated module - One Year)



**Ideal for laboratory and instrumentation** applications, these rack mounting supplies have the same output ratings and specifications as the modular supplies shown on pages 70 and 71, but additionally feature calibrated

ten-turn controls (with locking vernier dials) for precisely setting voltage and current. Voltmeter, ammeter and handles are standard. An 8' long shielded output cable is included.

## SPECIFICATIONS

**Input Voltage:** 105-125 VAC, 50-400 Hz, single phase.

**Input Current:**

30 watt output ratings: 0.6A  
60 watt output ratings: 1.2A

**Output Polarity:** Positive output is standard. For negative output, change first letter of model number from P to N.

**Regulation (constant voltage operation):**

**Line:**  $\pm 0.05\%$   
**Load:**  $\pm 0.05\%$

**Regulation (constant current operation):**

**Line:**  $\pm 0.1\%$   
**Load:**  $\pm 0.1\%$  plus 50  $\mu$ A.

**Ripple:** 0.05%, peak-to-peak.

**Output Controls:** Voltage and current may be controlled by means of two 10-turn front panel adjustments with locking vernier dials. Control linearity is 1% of full rated output. Calibration accuracy is 1% of rated output plus 1% of setting. (Remotely located 1000 ohm potentiometers may alternately be used for output control.)

**Metering:** Voltmeter and ammeter are standard. Accuracy is 2% of full scale.

**Voltage Monitor Terminal:** Permits remote monitoring of output voltage, stepped down by ratio shown. Accuracy is 2% of maximum rated output voltage.

**Current Monitor Terminal:** Permits remote monitoring of output current, at mV/mA ratio shown. Accuracy is 2% of maximum rated output current.

**Inhibit Terminal:** Grounding inhibits output.

**Input Protection:** "Soft start" circuit minimizes start-up power stresses.

**Output Programming:** Output voltage and current may be programmed from 0 to full rating by means of control voltage inputs of 0 to +5.1 Vdc,  $\pm 2\%$ .

**Output Protection:** Current regulation circuit protects power supply from short circuits, overload, and arcing.

**Response Time:** Less than 5 mS for 100  $\mu$ A load step change.

**Stability:** 0.05% over eight hours, after 30 minute warmup.

**Temperature Coefficient:** 200 PPM/ $^{\circ}$ C = 0.02%/ $^{\circ}$ C (Typical).

**Ambient Operating Temperature:** -10 to +60 $^{\circ}$ C. No derating required.

**Storage Temperature:** -20 to +85 $^{\circ}$ C.

**Humidity:** Maximum of 90% relative, non-condensing.

**Connections:**

**Input, Control and Monitoring:** Screw terminals.

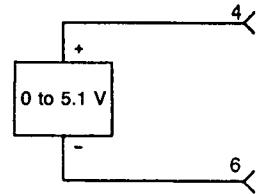
**Output:** High voltage connector (Type varies with model number). An 8' shielded output cable, with mating connector installed, is provided.

## OPTIONS

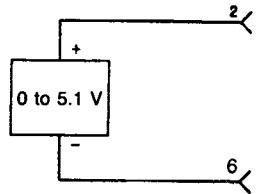
**Terminal Strip Cover:** Clips on AC input terminal strip. To order, add suffix "M" to model number and \$5.00 to price.

**230 Volt Input:** All models can be alternately furnished for operation on inputs of 210-250 VAC, 50-400 Hz, single phase. To order, add suffix "-230" to model number and add \$40.00 to price. The "-230" option requires two additional days.

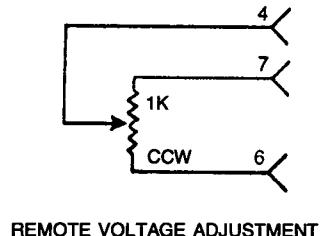
## REMOTE PROGRAMMING AND MONITORING



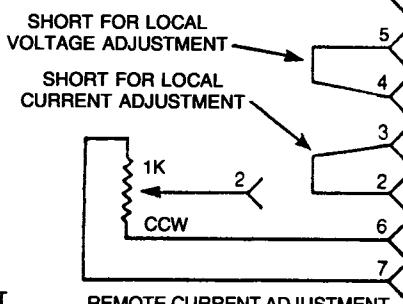
VOLTAGE PROGRAMMING OF OUTPUT VOLTAGE



VOLTAGE PROGRAMMING OF OUTPUT CURRENT



REMOTE VOLTAGE ADJUSTMENT

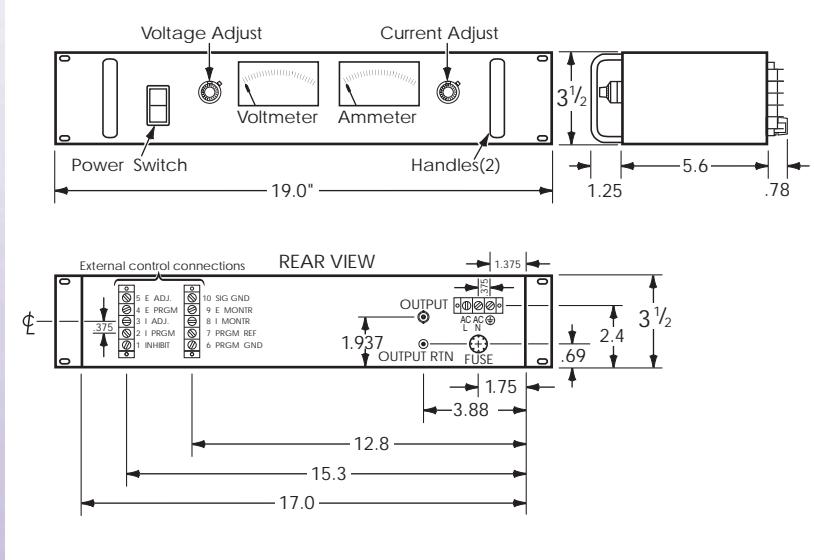


REMOTE CURRENT ADJUSTMENT

|    |          |
|----|----------|
| 10 | SIG GND  |
| 1  | INHIBIT  |
| 9  | E MONTR  |
| 8  | I MONTR  |
| 5  | E ADJ    |
| 4  | E PRGM   |
| 3  | I ADJ    |
| 2  | I PRGM   |
| 6  | PRGM GND |
| 7  | PRGM REF |

| Output Range kVdc | Output Current mA | Output Monitor Ratio |               | (\$ Price | Model (Positive)* Output |
|-------------------|-------------------|----------------------|---------------|-----------|--------------------------|
|                   |                   | Voltage              | Current mV/mA |           |                          |
| 0-1               | 30                | 1,000:1              | 100:1         | 1140      | P01HP30                  |
| 0-1               | 60                | 1,000:1              | 10:1          | 1245      | P01HP60                  |
| 0-1.5             | 20                | 1,000:1              | 100:1         | 1245      | P01.5HP20                |
| 0-1.5             | 40                | 1,000:1              | 100:1         | 1355      | P01.5HP40                |
| 0-2               | 15                | 1,000:1              | 100:1         | 1140      | P02HP15                  |
| 0-2               | 30                | 1,000:1              | 100:1         | 1245      | P02HP30                  |
| 0-2.5             | 12                | 1,000:1              | 100:1         | 1140      | P02.5HP12                |
| 0-2.5             | 24                | 1,000:1              | 100:1         | 1245      | P02.5HP24                |
| 0-3.5             | 8.5               | 1,000:1              | 100:1         | 1140      | P03.5HP8.5               |
| 0-3.5             | 17                | 1,000:1              | 100:1         | 1245      | P03.5HP17                |
| 0-5               | 6                 | 10,000:1             | 100:1         | 1195      | P05HP6                   |
| 0-5               | 12                | 10,000:1             | 100:1         | 1305      | P05HP12                  |
| 0-7.5             | 4                 | 10,000:1             | 100:1         | 1195      | P07.5HP4                 |
| 0-7.5             | 8                 | 10,000:1             | 100:1         | 1305      | P07.5HP8                 |
| 0-10              | 3                 | 10,000:1             | 1,000:1       | 1195      | P010HP3                  |
| 0-10              | 6                 | 10,000:1             | 1,000:1       | 1305      | P010HP6                  |
| 0-12              | 2.5               | 10,000:1             | 1,000:1       | 1195      | P012HP2.5                |
| 0-12              | 5                 | 10,000:1             | 1,000:1       | 1305      | P012HP5                  |
| 0-15              | 2                 | 10,000:1             | 1,000:1       | 1245      | P015HP2                  |
| 0-15              | 4                 | 10,000:1             | 1,000:1       | 1355      | P015HP4                  |
| 0-18              | 1.6               | 10,000:1             | 1,000:1       | 1245      | P018HP1.6                |
| 0-18              | 3.2               | 10,000:1             | 1,000:1       | 1355      | P018HP3.2                |
| 0-20              | 1.5               | 10,000:1             | 1,000:1       | 1245      | P020HP1.5                |
| 0-20              | 3                 | 10,000:1             | 1,000:1       | 1355      | P020HP3                  |
| 0-22              | 1.3               | 10,000:1             | 1,000:1       | 1305      | P022HP1.3                |
| 0-22              | 2.6               | 10,000:1             | 1,000:1       | 1410      | P022HP2.6                |
| 0-25              | 1.2               | 10,000:1             | 1,000:1       | 1355      | P025HP1.2                |
| 0-25              | 2.4               | 10,000:1             | 1,000:1       | 1465      | P025HP2.4                |
| 0-30              | 1                 | 10,000:1             | 1,000:1       | 1355      | P030HP1                  |
| 0-30              | 2                 | 10,000:1             | 1,000:1       | 1465      | P030HP2                  |

\* Positive output is standard. For negative output, change first letter of model number from P to N.



Case Size HP36

Approx. Weight: 10 lb. 2 oz. to 13 lb. 13 oz.

# High Voltage AC-DC

## MODULAR REGULATED

Output ranges:

0 - 1,000 volts to 0 - 30,000 volts

- Shipped Within 6 Days
- Five Year Warranty  
(internal encapsulated module - One Year)



**These modular High Voltage supplies** may be used as constant voltage or constant current sources. They may be remotely programmed by means of either voltage or resistance, and have provisions for remote monitoring and output inhibiting. All control and monitoring connections

are on a pluggable terminal block that functions as a connector, providing wiring convenience and permitting easy and rapid connect/disconnect. Outputs are arc/short circuit protected.

## SPECIFICATIONS

**Input Voltage:** 105-125 VAC, 50-400 Hz, single phase.

**Output Polarity:** Positive output is standard. For negative output, change first letter of model number from P to N.

**Regulation (constant voltage operation):**

Line:  $\pm 0.05\%$

Load:  $\pm 0.05\%$

**Regulation (constant current operation):**

Line:  $\pm 0.1\%$

Load:  $\pm 0.1\%$  plus 50  $\mu$ A.

**Ripple:** 0.05%, peak-to-peak.

**Output Controls:** Voltage and current may be controlled by means of two 20-turn front panel adjustments, or by using remotely located 1000 ohm potentiometers.

**Output Programming:** Output voltage and current may be programmed from 0 to full rating by means of control voltage inputs of 0 to +5.1 Vdc.

**Voltage Monitor Terminal:** Permits monitoring output voltage, stepped down by ratio shown. Accuracy is 2% of maximum rated output voltage.

**Current Monitor Terminal:** Permits monitoring output current at mV/mA ratio shown. Accuracy is 2% of maximum rated output current.

**Inhibit Terminal:** Grounding inhibits output.

**Input Protection:** "Soft start" circuit minimizes start-up power stresses.

**Output Protection:** Current regulation circuit protects power supply from short circuits, overload, and arcing.

**Efficiency:** Greater than 70% at full load.

**Response Time:** Less than 5 mS for 100  $\mu$ A load step change.

**Stability:** 0.05% over eight hours, after 30 minute warmup.

**Temperature Coefficient:** 200 PPM/ $^{\circ}$ C = 0.02%/ $^{\circ}$ C (Typical).

**Ambient Operating Temperature:** -10 to +60 $^{\circ}$ C. No derating required.

**Storage Temperature:** -20 to +85 $^{\circ}$ C.

**Humidity:** Maximum of 90% relative, non-condensing.

**Connections:** 24" flying lead for high side of output and 5-way binding post for return (ground) are at the rear. AC input connections on separate terminal strip. All other connections on pluggable terminal block.

**Mounting:** Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket, or they may be used on a test bench or tabletop. To mount from the power supply side of the mounting surface, see accessory Mounting Kit GB8 on page 91.

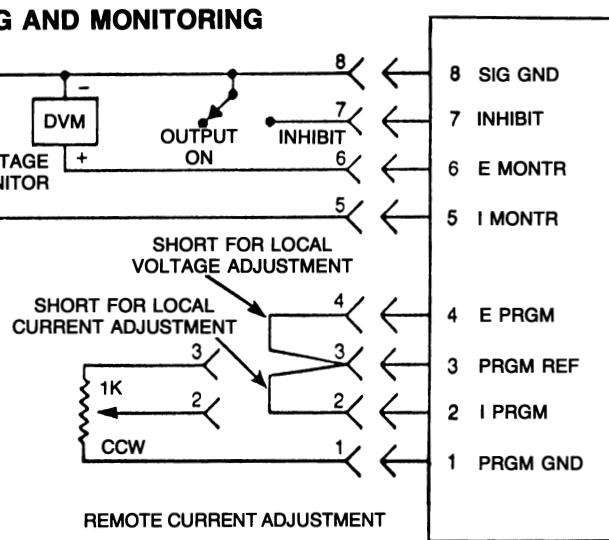
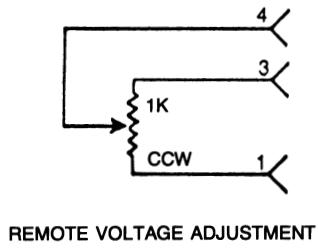
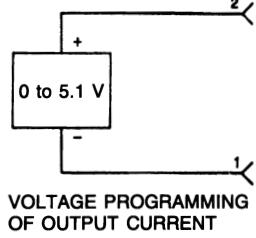
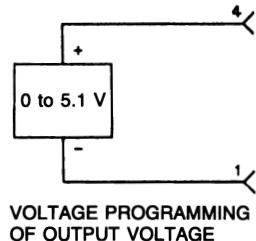
## OPTIONS

**Terminal Strip Cover:** Clips on AC input terminal strip. To order, add suffix "M" to model number and \$5.00 to price.

**Output Connector:** Models with an output of 5000 volts or less can be provided with an MHV connector (and 8' long detachable shielded output cable with mating MHV connector installed on one end) instead of the flying lead. To order, add suffix letter "T" to the model number and \$50.00 to price.

**230 Volt Input:** For operation on inputs of 210-250 VAC, 50-400 Hz, single phase. To order, add suffix "-230" to model number and \$40.00 to price. The "-230" option requires two additional days.

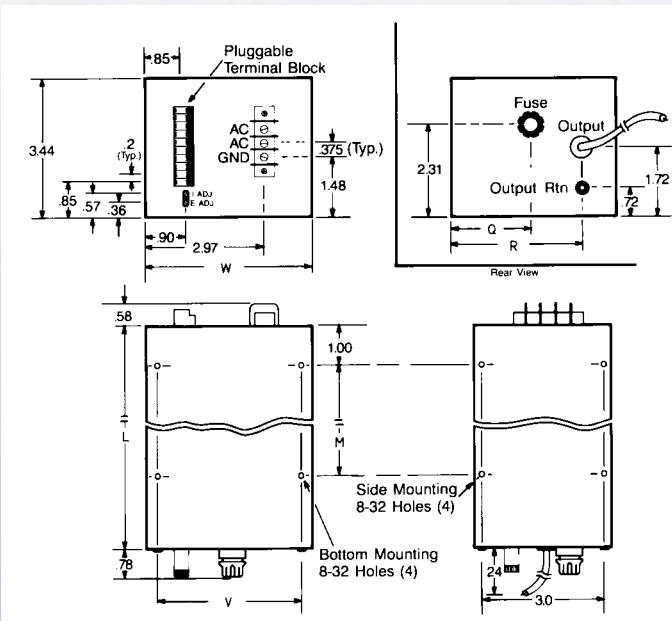
## REMOTE PROGRAMMING AND MONITORING



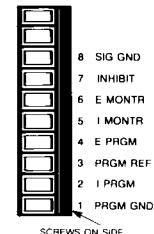
## AC-DC MODELS

| Output Range kVdc | Output Current mA | Output Monitor Ratio |               | (\$ Price | Model (Positive) * Output | Case Size |
|-------------------|-------------------|----------------------|---------------|-----------|---------------------------|-----------|
|                   |                   | Voltage              | Current mV/mA |           |                           |           |
| 0-1               | 30                | 1,000:1              | 100:1         | 700       | P01HA30                   | HA349     |
| 0-1               | 60                | 1,000:1              | 10:1          | 810       | P01HA60                   | HA359     |
| 0-1.5             | 20                | 1,000:1              | 100:1         | 700       | P01.5HA20                 | HA349     |
| 0-1.5             | 40                | 1,000:1              | 100:1         | 810       | P01.5HA40                 | HA359     |
| 0-2               | 15                | 1,000:1              | 100:1         | 700       | P02HA15                   | HA349     |
| 0-2               | 30                | 1,000:1              | 100:1         | 810       | P02HA30                   | HA359     |
| 0-2.5             | 12                | 1,000:1              | 100:1         | 700       | P02.5HA12                 | HA349     |
| 0-2.5             | 24                | 1,000:1              | 100:1         | 810       | P02.5HA24                 | HA359     |
| 0-3.5             | 8.5               | 1,000:1              | 100:1         | 700       | P03.5HA8.5                | HA349     |
| 0-3.5             | 17                | 1,000:1              | 100:1         | 810       | P03.5HA17                 | HA359     |
| 0-5               | 6                 | 10,000:1             | 100:1         | 770       | P05HA6                    | HA349     |
| 0-5               | 12                | 10,000:1             | 100:1         | 880       | P05HA12                   | HA359     |
| 0-7.5             | 4                 | 10,000:1             | 100:1         | 770       | P07.5HA4                  | HA349     |
| 0-7.5             | 8                 | 10,000:1             | 100:1         | 880       | P07.5HA8                  | HA359     |
| 0-10              | 3                 | 10,000:1             | 1,000:1       | 770       | P010HA3                   | HA349     |
| 0-10              | 6                 | 10,000:1             | 100:1         | 880       | P010HA6                   | HA359     |
| 0-12              | 2.5               | 10,000:1             | 1,000:1       | 770       | P012HA2.5                 | HA349     |
| 0-12              | 5                 | 10,000:1             | 100:1         | 880       | P012HA5                   | HA359     |
| 0-15              | 2                 | 10,000:1             | 1,000:1       | 810       | P015HA2                   | HA349     |
| 0-15              | 4                 | 10,000:1             | 100:1         | 920       | P015HA4                   | HA359     |
| 0-18              | 1.6               | 10,000:1             | 1,000:1       | 810       | P018HA1.6                 | HA349     |
| 0-18              | 3.2               | 10,000:1             | 1,000:1       | 920       | P018HA3.2                 | HA359     |
| 0-20              | 1.5               | 10,000:1             | 1,000:1       | 920       | P020HA1.5                 | HA349     |
| 0-20              | 3                 | 10,000:1             | 1,000:1       | 1025      | P020HA3                   | HA359     |
| 0-22              | 1.3               | 10,000:1             | 1,000:1       | 920       | P022HA1.3                 | HA349     |
| 0-22              | 2.6               | 10,000:1             | 1,000:1       | 1025      | P022HA2.6                 | HA359     |
| 0-25              | 1.2               | 10,000:1             | 1,000:1       | 1025      | P025HA1.2                 | HA349     |
| 0-25              | 2.4               | 10,000:1             | 1,000:1       | 1135      | P025HA2.4                 | HA359     |
| 0-30              | 1                 | 10,000:1             | 1,000:1       | 1025      | P030HA1                   | HA349     |
| 0-30              | 2                 | 10,000:1             | 1,000:1       | 1135      | P030HA2                   | HA359     |

\* Positive output is standard. For negative output, change first letter of model number from P to N.



PLUGGABLE TERMINAL BLOCK CONNECTIONS



| Case Size | L    | W    | M    | V    | Q    | R    | Approx. Weight |
|-----------|------|------|------|------|------|------|----------------|
| HA349     | 8.82 | 4.13 | 6.00 | 3.50 | 2.00 | 3.25 | 6 lb. 8 oz.    |
| HA359     | 9.33 | 5.13 | 7.00 | 4.50 | 2.78 | 4.25 | 10 lb.         |



### OPTIONAL OUTPUT CONNECTOR

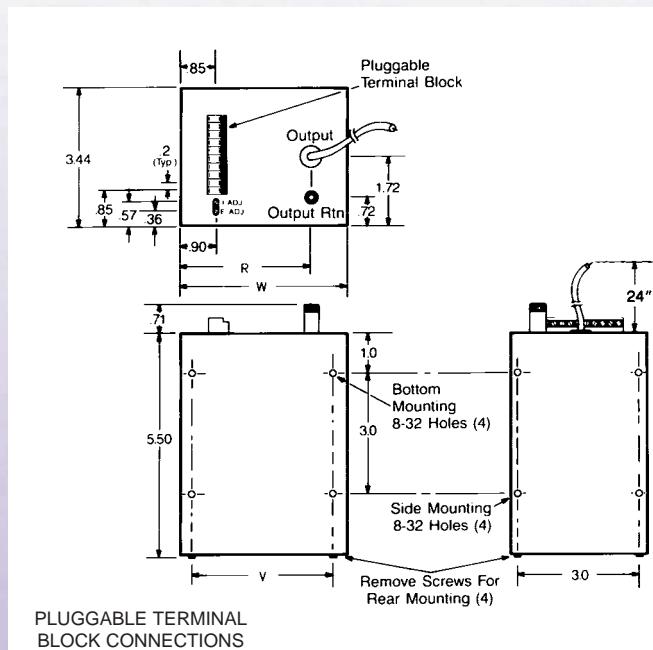
Models with an output of 5000 volts or less can be provided with an MHV connector (and 8' long detachable output cable with mating MHV connector installed on one end) instead of the flying lead. To order, add suffix letter "T" to the model number and \$50.00 to price.



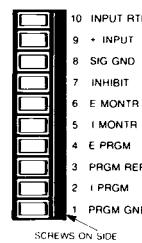
### DC-DC MODELS

| Output Range kVdc | Output Current mA | Output Monitor Ratio |               | (\$)<br>Price | Model<br>(Positive)*<br>Output | Case Size |
|-------------------|-------------------|----------------------|---------------|---------------|--------------------------------|-----------|
|                   |                   | Voltage              | Current mV/mA |               |                                |           |
| 0-1               | 30                | 1,000:1              | 100:1         | 595           | P01HD30                        | HD345     |
| 0-1               | 60                | 1,000:1              | 10:1          | 700           | P01HD60                        | HD355     |
| 0-1.5             | 20                | 1,000:1              | 100:1         | 595           | P01.5HD20                      | HD345     |
| 0-1.5             | 40                | 1,000:1              | 100:1         | 700           | P01.5HD40                      | HD355     |
| 0-2               | 15                | 1,000:1              | 100:1         | 595           | P02HD15                        | HD345     |
| 0-2               | 30                | 1,000:1              | 100:1         | 700           | P02HD30                        | HD355     |
| 0-2.5             | 12                | 1,000:1              | 100:1         | 595           | P02.5HD12                      | HD345     |
| 0-2.5             | 24                | 1,000:1              | 100:1         | 700           | P02.5HD24                      | HD355     |
| 0-3.5             | 8.5               | 1,000:1              | 100:1         | 595           | P03.5HD8.5                     | HD345     |
| 0-3.5             | 17                | 1,000:1              | 100:1         | 700           | P03.5HD17                      | HD355     |
| 0-5               | 6                 | 10,000:1             | 100:1         | 660           | P05HD6                         | HD345     |
| 0-5               | 12                | 10,000:1             | 100:1         | 770           | P05HD12                        | HD355     |
| 0-7.5             | 4                 | 10,000:1             | 100:1         | 660           | P07.5HD4                       | HD345     |
| 0-7.5             | 8                 | 10,000:1             | 100:1         | 770           | P07.5HD8                       | HD355     |
| 0-10              | 3                 | 10,000:1             | 1,000:1       | 660           | P010HD3                        | HD345     |
| 0-10              | 6                 | 10,000:1             | 100:1         | 770           | P010HD6                        | HD355     |
| 0-12              | 2.5               | 10,000:1             | 1,000:1       | 660           | P012HD2.5                      | HD345     |
| 0-12              | 5                 | 10,000:1             | 100:1         | 770           | P012HD5                        | HD355     |
| 0-15              | 2                 | 10,000:1             | 1,000:1       | 700           | P015HD2                        | HD345     |
| 0-15              | 4                 | 10,000:1             | 100:1         | 810           | P015HD4                        | HD355     |
| 0-18              | 1.6               | 10,000:1             | 1,000:1       | 700           | P018HD1.6                      | HD345     |
| 0-18              | 3.2               | 10,000:1             | 1,000:1       | 810           | P018HD3.2                      | HD355     |
| 0-20              | 1.5               | 10,000:1             | 1,000:1       | 810           | P020HD1.5                      | HD345     |
| 0-20              | 3                 | 10,000:1             | 1,000:1       | 920           | P020HD3                        | HD355     |
| 0-22              | 1.3               | 10,000:1             | 1,000:1       | 810           | P022HD1.3                      | HD345     |
| 0-22              | 2.6               | 10,000:1             | 1,000:1       | 920           | P022HD2.6                      | HD355     |
| 0-25              | 1.2               | 10,000:1             | 1,000:1       | 920           | P025HD1.2                      | HD345     |
| 0-25              | 2.4               | 10,000:1             | 1,000:1       | 1025          | P025HD2.4                      | HD355     |
| 0-30              | 1                 | 10,000:1             | 1,000:1       | 920           | P030HD1                        | HD345     |
| 0-30              | 2                 | 10,000:1             | 1,000:1       | 1025          | P030HD2                        | HD355     |

\* Positive output is standard. For negative output, change first letter of model number from P to N.



PLUGGABLE TERMINAL BLOCK CONNECTIONS



| Case Size | W    | V    | R    | Approx. Weight |
|-----------|------|------|------|----------------|
| HD345     | 4.13 | 3.50 | 3.25 | 2 lb.          |
| HD355     | 5.13 | 4.50 | 4.25 | 2 lb. 12 oz.   |

## DC-DC Converters

Mini Encapsulated - **PC Board mounting**  
**REGULATED**  
*single & dual tracking outputs*

- Shipped Within 3 Days
- One Year Warranty

**These versatile DC-DC Converters** are ideally suited for powering a wide variety of analog and digital circuitry, such as op amps, logic and microprocessors. They may be mounted directly on a printed circuit board for OEM applications, or installed in a socket for developmental and small quantity requirements. For DC-DC Converters with screw terminals, see pages 76 and 77.

### SPECIFICATIONS

**Input Voltage:** Nominal voltage  $\pm 10\%$ .

**Input Reflected Ripple:** 1%  $E_{in}$  (max.)

**Output Regulation:**

**Line:**  $\pm 0.02\%$

**Load:**  $\pm 0.05\%$

**Output Ripple (@ 25 MHz bandwidth):**

1 mV rms, 50 mV p-p (5-15V outputs).

1.5 mV rms, 75 mV p-p (18-28V outputs).

**Output Voltage Setting:** Outputs are factory preset to within  $\pm 1\%$  of the nominal output voltage.

**T/C terminal:** For single output models, the T/C terminal can be used to trim the output more precisely to the nominal voltage rating by connecting an external resistor from the T/C terminal to either the + or - terminal. For dual output models, the T/C terminal is the output common.

**Polarity:** The output of single output models may be connected in either polarity. Dual output models have a positive/common/negative output terminal configuration.

**Transient Response (NL-FL):** 50 microseconds.

**Overload/Short Circuit Protection:** Electronic current limiting with automatic recovery. Models in case size ELC-10 also have thermal protection with automatic reset.

**Input/Output Isolation:**

**Voltage:** 500 Vdc

**Resistance:** 100 megohms

**Capacitance:** 100 pF

**Switching Frequency:** 20 kHz minimum.

**Temperature Coefficient:**  $0.02\%/\text{ }^{\circ}\text{C}$  (Typical).

**Ambient Operating Temperature:**  $-20$  to  $+71\text{ }^{\circ}\text{C}$ .

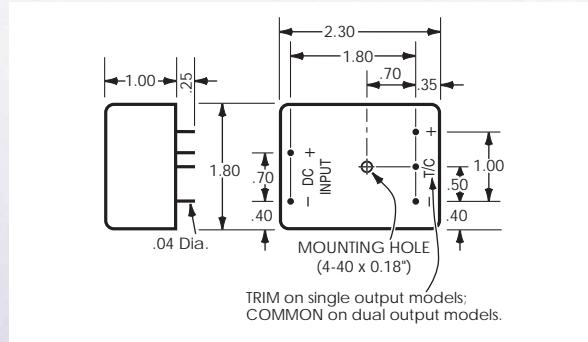
**Storage Temperature:**  $-40$  to  $+85\text{ }^{\circ}\text{C}$ .

**Humidity:** 20% to 80% R.H. (non-condensing).

**Mounting:** May be mounted on printed circuit board or in socket (see page 34).

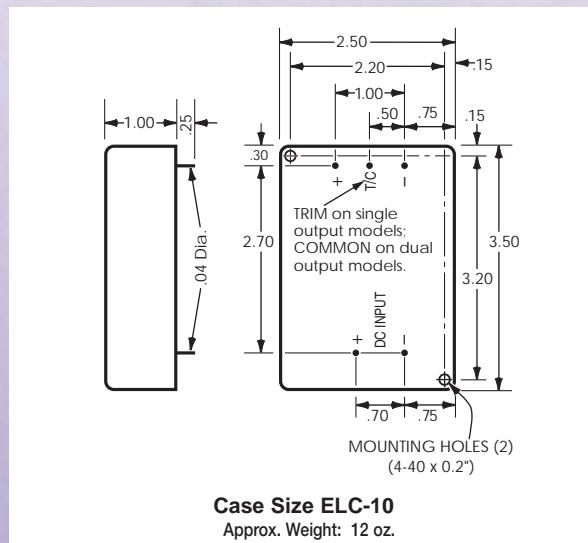


Efficiency is in the order of 65%, and is maintained down to low levels of output current. Input reflected ripple is reduced to less than 1% by means of a standard built-in pi filter, and electrostatic shielding on all six sides minimizes radiated energy. High input/output isolation permits separation of the output from the dc input bus to minimize circuit interaction due to ground loops, and the use of inputs in either polarity.



### Case Size ESC-10

Approx. Weight: 5 oz.



### Case Size ELC-10

Approx. Weight: 12 oz.

# SINGLE OUTPUT, FOR PC BOARD MOUNTING

| Nominal Input Voltage | Nominal Output Voltage | Output Current Amps. at |      |      | (\$) | Model     | Case Size |
|-----------------------|------------------------|-------------------------|------|------|------|-----------|-----------|
|                       |                        | 40°C                    | 55°C | 71°C |      |           |           |
| 5                     | 5                      | 1.25                    | 1.25 | 1.00 | 115  | 5E5E125   | ESC-10    |
| 5                     | 5                      | 2.50                    | 2.25 | 2.00 | 135  | 5E5E250   | ELC-10    |
| 5                     | 6                      | 1.00                    | 1.00 | .80  | 115  | 5E6E100   | ESC-10    |
| 5                     | 6                      | 2.00                    | 1.80 | 1.60 | 135  | 5E6E200   | ELC-10    |
| 5                     | 8                      | .75                     | .75  | .60  | 115  | 5E8E75    | ESC-10    |
| 5                     | 8                      | 1.50                    | 1.35 | 1.20 | 135  | 5E8E150   | ELC-10    |
| 5                     | 9                      | .70                     | .70  | .55  | 115  | 5E9E70    | ESC-10    |
| 5                     | 9                      | 1.40                    | 1.25 | 1.10 | 135  | 5E9E140   | ELC-10    |
| 5                     | 10                     | .65                     | .65  | .50  | 115  | 5E10E65   | ESC-10    |
| 5                     | 10                     | 1.30                    | 1.15 | 1.00 | 135  | 5E10E130  | ELC-10    |
| 5                     | 12                     | .60                     | .60  | .50  | 115  | 5E12E60   | ESC-10    |
| 5                     | 12                     | 1.20                    | 1.10 | 1.00 | 135  | 5E12E120  | ELC-10    |
| 5                     | 13                     | .55                     | .55  | .45  | 115  | 5E13E55   | ESC-10    |
| 5                     | 13                     | 1.10                    | 1.00 | .90  | 135  | 5E13E110  | ELC-10    |
| 5                     | 15                     | .50                     | .50  | .40  | 115  | 5E15E50   | ESC-10    |
| 5                     | 15                     | 1.00                    | .90  | .80  | 135  | 5E15E100  | ELC-10    |
| 5                     | 18                     | .40                     | .40  | .30  | 115  | 5E18E40   | ESC-10    |
| 5                     | 18                     | .80                     | .70  | .60  | 135  | 5E18E80   | ELC-10    |
| 5                     | 20                     | .35                     | .35  | .28  | 115  | 5E20E35   | ESC-10    |
| 5                     | 20                     | .70                     | .60  | .50  | 135  | 5E20E70   | ELC-10    |
| 5                     | 24                     | .25                     | .25  | .20  | 115  | 5E24E25   | ESC-10    |
| 5                     | 24                     | .60                     | .55  | .50  | 135  | 5E24E60   | ELC-10    |
| 5                     | 28                     | .25                     | .25  | .20  | 115  | 5E28E25   | ESC-10    |
| 5                     | 28                     | .50                     | .45  | .40  | 135  | 5E28E50   | ELC-10    |
| 12                    | 5                      | 1.25                    | 1.25 | 1.00 | 115  | 12E5E125  | ESC-10    |
| 12                    | 5                      | 2.50                    | 2.25 | 2.00 | 135  | 12E5E250  | ELC-10    |
| 12                    | 6                      | 1.00                    | 1.00 | .80  | 115  | 12E6E100  | ESC-10    |
| 12                    | 6                      | 2.00                    | 1.80 | 1.60 | 135  | 12E6E200  | ELC-10    |
| 12                    | 8                      | .75                     | .75  | .60  | 115  | 12E8E75   | ESC-10    |
| 12                    | 8                      | 1.50                    | 1.35 | 1.20 | 135  | 12E8E150  | ELC-10    |
| 12                    | 9                      | .70                     | .70  | .55  | 115  | 12E9E70   | ESC-10    |
| 12                    | 9                      | 1.40                    | 1.25 | 1.10 | 135  | 12E9E140  | ELC-10    |
| 12                    | 10                     | .65                     | .65  | .50  | 115  | 12E10E65  | ESC-10    |
| 12                    | 10                     | 1.30                    | 1.15 | 1.00 | 135  | 12E10E130 | ELC-10    |
| 12                    | 12                     | .60                     | .60  | .50  | 115  | 12E12E60  | ESC-10    |
| 12                    | 12                     | 1.20                    | 1.10 | 1.00 | 135  | 12E12E120 | ELC-10    |
| 12                    | 13                     | .55                     | .55  | .45  | 115  | 12E13E55  | ESC-10    |
| 12                    | 13                     | 1.10                    | 1.00 | .90  | 135  | 12E13E110 | ELC-10    |
| 12                    | 15                     | .50                     | .50  | .40  | 115  | 12E15E50  | ESC-10    |
| 12                    | 15                     | 1.00                    | .90  | .80  | 135  | 12E15E100 | ELC-10    |
| 12                    | 18                     | .40                     | .40  | .30  | 115  | 12E18E40  | ESC-10    |
| 12                    | 18                     | .80                     | .70  | .60  | 135  | 12E18E80  | ELC-10    |
| 12                    | 20                     | .35                     | .35  | .28  | 115  | 12E20E35  | ESC-10    |
| 12                    | 20                     | .70                     | .60  | .50  | 135  | 12E20E70  | ELC-10    |
| 12                    | 24                     | .25                     | .25  | .20  | 115  | 12E24E25  | ESC-10    |
| 12                    | 24                     | .60                     | .55  | .50  | 135  | 12E24E60  | ELC-10    |
| 12                    | 28                     | .25                     | .25  | .20  | 115  | 12E28E25  | ESC-10    |
| 12                    | 28                     | .50                     | .45  | .40  | 135  | 12E28E50  | ELC-10    |
| 15                    | 5                      | 1.25                    | 1.25 | 1.00 | 115  | 15E5E125  | ESC-10    |
| 15                    | 5                      | 2.50                    | 2.25 | 2.00 | 135  | 15E5E250  | ELC-10    |
| 15                    | 6                      | 1.00                    | 1.00 | .80  | 115  | 15E6E100  | ESC-10    |
| 15                    | 6                      | 2.00                    | 1.80 | 1.60 | 135  | 15E6E200  | ELC-10    |
| 15                    | 8                      | .75                     | .75  | .60  | 115  | 15E8E75   | ESC-10    |
| 15                    | 8                      | 1.50                    | 1.35 | 1.20 | 135  | 15E8E150  | ELC-10    |
| 15                    | 9                      | .70                     | .70  | .55  | 115  | 15E9E70   | ESC-10    |
| 15                    | 9                      | 1.40                    | 1.25 | 1.10 | 135  | 15E9E140  | ELC-10    |
| 15                    | 10                     | .65                     | .65  | .50  | 115  | 15E10E65  | ESC-10    |
| 15                    | 10                     | 1.30                    | 1.15 | 1.00 | 135  | 15E10E130 | ELC-10    |
| 15                    | 12                     | .60                     | .60  | .50  | 115  | 15E12E60  | ESC-10    |
| 15                    | 12                     | 1.20                    | 1.10 | 1.00 | 135  | 15E12E120 | ELC-10    |
| 15                    | 13                     | .55                     | .55  | .45  | 115  | 15E13E55  | ESC-10    |
| 15                    | 13                     | 1.10                    | 1.00 | .90  | 135  | 15E13E110 | ELC-10    |
| 15                    | 15                     | .50                     | .50  | .40  | 115  | 15E15E50  | ESC-10    |
| 15                    | 15                     | 1.00                    | .90  | .80  | 135  | 15E15E100 | ELC-10    |
| 15                    | 18                     | .40                     | .40  | .30  | 115  | 15E18E40  | ESC-10    |
| 15                    | 18                     | .80                     | .70  | .60  | 135  | 15E18E80  | ELC-10    |

| Nominal Input Voltage | Nominal Output Voltage | Output Current Amps. at |      |      | (\$) | Model     | Case Size |
|-----------------------|------------------------|-------------------------|------|------|------|-----------|-----------|
|                       |                        | 40°C                    | 55°C | 71°C |      |           |           |
| 15                    | 20                     | .35                     | .35  | .28  | 115  | 15E20E35  | ESC-10    |
| 15                    | 20                     | .70                     | .60  | .50  | 135  | 15E20E70  | ELC-10    |
| 15                    | 24                     | .25                     | .25  | .20  | 115  | 15E24E25  | ESC-10    |
| 15                    | 24                     | .60                     | .55  | .50  | 135  | 15E24E60  | ELC-10    |
| 15                    | 28                     | .25                     | .25  | .20  | 115  | 15E28E25  | ESC-10    |
| 15                    | 28                     | .50                     | .45  | .40  | 135  | 15E28E50  | ELC-10    |
| 24                    | 5                      | 1.25                    | 1.25 | 1.00 | 115  | 24E5E125  | ESC-10    |
| 24                    | 5                      | 2.50                    | 2.25 | 2.00 | 135  | 24E5E250  | ELC-10    |
| 24                    | 6                      | 1.00                    | 1.00 | .80  | 115  | 24E6E100  | ESC-10    |
| 24                    | 6                      | 2.00                    | 1.80 | 1.60 | 135  | 24E6E200  | ELC-10    |
| 24                    | 8                      | .75                     | .75  | .60  | 115  | 24E8E75   | ESC-10    |
| 24                    | 8                      | 1.50                    | 1.35 | 1.20 | 135  | 24E8E150  | ELC-10    |
| 24                    | 9                      | .70                     | .70  | .55  | 115  | 24E9E70   | ESC-10    |
| 24                    | 9                      | 1.40                    | 1.25 | 1.10 | 135  | 24E9E140  | ELC-10    |
| 24                    | 10                     | .65                     | .65  | .50  | 115  | 24E10E65  | ESC-10    |
| 24                    | 10                     | 1.30                    | 1.15 | 1.00 | 135  | 24E10E130 | ELC-10    |
| 24                    | 12                     | .60                     | .60  | .50  | 115  | 24E12E60  | ESC-10    |
| 24                    | 12                     | 1.20                    | 1.10 | 1.00 | 135  | 24E12E120 | ELC-10    |
| 24                    | 13                     | .55                     | .55  | .45  | 115  | 24E13E55  | ESC-10    |
| 24                    | 13                     | 1.10                    | 1.00 | .90  | 135  | 24E13E110 | ELC-10    |
| 24                    | 15                     | .50                     | .50  | .40  | 115  | 24E15E50  | ESC-10    |
| 24                    | 15                     | 1.00                    | .90  | .80  | 135  | 24E15E100 | ELC-10    |
| 24                    | 18                     | .40                     | .40  | .30  | 115  | 24E18E40  | ESC-10    |
| 24                    | 18                     | .80                     | .70  | .60  | 135  | 24E18E80  | ELC-10    |
| 24                    | 20                     | .35                     | .35  | .28  | 115  | 24E20E35  | ESC-10    |
| 24                    | 20                     | .70                     | .60  | .50  | 135  | 24E20E70  | ELC-10    |
| 24                    | 24                     | .25                     | .25  | .20  | 115  | 24E24E25  | ESC-10    |
| 24                    | 24                     | .60                     | .55  | .50  | 135  | 24E24E60  | ELC-10    |
| 24                    | 28                     | .25                     | .25  | .20  | 115  | 24E28E25  | ESC-10    |
| 24                    | 28                     | .50                     | .45  | .40  | 135  | 24E28E50  | ELC-10    |
| 28                    | 5                      | 1.25                    | 1.25 | 1.00 | 115  | 28E5E125  | ESC-10    |
| 28                    | 5                      | 2.50                    | 2.25 | 2.00 | 135  | 28E5E250  | ELC-10    |
| 28                    | 6                      | 1.00                    | 1.00 | .80  | 115  | 28E6E100  | ESC-10    |
| 28                    | 6                      | 2.00                    | 1.80 | 1.60 | 135  | 28E6E200  | ELC-10    |
| 28                    | 8                      | .75                     | .75  | .60  | 115  | 28E8E75   | ESC-10    |
| 28                    | 8                      | 1.50                    | 1.35 | 1.20 | 135  | 28E8E150  | ELC-10    |
| 28                    | 9                      | .70                     | .70  | .55  | 115  | 28E9E70   | ESC-10    |
| 28                    | 9                      | 1.40                    | 1.25 | 1.10 | 135  | 28E9E140  | ELC-10    |
| 28                    | 10                     | .65                     | .65  | .50  | 115  | 28E10E65  | ESC-10    |
| 28                    | 10                     | 1.30                    | 1.15 | 1.00 | 135  | 28E10E130 | ELC-10    |
| 28                    | 12                     | .60                     | .60  | .50  | 115  | 28E12E60  | ESC-10    |
| 28                    | 12                     | 1.20                    | 1.10 | 1.00 | 135  | 28E12E120 | ELC-10    |
| 28                    | 13                     | .55                     | .55  | .45  | 115  | 28E13E55  | ESC-10    |
| 28                    | 13                     | 1.10                    | 1.00 | .90  | 135  | 28E13E110 | ELC-10    |
| 28                    | 15                     | .50                     | .50  | .40  | 115  | 28E15E50  | ESC-10    |
| 28                    | 15                     | 1.00                    | .90  | .80  | 135  | 28E15E100 | ELC-10    |
| 28                    | 18                     | .40                     | .40  | .30  | 115  | 28E18E40  | ESC-10    |
| 28                    | 18                     | .80                     | .70  | .60  | 135  | 28E18E80  | ELC-10    |
| 28                    | 20                     | .35                     | .35  | .28  | 115  | 28E20E35  | ESC-10    |
| 28                    | 20                     | .70                     | .60  | .50  | 135  | 28E20E70  | ELC-10    |
| 28                    | 24                     | .25                     | .25  | .20  | 115  | 28E24E25  | ESC-10    |
| 28                    | 24                     | .60                     | .55  | .50  | 135  | 28E24E60  | ELC-10    |
| 28                    | 28                     | .25                     | .25  | .20  | 115  | 28E28E25  | ESC-10    |
| 28                    | 28                     | .50                     | .45  | .40  | 135  | 28E28E50  | ELC-10    |
| 48                    | 5                      | 1.25                    | 1.25 | 1.00 | 115  | 48E5E125  | ESC-10    |
| 48                    | 6                      | 1.00                    | 1.00 | .80  | 115  | 48E6E100  | ESC-10    |
| 48                    | 8                      | .75                     | .75  | .60  | 115  | 48E8E75   | ESC-10    |
| 48                    | 9                      | .70                     | .70  | .55  | 115  | 48E9E70   | ESC-10    |
| 48                    | 10                     | .65                     | .65  | .50  | 115  | 48E10E65  | ESC-10    |
| 48                    | 12                     | .60                     | .60  | .50  | 115  | 48E12E60  | ESC-10    |
| 48                    | 13                     | .55                     | .55  | .45  | 115  | 48E13E55  | ESC-10    |
| 48                    | 15                     | .50                     | .50  | .40  | 115  | 48E15E50  | ESC-10    |
| 48                    | 18                     | .40                     | .40  | .30  | 115  | 48E18E40  | ESC-10    |
| 48                    | 20                     | .35                     | .35  | .28  | 115  | 48E20E35  | ESC-10    |
| 48                    | 24                     | .25                     | .25  | .20  | 115  | 48E24E25  | ESC-10    |
| 48                    | 28                     | .25                     | .25  | .20  | 115  | 48E28E25  | ESC-10    |

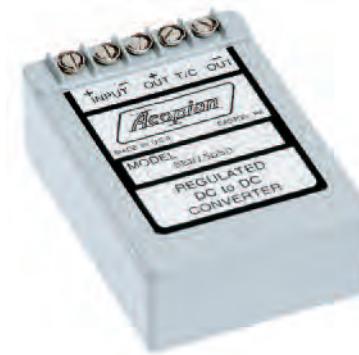
120 to 180 See pages 38-39.

## DUAL TRACKING OUTPUTS

| Nominal Input Voltage | Nominal Output Voltages | Amps. per Output at |      |      | (\$) | Model   | Case Size |
|-----------------------|-------------------------|---------------------|------|------|------|---------|-----------|
|                       |                         | 40°C                | 55°C | 71°C |      |         |           |
| 5                     | ±10                     | .30                 | .30  | .25  | 120  | 5E10D30 | ESC-10    |
| 5                     | ±10                     | .60                 | .55  | .50  | 145  | 5E10D60 | ELC-10    |
| 5                     | ±12                     | .30                 | .30  | .25  | 120  | 5E12D30 | ESC-10    |
| 5                     | ±12                     | .60                 | .55  | .50  | 145  | 5E12D60 | ELC-10    |
| 5                     | ±15                     | .25                 | .25  | .25  | 120  | 5E1     |           |

## DC-DC Converters

Mini Encapsulated - **with screw terminals**  
**REGULATED**  
*single & dual tracking outputs*



- Shipped Within 3 Days
- One Year Warranty

**These DC-DC Converters** have the versatility to be used in a broad range of applications. Threaded mounting holes permit them to be mounted to a chassis, cabinet wall or bracket, or they may be used on a test bench or tabletop. Screw terminals provide easy connection without sockets or soldering.

### SPECIFICATIONS

**Input Voltage:** Nominal voltage  $\pm 10\%$ .

**Input Reflected Ripple:** 1%  $E_{in}$  (max.)

**Output Ripple (@25 MHz bandwidth):**

1 mV rms, 50 mV p-p (5-15V outputs).

1.5 mV rms, 75 mV p-p (18-28V outputs).

**Output Voltage Setting:** Outputs are factory preset to within  $\pm 1\%$  of the nominal output voltage.

**T/C terminal:** For single output models, the T/C terminal can be used to trim the output more precisely to the nominal voltage rating by connecting an external resistor from the T/C terminal to either the + or - terminal. For dual output models, the T/C terminal is the output common.

**Polarity:** The output of single output models may be connected in either polarity. Dual output models have a positive/common/negative output terminal configuration.

**Transient Response (NL-FL):** 50 microseconds.

**Overload/Short Circuit Protection:** Electronic current limiting with automatic recovery. All models have thermal protection with automatic reset.

**Input/Output Isolation:**

Voltage: 500 Vdc

Resistance: 100 megohms

Capacitance: 100 pF

**Switching Frequency:** 20 kHz minimum.

**Temperature Coefficient:** 0.02%/°C (Typical).

**Ambient Operating Temperature:** -20 to +71°C.

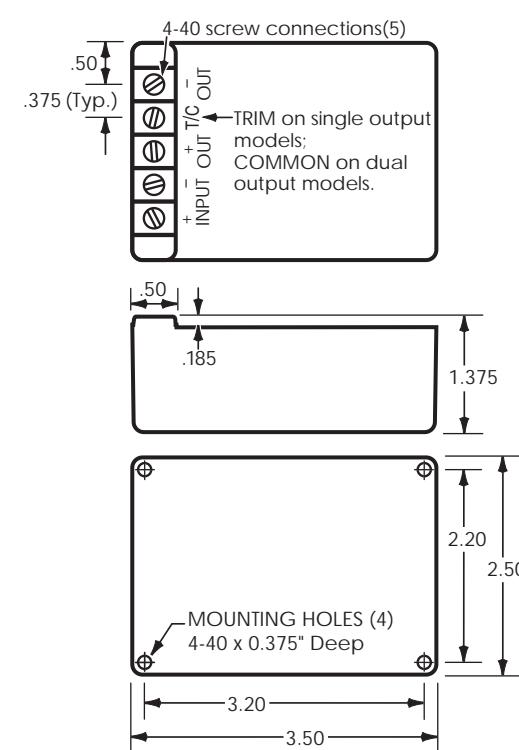
**Storage Temperature:** -40 to +85°C.

**Humidity:** 20% to 80% R.H. (non-condensing).

**Case Size:** EBC-10.

**Mounting:** Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket, or they may be used on a test bench or tabletop. When wall-mounting or DIN rail mounting is desired, use accessory Mounting Kits on page 77.

Input/output isolation prevents ground loops, and permits the use of inputs of either polarity; outputs of single output models may be used in either polarity and floated up to 500 volts above the input. Short circuit and thermal protection, and rugged encapsulated construction, assure years of reliable service.



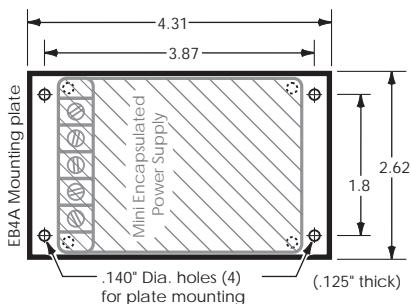
**Case Size EBC-10**

Approx. Weight: 14 oz.

## ACCESSORY MOUNTING KITS

For use with 'Mini Encapsulated - with Screw Terminals' power supplies.

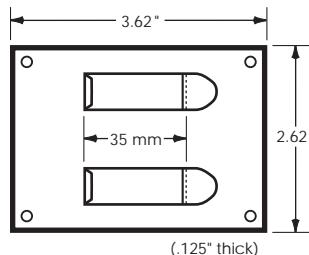
### FOR WALL MOUNTING



Use Mounting Kit EB4A to mount from the power supply side of the mounting surface, necessary when the other side of the mounting surface is inaccessible. This kit consists of an aluminum plate and four screws for attaching it to the power supply, effectively adding mounting flanges to any Mini Encapsulated power supply with screw terminals or any Mini DC-DC Converter with screw terminals.

Model EB4A . . . . . \$ 10

### FOR DIN RAIL MOUNTING



Mounting Kit EB35DIN consists of an aluminum plate, with two DIN clips attached to it, and four screws for attaching the plate to the bottom of any Mini Encapsulated power supply with screw terminals or any Mini DC-DC Converter with screw terminals. The power supply can then be snapped onto a 35mm 'top hat' type of DIN rail.

Model EB35DIN . . . . . \$15

### SINGLE OUTPUT, WITH SCREW TERMINALS

| Nominal Input Voltage | Nominal Output Voltage | Output Current Amps. at |      |      | Regulation |         | (\$)<br>Price | Model      |
|-----------------------|------------------------|-------------------------|------|------|------------|---------|---------------|------------|
|                       |                        | 40°C                    | 55°C | 71°C | Load ±%    | Line ±% |               |            |
| 5                     | 5                      | 2.50                    | 2.25 | 2.00 | .15        | .02     | 150           | 5EB5E250   |
| 5                     | 6                      | 2.00                    | 1.80 | 1.60 | .15        | .02     | 150           | 5EB6E200   |
| 5                     | 8                      | 1.50                    | 1.35 | 1.20 | .10        | .02     | 150           | 5EB8E150   |
| 5                     | 9                      | 1.40                    | 1.25 | 1.10 | .10        | .02     | 150           | 5EB9E140   |
| 5                     | 10                     | 1.30                    | 1.15 | 1.00 | .10        | .02     | 150           | 5EB10E130  |
| 5                     | 12                     | 1.20                    | 1.10 | 1.00 | .05        | .02     | 150           | 5EB12E120  |
| 5                     | 13                     | 1.10                    | 1.00 | .90  | .05        | .02     | 150           | 5EB13E110  |
| 5                     | 15                     | 1.00                    | .90  | .80  | .05        | .02     | 150           | 5EB15E100  |
| 5                     | 18                     | .80                     | .70  | .60  | .05        | .02     | 150           | 5EB18E80   |
| 5                     | 20                     | .70                     | .60  | .50  | .05        | .02     | 150           | 5EB20E70   |
| 5                     | 24                     | .60                     | .55  | .50  | .05        | .02     | 150           | 5EB24E60   |
| 5                     | 28                     | .50                     | .45  | .40  | .05        | .02     | 150           | 5EB28E50   |
| 12                    | 5                      | 2.50                    | 2.25 | 2.00 | .15        | .02     | 150           | 12EB5E250  |
| 12                    | 6                      | 2.00                    | 1.80 | 1.60 | .15        | .02     | 150           | 12EB6E200  |
| 12                    | 8                      | 1.50                    | 1.35 | 1.20 | .10        | .02     | 150           | 12EB8E150  |
| 12                    | 9                      | 1.40                    | 1.25 | 1.10 | .10        | .02     | 150           | 12EB9E140  |
| 12                    | 10                     | 1.30                    | 1.15 | 1.00 | .10        | .02     | 150           | 12EB10E130 |
| 12                    | 12                     | 1.20                    | 1.10 | 1.00 | .05        | .02     | 150           | 12EB12E120 |
| 12                    | 13                     | 1.10                    | 1.00 | .90  | .05        | .02     | 150           | 12EB13E110 |
| 12                    | 15                     | 1.00                    | .90  | .80  | .05        | .02     | 150           | 12EB15E100 |
| 12                    | 18                     | .80                     | .70  | .60  | .05        | .02     | 150           | 12EB18E80  |
| 12                    | 20                     | .70                     | .60  | .50  | .05        | .02     | 150           | 12EB20E70  |
| 12                    | 24                     | .60                     | .55  | .50  | .05        | .02     | 150           | 12EB24E60  |
| 12                    | 28                     | .50                     | .45  | .40  | .05        | .02     | 150           | 12EB28E50  |
| 15                    | 5                      | 2.50                    | 2.25 | 2.00 | .15        | .02     | 150           | 15EB5E250  |
| 15                    | 6                      | 2.00                    | 1.80 | 1.60 | .15        | .02     | 150           | 15EB6E200  |
| 15                    | 8                      | 1.50                    | 1.35 | 1.20 | .10        | .02     | 150           | 15EB8E150  |
| 15                    | 9                      | 1.40                    | 1.25 | 1.10 | .10        | .02     | 150           | 15EB9E140  |
| 15                    | 10                     | 1.30                    | 1.15 | 1.00 | .10        | .02     | 150           | 15EB10E130 |
| 15                    | 12                     | 1.20                    | 1.10 | 1.00 | .05        | .02     | 150           | 15EB12E120 |

| Nominal Input Voltage | Nominal Output Voltage | Output Current Amps. at |      |      | Regulation |         | (\$)<br>Price | Model      |
|-----------------------|------------------------|-------------------------|------|------|------------|---------|---------------|------------|
|                       |                        | 40°C                    | 55°C | 71°C | Load ±%    | Line ±% |               |            |
| 15                    | 13                     | 1.10                    | 1.00 | .90  | .05        | .02     | 150           | 15EB13E110 |
| 15                    | 15                     | 1.00                    | .90  | .80  | .05        | .02     | 150           | 15EB15E100 |
| 15                    | 18                     | .80                     | .70  | .60  | .05        | .02     | 150           | 15EB18E80  |
| 15                    | 20                     | .70                     | .60  | .50  | .05        | .02     | 150           | 15EB20E70  |
| 15                    | 24                     | .60                     | .55  | .50  | .05        | .02     | 150           | 15EB24E60  |
| 15                    | 28                     | .50                     | .45  | .40  | .05        | .02     | 150           | 15EB28E50  |
| 24                    | 5                      | 2.50                    | 2.25 | 2.00 | .15        | .02     | 150           | 24EB5E250  |
| 24                    | 6                      | 2.00                    | 1.80 | 1.60 | .15        | .02     | 150           | 24EB6E200  |
| 24                    | 8                      | 1.50                    | 1.35 | 1.20 | .10        | .02     | 150           | 24EB8E150  |
| 24                    | 9                      | 1.40                    | 1.25 | 1.10 | .10        | .02     | 150           | 24EB9E140  |
| 24                    | 10                     | 1.30                    | 1.15 | 1.00 | .10        | .02     | 150           | 24EB10E130 |
| 24                    | 12                     | 1.20                    | 1.10 | 1.00 | .05        | .02     | 150           | 24EB12E120 |
| 24                    | 13                     | 1.10                    | 1.00 | .90  | .05        | .02     | 150           | 24EB13E110 |
| 24                    | 15                     | 1.00                    | .90  | .80  | .05        | .02     | 150           | 24EB15E100 |
| 24                    | 18                     | .80                     | .70  | .60  | .05        | .02     | 150           | 24EB18E80  |
| 24                    | 20                     | .70                     | .60  | .50  | .05        | .02     | 150           | 24EB20E70  |
| 24                    | 24                     | .60                     | .55  | .50  | .05        | .02     | 150           | 24EB24E60  |
| 24                    | 28                     | .50                     | .45  | .40  | .05        | .02     | 150           | 24EB28E50  |
| 28                    | 5                      | 2.50                    | 2.25 | 2.00 | .15        | .02     | 150           | 28EB5E250  |
| 28                    | 6                      | 2.00                    | 1.80 | 1.60 | .15        | .02     | 150           | 28EB6E200  |
| 28                    | 8                      | 1.50                    | 1.35 | 1.20 | .10        | .02     | 150           | 28EB8E150  |
| 28                    | 9                      | 1.40                    | 1.25 | 1.10 | .10        | .02     | 150           | 28EB9E140  |
| 28                    | 10                     | 1.30                    | 1.15 | 1.00 | .10        | .02     | 150           | 28EB10E130 |
| 28                    | 12                     | 1.20                    | 1.10 | 1.00 | .05        | .02     | 150           | 28EB12E120 |
| 28                    | 13                     | 1.10                    | 1.00 | .90  | .05        | .02     | 150           | 28EB13E110 |
| 28                    | 15                     | 1.00                    | .90  | .80  | .05        | .02     | 150           | 28EB15E100 |
| 28                    | 18                     | .80                     | .70  | .60  | .05        | .02     | 150           | 28EB18E80  |
| 28                    | 20                     | .70                     | .60  | .50  | .05        | .02     | 150           | 28EB20E70  |
| 28                    | 24                     | .60                     | .55  | .50  | .05        | .02     | 150           | 28EB24E60  |
| 28                    | 28                     | .50                     | .45  | .40  | .05        | .02     | 150           | 28EB28E50  |

120 to 180 See pages 38-39.

### DUAL TRACKING OUTPUTS

| Nominal Input Voltage | Nominal Output Voltages | Amps. per Output at |      |      | Regulation |         | (\$)<br>Price | Model     |
|-----------------------|-------------------------|---------------------|------|------|------------|---------|---------------|-----------|
|                       |                         | 40°C                | 55°C | 71°C | Load ±%    | Line ±% |               |           |
| 5                     | ±10                     | .60                 | .55  | .50  | .05        | .02     | 155           | 5EB10D60  |
| 5                     | ±12                     | .60                 | .55  | .50  | .05        | .02     | 155           | 5EB12D60  |
| 5                     | ±15                     | .50                 | .45  | .40  | .05        | .02     | 155           | 5EB15D50  |
| 5                     | ±18                     | .40                 | .35  | .30  | .05        | .02     | 155           | 5EB18D40  |
| 12                    | ±10                     | .60                 | .55  | .50  | .05        | .02     | 155           | 12EB10D60 |
| 12                    | ±12                     | .60                 | .55  | .50  | .05        | .02     | 155           | 12EB12D60 |
| 12                    | ±15                     | .50                 | .45  | .40  | .05        | .02     | 155           | 12EB15D50 |
| 12                    | ±18                     | .40                 | .35  | .30  | .05        | .02     | 155           | 12EB18D40 |
| 15                    | ±10                     | .60                 | .55  | .50  | .05        | .02     | 155           | 15EB10D60 |
| 15                    | ±12                     | .60                 | .55  | .50  | .05        | .02     | 155           | 15EB12D60 |

| Nominal Input Voltage | Nominal Output Voltages | Amps. per Output at |      |      | Regulation |         | (\$)<br>Price | Model     |
|-----------------------|-------------------------|---------------------|------|------|------------|---------|---------------|-----------|
|                       |                         | 40°C                | 55°C | 71°C | Load ±%    | Line ±% |               |           |
| 15                    | ±15                     | .50                 | .45  | .40  | .05        | .02     | 155           | 15EB15D50 |
| 15                    | ±18                     | .40                 | .35  | .30  | .05        | .02     | 155           | 15EB18D40 |
| 24                    | ±10                     | .60                 | .55  | .50  | .05        | .02     | 155           | 24EB10D60 |
| 24                    | ±12                     | .60                 | .55  | .50  | .05        | .02     | 155           | 24EB12D60 |
| 24                    | ±15                     | .50                 | .45  | .40  | .05        | .02     | 155           | 24EB15D50 |
| 24                    | ±18                     | .40                 | .35  | .30  | .05        | .02     | 155           | 24EB18D40 |
| 28                    | ±10                     | .60                 | .55  | .50  | .05        | .02     | 155           | 28EB10D60 |
| 28                    | ±12                     | .60                 | .55  | .50  | .05        | .02     | 155           | 28EB12D60 |
| 28                    | ±15                     | .50                 | .45  | .40  | .05        | .02     | 155           | 28EB15D50 |
| 28                    | ±18                     | .40                 | .35  | .30  | .05        | .02     | 155           | 28EB18D40 |

## Narrow Profile DC-DC Converters (to 288 watts)

REGULATED  
wide input ranges  
single output

- Shipped Within 3 Days
- Five Year Warranty
- UL60950, UL508, CE Certified\*



(\*110 to 350 Vdc Input Models Only)

**These state-of-the-art DC-DC converters** combine excellent regulation and ripple specifications with broad input ranges. They are available in a large selection of output voltages and current ratings. Accessory mounting kits permit easy installation on a vertical panel, wall or on a DIN rail.



### STANDARD FEATURES

- Tight regulation, low ripple
- Extensive filtering and shielding
- Output status indicator
- Input/output isolation exceeds 2828Vdc
- Extruded aluminum case

### SPECIFICATIONS

| Nominal Input | Operating Input Voltage Range       |
|---------------|-------------------------------------|
| 24 Vdc        | 18-36 Vdc (or 18-75 Vdc; see table) |
| 48 Vdc        | 36-75 Vdc (or 18-75 Vdc; see table) |
| 125 Vdc       | 110-350 Vdc (see table)             |
| 250 Vdc       | 110-350 Vdc (see table)             |

**Input Reverse Polarity Protection:** Internal shunt diode (external fuse required).

**Startup Time:** 800 mS typical.

#### Regulation:

Line:  $\pm 0.05\%$   
Load:  $\pm 0.05\%$

**Output Voltage Remote Adjustment:** The output voltage may be controlled by means of an external 1K potentiometer.

**Output Indicator (DC out):** Green LED.

**Polarity:** Output is floating and may be used in either polarity.

**Drift:**  $\pm 0.1\%$  typical over 8 hours, after 30 minute warmup.

**Temperature Coefficient:**  $\pm 0.02\%/\text{ }^{\circ}\text{C}$  (Typical).

**Transient Response:** 300  $\mu\text{S}$  to return to  $\pm 1\%$  of output setting. Maximum of  $\pm 3\%$  output excursion following a load step change from 50% to 100%.

**Remote Sensing:** Compensates up to 0.5 volt drop per output line, within the limits of the output voltage adjustment range.

**Overload/Short Circuit Protection:** Current limiting with automatic recovery.

#### Overvoltage Protection:

Case sizes DN6A, DN6B: automatic reset.

Case sizes DN8, DN8A: latches power supply OFF, reset by momentarily removing DC input power.

#### Output Inhibit (DN8 and DN8A case sizes only):

Applying between +3 and +25 Vdc (relative to the -Out terminal) to the inhibit terminal will disable the supply.

**EMI:** Designed to meet FCC Part 15 and EN55022, Class A.

#### Thermal Protection:

Case sizes DN8, DN8A, DN6A: thermostat, self-resetting.

Case size DN6B: inherently protected.

**Efficiency:** (Typical, at nominal input voltage, with full load.) 65 to 80%

**Ambient Operating Temperature:** 0 to  $+71\text{ }^{\circ}\text{C}$ .

**Storage Temperature:**  $-40$  to  $+85\text{ }^{\circ}\text{C}$ .

**Cooling:** Case sizes DN8, DN8A, DN6A: forced-air cooled; air enters rear of power supply and exits from top. Case size DN6B: convection cooled.

**Switching Frequency:** 100 kHz (Typical).

#### Dielectric Withstand Voltage:

|                         | inputs to<br>75 Vdc | 110-350<br>Vdc input | Isolation |
|-------------------------|---------------------|----------------------|-----------|
| <b>Input to output:</b> | 2828 Vdc            | 4242 Vdc             | 300 Vdc   |
| <b>Input to case:</b>   | 2828 Vdc            | 2121 Vdc             | 300 Vdc   |
| <b>Output to case:</b>  | 750 Vdc             | 750 Vdc              | 300 Vdc   |

**Drawings:** See page 80.

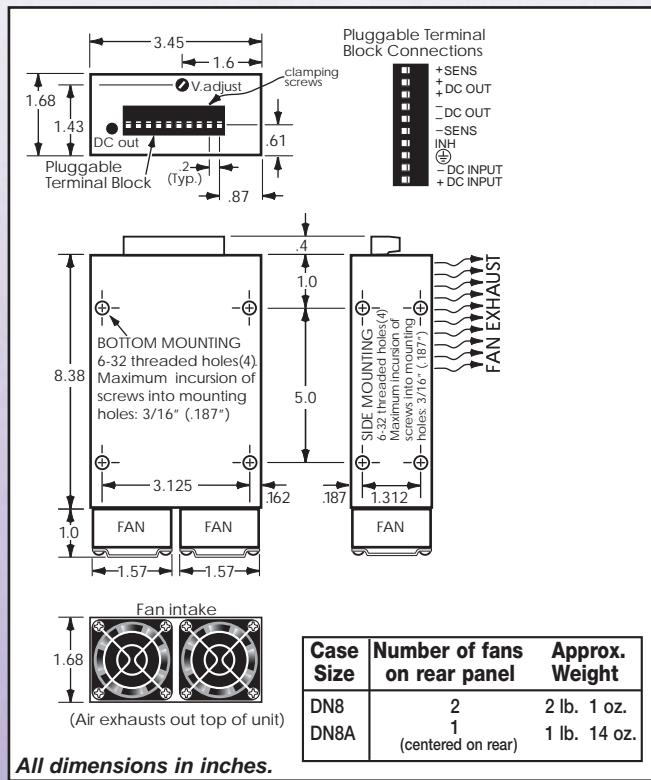
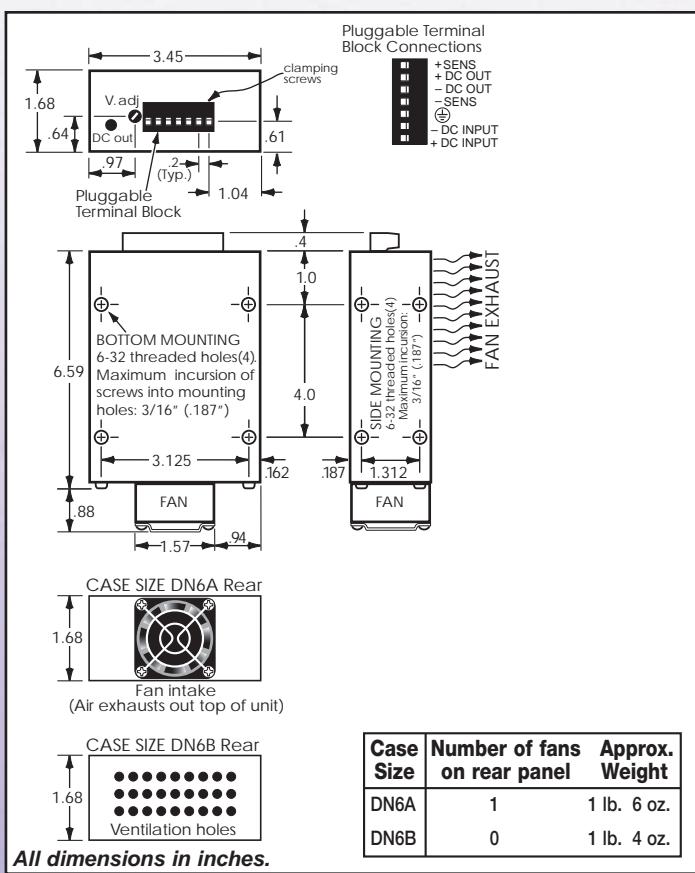
**Mounting:** Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket. To mount from the power supply side of the mounting surface or for DIN rail mounting, see accessory Mounting Kits on page 91.

## Narrow Profile DC-DC CONVERTERS

| Nominal Output Voltage | Adjust Range $\pm$ V | Output Current Amps. at |      | Ripple mV (@ 25 MHz BW) | Case Size | 18 to 36 Vdc Input |       | 36 to 75 Vdc Input |       | 18 to 75 Vdc Input |       | 110 to 350 Vdc Input * |       |               |
|------------------------|----------------------|-------------------------|------|-------------------------|-----------|--------------------|-------|--------------------|-------|--------------------|-------|------------------------|-------|---------------|
|                        |                      | 40°C                    | 71°C |                         |           | RMS                | P-P   | Price (\$)         | Model | Price (\$)         | Model | Price (\$)             | Model |               |
| 3.3                    | .5                   | 10                      | 7    | 10                      | 50        | DN6B               | 225   | 24C3.3FT1000       | 225   | 48C3.3FT1000       | ----- | -----                  | ----- | -----         |
| 3.3                    | .5                   | 15                      | 10.5 | 10                      | 50        | DN6A               | 255   | 24C3.3FT1500       | 255   | 48C3.3FT1500       | ----- | -----                  | ----- | -----         |
| 3.3                    | .5                   | 18.5                    | 12.9 | 10                      | 50        | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C3.3NT1850        | 320   | 230C3.3NT1850 |
| 3.3                    | .5                   | 25                      | 17.5 | 10                      | 50        | DN8                | ----- | -----              | ----- | -----              | 390   | 230C3.3NT2500          | 390   | 230C3.3NT2500 |
| 5                      | .5                   | 10                      | 7    | 10                      | 50        | DN6B               | 225   | 24C5FT1000         | 225   | 48C5FT1000         | ----- | -----                  | ----- | -----         |
| 5                      | .5                   | 15                      | 10.5 | 10                      | 50        | DN6A               | 255   | 24C5FT1500         | 255   | 48C5FT1500         | ----- | -----                  | ----- | -----         |
| 5                      | .5                   | 18.5                    | 12.9 | 10                      | 50        | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C5NT1850          | 320   | 230C5NT1850   |
| 5                      | .5                   | 25                      | 17.5 | 10                      | 50        | DN8                | ----- | -----              | ----- | -----              | 390   | 230C5NT2500            | 390   | 230C5NT2500   |
| 6                      | .5                   | 8.5                     | 6    | 10                      | 50        | DN6B               | 225   | 24C6FT850          | 225   | 48C6FT850          | ----- | -----                  | ----- | -----         |
| 6                      | .5                   | 12.5                    | 8.6  | 10                      | 50        | DN6A               | 255   | 24C6FT1250         | 255   | 48C6FT1250         | ----- | -----                  | ----- | -----         |
| 6                      | .5                   | 15.4                    | 10.7 | 10                      | 50        | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C6NT1540          | 320   | 230C6NT1540   |
| 6                      | .5                   | 24                      | 16.8 | 10                      | 50        | DN8                | ----- | -----              | ----- | -----              | 390   | 230C6NT2400            | 390   | 230C6NT2400   |
| 7                      | .5                   | 7                       | 4.9  | 10                      | 50        | DN6B               | 225   | 24C7FT700          | 225   | 48C7FT700          | ----- | -----                  | ----- | -----         |
| 7                      | .5                   | 10.6                    | 7.4  | 10                      | 50        | DN6A               | 255   | 24C7FT1060         | 255   | 48C7FT1060         | ----- | -----                  | ----- | -----         |
| 7                      | .5                   | 15                      | 10.5 | 10                      | 50        | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C7NT1500          | 320   | 230C7NT1500   |
| 7                      | .5                   | 23                      | 16.1 | 10                      | 50        | DN8                | ----- | -----              | ----- | -----              | 390   | 230C7NT2300            | 390   | 230C7NT2300   |
| 8                      | .5                   | 6                       | 4.2  | 15                      | 100       | DN6B               | 225   | 24C8FT600          | 225   | 48C8FT600          | ----- | -----                  | ----- | -----         |
| 8                      | .5                   | 9.4                     | 6.6  | 15                      | 100       | DN6A               | 255   | 24C8FT940          | 255   | 48C8FT940          | ----- | -----                  | ----- | -----         |
| 8                      | .5                   | 14.7                    | 10.3 | 15                      | 100       | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C8NT1470          | 320   | 230C8NT1470   |
| 8                      | .5                   | 23                      | 16.1 | 15                      | 100       | DN8                | ----- | -----              | ----- | -----              | 390   | 230C8NT2300            | 390   | 230C8NT2300   |
| 9                      | .5                   | 5.5                     | 3.8  | 15                      | 100       | DN6B               | 225   | 24C9FT550          | 225   | 48C9FT550          | ----- | -----                  | ----- | -----         |
| 9                      | .5                   | 9.3                     | 6.5  | 15                      | 100       | DN6A               | 255   | 24C9FT930          | 255   | 48C9FT930          | ----- | -----                  | ----- | -----         |
| 9                      | .5                   | 14.4                    | 10   | 15                      | 100       | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C9NT1440          | 320   | 230C9NT1440   |
| 9                      | .5                   | 23                      | 16.1 | 15                      | 100       | DN8                | ----- | -----              | ----- | -----              | 390   | 230C9NT2300            | 390   | 230C9NT2300   |
| 10                     | .5                   | 5                       | 3.5  | 15                      | 100       | DN6B               | 225   | 24C10FT500         | 225   | 48C10FT500         | ----- | -----                  | ----- | -----         |
| 10                     | .5                   | 9.2                     | 6.4  | 15                      | 100       | DN6A               | 255   | 24C10FT920         | 255   | 48C10FT920         | ----- | -----                  | ----- | -----         |
| 10                     | .5                   | 14.1                    | 9.8  | 15                      | 100       | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C10NT1410         | 320   | 230C10NT1410  |
| 10                     | .5                   | 22                      | 15.4 | 15                      | 100       | DN8                | ----- | -----              | ----- | -----              | 390   | 230C10NT2200           | 390   | 230C10NT2200  |
| 12                     | .5                   | 4.5                     | 3.1  | 15                      | 100       | DN6B               | 225   | 24C12FT450         | 225   | 48C12FT450         | ----- | -----                  | ----- | -----         |
| 12                     | .5                   | 9.1                     | 6.3  | 15                      | 100       | DN6A               | 255   | 24C12FT910         | 255   | 48C12FT910         | ----- | -----                  | ----- | -----         |
| 12                     | .5                   | 13.7                    | 9.6  | 15                      | 100       | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C12NT1370         | 320   | 230C12NT1370  |
| 12                     | .5                   | 22                      | 15.4 | 15                      | 100       | DN8                | ----- | -----              | ----- | -----              | 390   | 230C12NT2200           | 390   | 230C12NT2200  |
| 13                     | .5                   | 4.3                     | 3    | 15                      | 100       | DN6B               | 225   | 24C13FT430         | 225   | 48C13FT430         | ----- | -----                  | ----- | -----         |
| 13                     | .5                   | 8.1                     | 5.6  | 15                      | 100       | DN6A               | 255   | 24C13FT810         | 255   | 48C13FT810         | ----- | -----                  | ----- | -----         |
| 13                     | .5                   | 12.3                    | 8.6  | 15                      | 100       | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C13NT1230         | 320   | 230C13NT1230  |
| 13                     | .5                   | 20                      | 14   | 15                      | 100       | DN8                | ----- | -----              | ----- | -----              | 390   | 230C13NT2000           | 390   | 230C13NT2000  |
| 14                     | .5                   | 4.2                     | 3    | 15                      | 100       | DN6B               | 225   | 24C14FT420         | 225   | 48C14FT420         | ----- | -----                  | ----- | -----         |
| 14                     | .5                   | 7.7                     | 5.4  | 15                      | 100       | DN6A               | 255   | 24C14FT770         | 255   | 48C14FT770         | ----- | -----                  | ----- | -----         |
| 14                     | .5                   | 11.7                    | 8.2  | 15                      | 100       | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C14NT1170         | 320   | 230C14NT1170  |
| 14                     | .5                   | 19                      | 13.3 | 15                      | 100       | DN8                | ----- | -----              | ----- | -----              | 390   | 230C14NT1900           | 390   | 230C14NT1900  |
| 15                     | .5                   | 4                       | 2.8  | 15                      | 100       | DN6B               | 225   | 24C15FT400         | 225   | 48C15FT400         | ----- | -----                  | ----- | -----         |
| 15                     | .5                   | 7.4                     | 5.2  | 15                      | 100       | DN6A               | 255   | 24C15FT740         | 255   | 48C15FT740         | ----- | -----                  | ----- | -----         |
| 15                     | .5                   | 11.1                    | 7.8  | 15                      | 100       | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C15NT1110         | 320   | 230C15NT1110  |
| 15                     | .5                   | 18                      | 12.6 | 15                      | 100       | DN8                | ----- | -----              | ----- | -----              | 390   | 230C15NT1800           | 390   | 230C15NT1800  |
| 18                     | .5                   | 3.3                     | 2.3  | 15                      | 100       | DN6B               | 225   | 24C18FT330         | 225   | 48C18FT330         | ----- | -----                  | ----- | -----         |
| 18                     | .5                   | 6                       | 4.2  | 15                      | 100       | DN6A               | 255   | 24C18FT600         | 255   | 48C18FT600         | ----- | -----                  | ----- | -----         |
| 18                     | .5                   | 9.2                     | 6.4  | 15                      | 100       | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C18NT920          | 320   | 230C18NT920   |
| 18                     | .5                   | 15                      | 10.5 | 15                      | 100       | DN8                | ----- | -----              | ----- | -----              | 390   | 230C18NT1500           | 390   | 230C18NT1500  |
| 20                     | .5                   | 3                       | 2.1  | 15                      | 100       | DN6B               | 225   | 24C20FT300         | 225   | 48C20FT300         | ----- | -----                  | ----- | -----         |
| 20                     | .5                   | 5.6                     | 3.9  | 15                      | 100       | DN6A               | 255   | 24C20FT560         | 255   | 48C20FT560         | ----- | -----                  | ----- | -----         |
| 20                     | .5                   | 8.6                     | 6    | 15                      | 100       | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C20NT860          | 320   | 230C20NT860   |
| 20                     | .5                   | 14                      | 9.8  | 15                      | 100       | DN8                | ----- | -----              | ----- | -----              | 390   | 230C20NT1400           | 390   | 230C20NT1400  |
| 24                     | .5                   | 2.5                     | 1.8  | 15                      | 100       | DN6B               | 225   | 24C24FT250         | 225   | 48C24FT250         | ----- | -----                  | ----- | -----         |
| 24                     | .5                   | 5                       | 3.5  | 15                      | 100       | DN6A               | 255   | 24C24FT500         | 255   | 48C24FT500         | ----- | -----                  | ----- | -----         |
| 24                     | .5                   | 7.5                     | 5.3  | 15                      | 100       | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C24NT750          | 320   | 230C24NT750   |
| 24                     | .5                   | 12                      | 8.4  | 15                      | 100       | DN8                | ----- | -----              | ----- | -----              | 390   | 230C24NT1200           | 390   | 230C24NT1200  |
| 25                     | .5                   | 2.4                     | 1.6  | 15                      | 100       | DN6B               | 225   | 24C25FT240         | 225   | 48C25FT240         | ----- | -----                  | ----- | -----         |
| 25                     | .5                   | 4.8                     | 3.3  | 15                      | 100       | DN6A               | 255   | 24C25FT480         | 255   | 48C25FT480         | ----- | -----                  | ----- | -----         |
| 25                     | .5                   | 7.2                     | 5    | 15                      | 100       | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C25NT720          | 320   | 230C25NT720   |
| 25                     | .5                   | 11.2                    | 7.8  | 15                      | 100       | DN8                | ----- | -----              | ----- | -----              | 390   | 230C25NT1120           | 390   | 230C25NT1120  |
| 28                     | .5                   | 2.1                     | 1.5  | 15                      | 100       | DN6B               | 225   | 24C28FT210         | 225   | 48C28FT210         | ----- | -----                  | ----- | -----         |
| 28                     | .5                   | 4.2                     | 2.9  | 15                      | 100       | DN6A               | 255   | 24C28FT420         | 255   | 48C28FT420         | ----- | -----                  | ----- | -----         |
| 28                     | .5                   | 6.2                     | 4.3  | 15                      | 100       | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C28NT620          | 320   | 230C28NT620   |
| 28                     | .5                   | 10                      | 7    | 15                      | 100       | DN8                | ----- | -----              | ----- | -----              | 390   | 230C28NT1000           | 390   | 230C28NT1000  |
| 30                     | .5                   | 2                       | 1.4  | 25                      | 150       | DN6B               | 225   | 24C30FT200         | 225   | 48C30FT200         | ----- | -----                  | ----- | -----         |
| 30                     | .5                   | 4                       | 2.8  | 25                      | 150       | DN6A               | 255   | 24C30FT400         | 255   | 48C30FT400         | ----- | -----                  | ----- | -----         |
| 30                     | .5                   | 5.6                     | 3.9  | 25                      | 150       | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C30NT560          | 320   | 230C30NT560   |
| 30                     | .5                   | 9                       | 6.3  | 25                      | 150       | DN8                | ----- | -----              | ----- | -----              | 390   | 230C30NT900            | 390   | 230C30NT900   |
| 32                     | 1                    | 1.9                     | 1.3  | 25                      | 150       | DN6B               | 225   | 24C32FT190         | 225   | 48C32FT190         | ----- | -----                  | ----- | -----         |
| 32                     | 1                    | 3.7                     | 2.5  | 25                      | 150       | DN6A               | 255   | 24C32FT370         | 255   | 48C32FT370         | ----- | -----                  | ----- | -----         |
| 32                     | 1                    | 5.4                     | 3.7  | 25                      | 150       | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C32NT540          | 320   | 230C32NT540   |
| 32                     | 1                    | 8.6                     | 6    | 25                      | 150       | DN8                | ----- | -----              | ----- | -----              | 390   | 230C32NT860            | 390   | 230C32NT860   |
| 36                     | 1                    | 1.7                     | 1.2  | 25                      | 150       | DN6B               | 225   | 24C36FT170         | 225   | 48C36FT170         | ----- | -----                  | ----- | -----         |
| 36                     | 1                    | 3.3                     | 2.3  | 25                      | 150       | DN6A               | 255   | 24C36FT330         | 255   | 48C36FT330         | ----- | -----                  | ----- | -----         |
| 36                     | 1                    | 5                       | 3.5  | 25                      | 150       | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C36NT500          | 320   | 230C36NT500   |
| 36                     | 1                    | 8                       | 5.6  | 25                      | 150       | DN8                | ----- | -----              | ----- | -----              | 390   | 230C36NT800            | 390   | 230C36NT800   |
| 40                     | 1                    | 1.5                     | 1    | 25                      | 150       | DN6B               | 225   | 24C40FT150         | 225   | 48C40FT150         | ----- | -----                  | ----- | -----         |
| 40                     | 1                    | 3                       | 2.1  | 25                      | 150       | DN6A               | 255   | 24C40FT300         | 255   | 48C40FT300         | ----- | -----                  | ----- | -----         |
| 40                     | 1                    | 4.3                     | 3    | 25                      | 150       | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C40NT430          | 320   | 230C40NT430   |
| 40                     | 1                    | 7                       | 4.9  | 25                      | 150       | DN8                | ----- | -----              | ----- | -----              | 390   | 230C40NT700            | 390   | 230C40NT700   |
| 48                     | 1                    | 1.2                     | .8   | 25                      | 150       | DN6B               | 225   | 24C48FT120         | 225   | 48C48FT120         | ----- | -----                  | ----- | -----         |
| 48                     | 1                    | 2.5                     | 1.7  | 25                      | 150       | DN6A               | 255   | 24C48FT250         | 255   | 48C48FT250         | ----- | -----                  | ----- | -----         |
| 48                     | 1                    | 3.7                     | 2.6  | 25                      | 150       | DN8A               | ----- | ----->             | ----- | ----->             | 320   | 18-75C48NT370          | 320   | 230C48NT370   |
| 48                     | 1                    | 6                       | 4.2  | 25                      | 150       | DN8                | ----- | -----              | ----- | -----              | 390   | 230C48NT               |       |               |

## **Narrow Profile DC-DC CONVERTERS (continued)**

| Nominal Output Voltage | Adjust Range $\pm V$ | Output Current Amps. at |      | Ripple mV (@ 25 MHz BW) |     | Case Size | 18 to 36 Vdc Input |       | 36 to 75 Vdc Input |       | 18 to 75 Vdc Input |       | 110 to 350 Vdc Input |              |
|------------------------|----------------------|-------------------------|------|-------------------------|-----|-----------|--------------------|-------|--------------------|-------|--------------------|-------|----------------------|--------------|
|                        |                      | 40°C                    | 71°C | RMS                     | P-P |           | Price (\$)         | Model | Price (\$)         | Model | Price (\$)         | Model | Price (\$)           | Model        |
| 50                     | 1                    | 3.3                     | 2.3  | 50                      | 150 | DN8A      | -----              | ----- | -----              | ----- | -----              | ----- | 320                  | 230C50NT330  |
| 50                     | 1                    | 5                       | 3.5  | 50                      | 150 | DN8       | -----              | ----- | -----              | ----- | -----              | ----- | 390                  | 230C50NT500  |
| 55                     | 1                    | 3                       | 2.1  | 50                      | 150 | DN8A      | -----              | ----- | -----              | ----- | -----              | ----- | 320                  | 230C55NT300  |
| 55                     | 1                    | 4.5                     | 3.2  | 50                      | 150 | DN8       | -----              | ----- | -----              | ----- | -----              | ----- | 390                  | 230C55NT450  |
| 60                     | 1                    | 2.8                     | 1.9  | 50                      | 150 | DN8A      | -----              | ----- | -----              | ----- | -----              | ----- | 320                  | 230C60NT280  |
| 60                     | 1                    | 4.2                     | 2.9  | 50                      | 150 | DN8       | -----              | ----- | -----              | ----- | -----              | ----- | 390                  | 230C60NT420  |
| 70                     | 1                    | 2.4                     | 1.7  | 67                      | 200 | DN8A      | -----              | ----- | -----              | ----- | -----              | ----- | 320                  | 230C70NT240  |
| 70                     | 1                    | 3.6                     | 2.5  | 67                      | 200 | DN8       | -----              | ----- | -----              | ----- | -----              | ----- | 390                  | 230C70NT360  |
| 75                     | 1                    | 2.2                     | 1.5  | 67                      | 200 | DN8A      | -----              | ----- | -----              | ----- | -----              | ----- | 320                  | 230C75NT220  |
| 75                     | 1                    | 3.3                     | 2.3  | 67                      | 200 | DN8       | -----              | ----- | -----              | ----- | -----              | ----- | 390                  | 230C75NT330  |
| 80                     | 1                    | 2.1                     | 1.4  | 67                      | 200 | DN8A      | -----              | ----- | -----              | ----- | -----              | ----- | 320                  | 230C80NT210  |
| 80                     | 1                    | 3.1                     | 2.2  | 67                      | 200 | DN8       | -----              | ----- | -----              | ----- | -----              | ----- | 390                  | 230C80NT310  |
| 90                     | 1                    | 1.8                     | 1.3  | 100                     | 300 | DN8A      | -----              | ----- | -----              | ----- | -----              | ----- | 320                  | 230C90NT180  |
| 90                     | 1                    | 2.8                     | 1.9  | 100                     | 300 | DN8       | -----              | ----- | -----              | ----- | -----              | ----- | 390                  | 230C90NT280  |
| 100                    | 1                    | 1.7                     | 1.2  | 150                     | 450 | DN8A      | -----              | ----- | -----              | ----- | -----              | ----- | 320                  | 230C100NT170 |
| 100                    | 1                    | 2.5                     | 1.8  | 150                     | 450 | DN8       | -----              | ----- | -----              | ----- | -----              | ----- | 390                  | 230C100NT250 |
| 110                    | 1                    | 1.5                     | 1.1  | 150                     | 450 | DN8A      | -----              | ----- | -----              | ----- | -----              | ----- | 320                  | 230C110NT150 |
| 110                    | 1                    | 2.3                     | 1.6  | 150                     | 450 | DN8       | -----              | ----- | -----              | ----- | -----              | ----- | 390                  | 230C110NT230 |
| 120                    | 1                    | 1.4                     | 1    | 150                     | 450 | DN8A      | -----              | ----- | -----              | ----- | -----              | ----- | 320                  | 230C120NT140 |
| 120                    | 1                    | 2.1                     | 1.5  | 150                     | 450 | DN8       | -----              | ----- | -----              | ----- | -----              | ----- | 390                  | 230C120NT210 |
| 125                    | 1                    | 1.3                     | 0.9  | 150                     | 450 | DN8A      | -----              | ----- | -----              | ----- | -----              | ----- | 320                  | 230C125NT130 |
| 125                    | 1                    | 2                       | 1.4  | 150                     | 450 | DN8       | -----              | ----- | -----              | ----- | -----              | ----- | 390                  | 230C125NT200 |



## MIL TESTED and EXTENDED TEMP RANGE

(for Plug-in models on pages 84-87)

SHIPPED WITHIN 3 DAYS  
ALL MODELS U.L. RECOGNIZED

Ruggedized construction and capability for operation through an extended ambient temperature range of -20 to +71°C (without derating) are provided by Acopian MIL-option supplies. In all other respects they are identical to our standard Plug-in power supplies.

**HOW TO ORDER:**

Add prefix "MIL-" to standard model number and \$15.00 to price of single output models; \$30.00 to price of dual output models. Example: Model 6J200 becomes MIL-6J200. Price becomes \$175.00 plus \$15.00; or \$190.00 total.

MIL-option equivalents to all the models included on pages 84 through 87, except those housed in case size HS, have been tested to these specifications:

**ALTITUDE:** MIL-STD-810B, Method 500, Procedure II.

**VIBRATION:** MIL-STD-810B, Method 514, Procedure I, Curve D.

**SHOCK:** MIL-STD-810B, Method 516, Procedure I.

**FUNGUS:** (additional \$25.00/output charge applies.) MIL-STD-810B, Method 508, Procedure I.

**CONDUCTED EMI:** MIL-I-6181D, Paragraph 4.3.1., Figure II.

**RADIATED EMI:** MIL-I-6181D, Paragraph 4.3.2.

**SUSCEPTIBILITY TO CONDUCTED AND RADIATED EMI:** MIL-I-6181D, Paragraph 4.3.4.

**HIGH TEMPERATURE:** MIL-STD-810B, Method 501, Procedure I.

**LOW TEMPERATURE:** MIL-E-5272C, Paragraph 4.2.2, Procedure II.

**HUMIDITY:** MIL-STD-810B, Method 507, Procedure I.

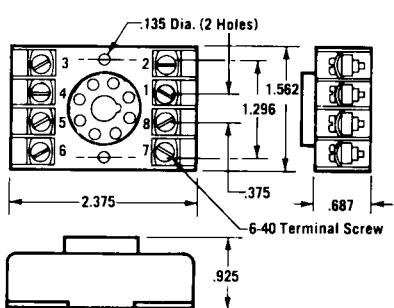
**SALT FOG:** MIL-STD-810B, Method 509, Procedure I.

## ACCESSORY SOCKETS

(for Plug-in models on pages 82-88)

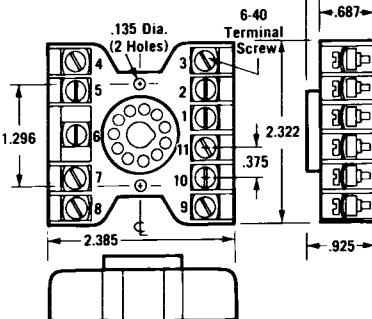
RETMA-numbered screw-type terminals simplify wiring and permit the use of wire terminals or bare wire, 12 to 20 gauge. Rated at 300 volts RMS, 10 Amp.

**FOR 8-PIN PLUGS**



Model SL608.....\$20

**FOR 11-PIN PLUGS**



Model SL611.....\$20

## Plug-in UNREGULATED

AC-DC  
*single output & wide adjust output*

- Shipped Within 3 Days
- U.L. Recognized
- Five Year Warranty

**To meet the need for unregulated DC power at low cost**, Acopian offers a broad line of both fixed and fully adjustable Plug-in power modules with output voltages to 950 volts.

### STANDARD FEATURES

- Capacitive filtering
- Fused input
- May be used in series or parallel
- No derating or heat sinking required
- Completely serviceable

### SPECIFICATIONS

**Input Voltage:** 0-125 VAC, 50-400 Hz, single phase.

**Output Voltage Adjustment:** Adjustable voltage models are provided with a built-in continuously adjustable autotransformer.

**Load Regulation:** The nominal output voltages of fixed output models, and the maximum rated output voltages for models with adjustable outputs, are based on 115 VAC input with approximately one-half load. At no load, they will increase by approximately 10%. At full load, they will be reduced by approximately 10%.

**Line Regulation:** Output voltage change due to line change directly proportional to input change.

**Polarity:** Output is floating; either positive or negative terminal may be grounded.

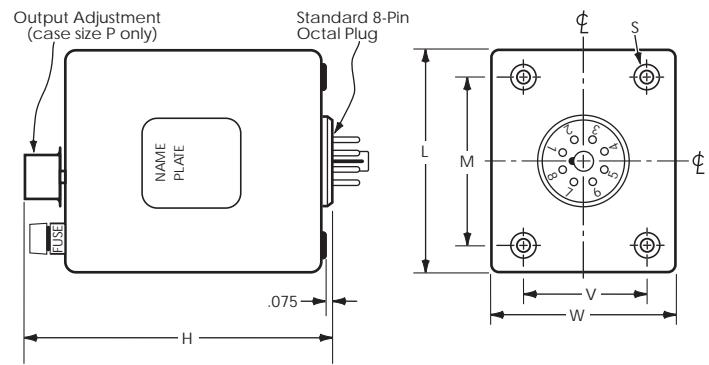
**Ambient Operating Temperature:** -10 to +65°C.  
No derating required.

**Storage Temperature:** -55 to +85°C.

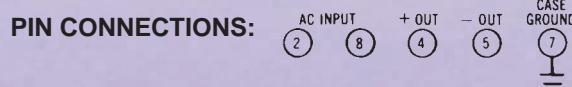
**Installation:** Plugs into standard 8-pin octal socket (see page 81). Four 6-32 mounting holes (on case sizes G and K) or four 10-32 mounting studs (on case sizes Q and P) are provided in the base for fastening the module when used in other than the upright position, or if extreme vibration will be encountered.



There is no need to use tiedown hardware unless it is mounted in other than an upright position, or where shock and vibration will be encountered.



| Case Size | L    | W    | H    | M     | V     | S                                      | Approx. Weight |
|-----------|------|------|------|-------|-------|--|----------------|
| G         | 3.40 | 3.28 | 5.12 | 2.625 | 2.625 | Four 6-32 x .25" deep mounting holes   | 2 lb. 8 oz.    |
| K         | 4.15 | 3.33 | 5.21 | 2.750 | 2.562 | Four 6-32 x .25" deep mounting holes   | 4 lb. 4 oz.    |
| Q         | 4.15 | 3.33 | 7.12 | 2.750 | 2.562 | Four 10-32 x 9/16" long mounting studs | 7 lb.          |
| P         | 4.15 | 3.33 | 7.25 | 2.750 | 2.562 | Four 10-32 x 9/16" long mounting studs | 5 lb.          |



### OPTIONS

**230 Volt Input:** Provision for inputs of 0-250 VAC, 50-400 Hz, replacing the standard of 0-125 VAC input voltage range, is available on single output models. To order, add suffix "-230" to model number and \$25.00 to price. The "-230" option requires two additional days.

## SINGLE OUTPUT

| Nominal Output Voltage | Output Current Amps. | Ripple Volts RMS | (\$ Price | Model   | Case Size |
|------------------------|----------------------|------------------|-----------|---------|-----------|
| 7                      | 1.0                  | .8               | 160       | 7U100   | G         |
| 13                     | .600                 | .5               | 160       | 13U60   | G         |
| 13                     | 3.0                  | 1.5              | 200       | 13U300  | K         |
| 14                     | 1.0                  | .7               | 160       | 14U100  | G         |
| 16                     | 1.0                  | .7               | 160       | 16U100  | G         |
| 18                     | 1.0                  | .7               | 160       | 18U100  | G         |
| 20                     | 3.0                  | 2.3              | 200       | 20UP300 | K         |
| 24                     | 1.0                  | 1.7              | 160       | 24U100  | G         |
| 24                     | 3.0                  | 2.2              | 200       | 24UP300 | K         |
| 28                     | 1.0                  | 1.7              | 160       | 28U100  | G         |
| 28                     | 3.0                  | 2.7              | 200       | 28UP300 | K         |
| 32                     | .400                 | .6               | 160       | 32U40   | G         |
| 41                     | .400                 | .6               | 160       | 41U40   | G         |
| 45                     | 1.0                  | 1.6              | 170       | 45UP100 | G         |
| 48                     | .400                 | .6               | 165       | 48U40   | G         |
| 50                     | 1.0                  | 1.6              | 170       | 50UP100 | G         |
| 52                     | .400                 | .6               | 165       | 52U40   | G         |
| 55                     | .250                 | .4               | 165       | 55U25   | G         |
| 80                     | .300                 | 1                | 170       | 80UP30  | G         |
| 90                     | .300                 | 2.2              | 185       | 90UP30  | G         |
| 100                    | .200                 | 1                | 185       | 100UP20 | G         |
| 110                    | .200                 | 1                | 185       | 110UP20 | G         |
| 120                    | .200                 | 1                | 185       | 120UP20 | G         |
| 140                    | .200                 | 2                | 185       | 140UP20 | G         |
| 150                    | .200                 | 2                | 185       | 150UP20 | G         |
| 165                    | .200                 | 2                | 185       | 165UP20 | G         |
| 170                    | .200                 | 2                | 190       | 170UP20 | G         |
| 180                    | .200                 | 2                | 190       | 180UP20 | G         |
| 200                    | .200                 | 2                | 190       | 200UP20 | G         |
| 250                    | .200                 | 4                | 190       | 250UP20 | G         |
| 275                    | .100                 | 3                | 185       | 275UP10 | G         |
| 340                    | .100                 | 3                | 185       | 340UP10 | G         |
| 360                    | .100                 | 3                | 185       | 360UP10 | G         |
| 370                    | .100                 | 3                | 185       | 370UP10 | G         |
| 420                    | .100                 | 6.7              | 185       | 420UP10 | G         |
| 475                    | .020                 | 3.1              | 170       | 475U02  | G         |
| 580*                   | .020                 | 3.1              | 170       | 580U02  | G         |
| 750*                   | .020                 | 3.1              | 185       | 750U02  | G         |
| 900*                   | .020                 | 5                | 190       | 900U02  | G         |

\*Not U.L. recognized when this catalog was published.

## SINGLE OUTPUT - for relays

| Nominal Output Voltage | Output Current Amps. | Output Voltage N/L-F/L | Ripple Volts RMS | (\$ Price | Model | Case Size |
|------------------------|----------------------|------------------------|------------------|-----------|-------|-----------|
| 6                      | 2.0                  | 7.7 to 4.8             | 2.0              | 160       | US6   | G         |
| 6                      | 5.0                  | 7.6 to 5.0             | 2.5              | 200       | UP6   | K         |
| 12                     | 1.5                  | 14.9 to 10.9           | 2.5              | 160       | US12  | G         |
| 12                     | 5.0                  | 14.8 to 10.0           | 2.5              | 200       | UP12  | K         |
| 24                     | 1.5                  | 26.2 to 20.2           | 2.5              | 160       | US24  | G         |
| 24                     | 3.5                  | 26.0 to 21.0           | 2.0              | 200       | UP24  | K         |
| 24                     | 5.0                  | 26.6 to 20.0           | 3.2              | 215       | U24   | Q         |
| 28                     | 1.0                  | 30.6 to 25.5           | 2.0              | 165       | US28  | G         |
| 28                     | 3.0                  | 30.8 to 26.0           | 2.0              | 200       | UP28  | K         |
| 28                     | 5.0                  | 31.9 to 23.6           | 3.4              | 215       | U28   | Q         |
| 48                     | 0.5                  | 54.0 to 42.0           | 1.3              | 165       | US48  | G         |

## WIDE ADJUST OUTPUT

| Output Voltage Range | Output Current Amps. | Ripple Volts RMS | (\$ Price | Model   | Case Size |
|----------------------|----------------------|------------------|-----------|---------|-----------|
| 0-14                 | 1.0                  | 1                | 345       | 14UA100 | P         |
| 0-54                 | 1.0                  | 1.6              | 345       | 54UA100 | P         |
| 0-95                 | .300                 | 2.2              | 345       | 95UA30  | P         |
| 0-125                | .200                 | 1.5              | 345       | 125UA20 | P         |
| 0-220                | .200                 | 2                | 345       | 220UA20 | P         |
| 0-260                | .200                 | 4                | 345       | 260UA20 | P         |
| 0-370                | .100                 | 3                | 345       | 370UA10 | P         |
| 0-450                | .100                 | 6.7              | 345       | 450UA10 | P         |
| 0-500                | .020                 | 3.1              | 345       | 500UA02 | P         |
| 0-800*               | .020                 | 3.1              | 345       | 800UA02 | P         |
| 0-950*               | .020                 | 5                | 345       | 950UA02 | P         |

\*Not U.L. recognized when this catalog was published.

(See page 57 for other unregulated wide adjust output power supplies.)

## Plug-in SINGLE OUTPUT & WIDE ADJUST OUTPUT

### LINEAR REGULATED AC-DC

- Shipped Within 3 Days
- All Models U.L. Recognized
- Five Year Warranty

An **Acopian Plug-in power module** can be installed in a matter of seconds. Simply plug it into a standard octal socket. (Threaded mounting holes are provided in the base for fastening the module when used in other than the upright position, or if subject to extreme vibration.) To replace a module - for example, where added circuitry calls for a higher current rating - just unplug the old, plug in the new. And as a result of years of product refinement, your Acopian Plug-in provides the highest reliability of any available series-regulated power supply.

### STANDARD FEATURES

- May be used in series
- Delivers current surges without damage - to protect against prolonged overload and shorts, use of an input fuse is recommended
- No derating or additional heat sinking required
- Completely serviceable
- Lightweight

### SPECIFICATIONS

**Input Voltage:** 105-125 VAC, 50-400 Hz, single phase.

**Output Specifications:** See table.

**Polarity:** Output floating; either positive or negative terminal may be grounded or floated up to 300 volts above ground.

**Temperature Coefficient:** 0.02%/°C (Typical).

**Ambient Operating Temperature:** -10 to +65°C.  
No derating required.

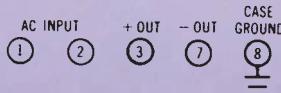
**MIL Tested and Extended Temperature Range:**  
See page 81.

**Storage Temperature:** -55 to +85°C.

**Installation:** Plugs into standard 8-pin octal socket (see page 81). Four mounting holes (6-32) are provided in the base for fastening the module when used in other than the upright position, or if extreme vibration will be encountered.

### PIN CONNECTIONS:

Standard model.



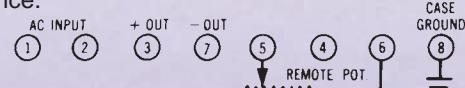
\*H dimension includes HEATSINK on BS, US, WS, and HS case sizes.

| Case Size | L    | W    | H*   | M     | V     | J    | Q   | Approx. Weight |
|-----------|------|------|------|-------|-------|------|-----|----------------|
| AS        | 3.40 | 3.28 | 4.67 | 2.625 | 2.625 | 1.00 | .66 | 2 lb. 8 oz.    |
| BS        | 3.40 | 3.28 | 5.33 | 2.625 | 2.625 | 1.00 | .66 | 2 lb. 14 oz.   |
| TS        | 3.33 | 4.15 | 4.85 | 2.562 | 2.750 | 1.12 | .62 | 3 lb. 6 oz.    |
| US        | 3.33 | 4.15 | 5.53 | 2.562 | 2.750 | 1.12 | .62 | 3 lb. 8 oz.    |
| WS        | 3.40 | 5.02 | 5.53 | 2.562 | 3.562 | 1.12 | .62 | 4 lb. 14 oz.   |
| HS        | 3.40 | 5.02 | 6.65 | 2.562 | 3.562 | 1.12 | .62 | 5 lb.          |

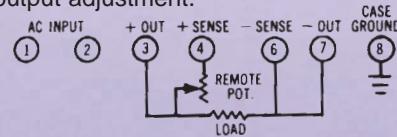
### OPTIONS

**Solder Terminals:** All models can be furnished with solder terminals instead of the octal type plug. Contact factory or see web site for detailed information.

**Remote Output Adjustment:** All models have a local voltage adjustment. When provision for remote (external) adjustment is also desired, add prefix "E" to model number. Example: Model 12J100 becomes Model E12J100. No increase in price.



**Remote Sensing:** Provision for remote sensing of the output voltage to compensate for drops in the load lines can be furnished at an additional charge of \$10.00 per unit. Add prefix "R" to model number when ordering. "R" power supplies have a local voltage adjustment and provision for remote (external) output adjustment.



**230 Volt Input:** All models can be alternately furnished for operation on inputs of 210 to 250 VAC, 50-400 Hz. Add suffix "-230" to model number and \$25.00 to price. The "-230" option requires two additional days.

**Oversupply Protection:** An internal preset oversupply protector is available. To order, add prefix "V" to the model number, and add \$25.00 to the standard price of models with outputs of 1 to 70 volts; \$35.00, for 75 to 200 volt outputs.

# SINGLE OUTPUT PLUG-IN

| Nominal Output Voltage | Adjust Range $\pm$ V | Output Current Amps. | Regulation   |              | Ripple mV RMS | (\$ Price | Model   | Case Size |
|------------------------|----------------------|----------------------|--------------|--------------|---------------|-----------|---------|-----------|
|                        |                      |                      | Load $\pm$ % | Line $\pm$ % |               |           |         |           |
| 1                      | .25                  | .100                 | .25          | .05          | 0.5           | 195       | 1J10    | AS        |
| 1.5                    | .5                   | .750                 | .7           | .05          | 1             | 225       | 1.5J75  | AS        |
| 2.5                    | .5                   | .750                 | .7           | .05          | 1             | 225       | 2.5J75  | AS        |
| 3.3                    | .5                   | .750                 | .7           | .05          | 1             | 225       | 3.3J75  | AS        |
| 3.3                    | .5                   | 1.0                  | .5           | .05          | 1             | 245       | 3.3J100 | AS        |
| 3.3                    | .5                   | 1.5                  | .5           | .05          | 1             | 260       | 3.3J150 | US        |
| 3.3                    | .5                   | 2.0                  | .5           | .05          | 1             | 285       | 3.3J200 | WS        |
| 3.3                    | .5                   | 3.0                  | .5           | .05          | 1             | 315       | 3.3J300 | WS        |
| 3.3                    | .5                   | 4.0                  | .5           | .05          | 1             | 345       | 3.3J400 | HS        |
| 4                      | 1                    | .750                 | .4           | .05          | 1             | 225       | 4J75    | AS        |
| 4                      | .5                   | 1.0                  | .5           | .05          | 1             | 245       | 4J100   | AS        |
| 5                      | 1                    | .750                 | .4           | .05          | 1             | 225       | 5J75    | AS        |
| 5                      | .5                   | 1.0                  | .5           | .05          | 1             | 245       | 5J100   | AS        |
| 5                      | .5                   | 1.5                  | .4           | .05          | 1             | 260       | 5J150   | US        |
| 5                      | .5                   | 2.0                  | .5           | .05          | 1             | 285       | 5J200   | WS        |
| 5                      | .5                   | 3.0                  | .5           | .05          | 1             | 315       | 5J300   | WS        |
| 5                      | .5                   | 4.0                  | .5           | .05          | 1             | 345       | 5J400   | HS        |
| 5                      | .5                   | 5.0                  | .7           | .05          | 1             | 370       | 5J500   | HS        |
| 6                      | 1                    | .400                 | .15          | .05          | 1             | 215       | 6J40    | AS        |
| 6                      | 1                    | .750                 | .3           | .05          | 1             | 225       | 6J75    | AS        |
| 6                      | 1                    | 1.0                  | .3           | .05          | 1             | 245       | 6J100   | AS        |
| 6                      | .5                   | 2.0                  | .3           | .05          | 1             | 285       | 6J200   | WS        |
| 6                      | .5                   | 3.0                  | .5           | .05          | 1             | 315       | 6J300   | WS        |
| 6                      | .5                   | 4.0                  | .5           | .05          | 1             | 345       | 6J400   | HS        |
| 6                      | .5                   | 5.0                  | .7           | .05          | 1             | 370       | 6J500   | HS        |
| 8                      | 1                    | .750                 | .2           | .05          | 1             | 225       | 8J75    | AS        |
| 8                      | 1                    | 1.0                  | .2           | .05          | 1             | 250       | 8J100   | AS        |
| 9                      | 1                    | .750                 | .15          | .05          | 1             | 225       | 9J75    | AS        |
| 9                      | 1                    | 1.0                  | .2           | .05          | 1             | 250       | 9J100   | AS        |
| 9                      | 1                    | 1.5                  | .3           | .05          | 1             | 285       | 9J150   | US        |
| 9                      | .5                   | 2.0                  | .2           | .05          | 1             | 320       | 9J200   | WS        |
| 10                     | 1                    | .750                 | .15          | .05          | 1             | 225       | 10J75   | AS        |
| 10                     | 1                    | 1.0                  | .2           | .05          | 1             | 250       | 10J100  | AS        |
| 10                     | 1                    | 1.5                  | .25          | .05          | 1             | 285       | 10J150  | US        |
| 10                     | .5                   | 2.0                  | .15          | .05          | 1             | 320       | 10J200  | WS        |
| 10                     | .5                   | 3.0                  | .25          | .05          | 1             | 370       | 10J300  | HS        |
| 12                     | 1                    | .750                 | .15          | .05          | 1             | 225       | 12J75   | AS        |
| 12                     | 1                    | 1.0                  | .1           | .05          | 1             | 250       | 12J100  | AS        |
| 12                     | 1                    | 1.5                  | .2           | .05          | 1             | 285       | 12J150  | US        |
| 12                     | .5                   | 2.0                  | .1           | .05          | 1             | 320       | 12J200  | WS        |
| 12                     | .5                   | 3.0                  | .25          | .05          | 1             | 375       | 12J300  | HS        |
| 15                     | 1                    | .400                 | .1           | .05          | 1             | 215       | 15J40   | AS        |
| 15                     | 1                    | .750                 | .15          | .05          | 1             | 225       | 15J75   | AS        |
| 15                     | 1                    | 1.0                  | .15          | .05          | 1             | 250       | 15J100  | AS        |
| 15                     | 1                    | 1.5                  | .2           | .05          | 1             | 285       | 15J150  | US        |
| 15                     | .5                   | 2.0                  | .1           | .05          | 1             | 320       | 15J200  | WS        |
| 15                     | .5                   | 3.0                  | .25          | .05          | 1             | 370       | 15J300  | HS        |
| 16                     | 1                    | .400                 | .1           | .05          | 1             | 215       | 16J40   | AS        |
| 16                     | 1                    | .750                 | .15          | .05          | 1             | 225       | 16J75   | AS        |
| 16                     | 1                    | 1.0                  | .15          | .05          | 1             | 250       | 16J100  | AS        |
| 18                     | 1                    | .400                 | .1           | .05          | 1             | 215       | 18J40   | AS        |
| 18                     | 1                    | .750                 | .15          | .05          | 1             | 225       | 18J75   | AS        |
| 18                     | 1                    | 1.0                  | .15          | .05          | 1             | 250       | 18J100  | US        |
| 18                     | .5                   | 2.0                  | .1           | .05          | 1             | 320       | 18J200  | WS        |
| 20                     | 1                    | .400                 | .1           | .05          | 1             | 215       | 20J40   | AS        |
| 20                     | 1                    | .750                 | .15          | .05          | 1             | 225       | 20J75   | AS        |
| 20                     | 1                    | 1.5                  | .2           | .05          | 1             | 285       | 20J150  | WS        |
| 20                     | .5                   | 2.0                  | .1           | .05          | 1             | 320       | 20J200  | WS        |
| 22                     | 1                    | .400                 | .1           | .05          | 1             | 215       | 22J40   | AS        |
| 22                     | 1                    | .750                 | .15          | .05          | 1             | 225       | 22J75   | AS        |
| 22                     | 1                    | 1.0                  | .15          | .05          | 1             | 250       | 22J100  | US        |
| 22                     | 1                    | 1.5                  | .2           | .05          | 1             | 285       | 22J150  | WS        |
| 22                     | .5                   | 2.0                  | .1           | .05          | 1             | 320       | 22J200  | WS        |
| 24                     | 1                    | .400                 | .05          | .05          | 1             | 215       | 24J40   | AS        |
| 24                     | 1                    | .750                 | .1           | .05          | 1             | 225       | 24J75   | AS        |
| 24                     | 1                    | 1.0                  | .1           | .05          | 1             | 250       | 24J100  | US        |
| 24                     | 1                    | 1.5                  | .15          | .05          | 1             | 285       | 24J150  | WS        |
| 24                     | .5                   | 2.0                  | .1           | .05          | 1             | 320       | 24J200  | WS        |
| 25                     | 1                    | .400                 | .05          | .05          | 1             | 215       | 25J40   | AS        |
| 25                     | 1                    | .750                 | .1           | .05          | 1             | 225       | 25J75   | AS        |
| 25                     | 1                    | 1.0                  | .1           | .05          | 1             | 250       | 25J100  | US        |
| 25                     | 1                    | 1.5                  | .15          | .05          | 1             | 285       | 25J150  | WS        |
| 25                     | .5                   | 2.0                  | .1           | .05          | 1             | 320       | 25J200  | WS        |
| 28                     | 1                    | .400                 | .05          | .05          | 1             | 215       | 28J40   | AS        |
| 28                     | 1                    | .500                 | .05          | .05          | 1             | 220       | 28J50   | AS        |
| 28                     | 1                    | .750                 | .1           | .05          | 1             | 230       | 28J75   | TS        |
| 28                     | 1                    | 1.0                  | .1           | .05          | 1             | 255       | 28J100  | US        |
| 28                     | 1                    | 1.5                  | .15          | .05          | 1             | 290       | 28J150  | WS        |
| 28                     | .5                   | 2.0                  | .1           | .05          | 1             | 335       | 28J200  | WS        |
| 30                     | 1                    | .400                 | .05          | .05          | 1             | 215       | 30J40   | AS        |
| 30                     | 1                    | .500                 | .05          | .05          | 1             | 225       | 30J50   | AS        |
| 30                     | 1                    | .750                 | .1           | .05          | 1             | 245       | 30J75   | TS        |
| 30                     | 1                    | 1.0                  | .1           | .05          | 1             | 260       | 30J100  | US        |
| 30                     | 1                    | 1.5                  | .15          | .05          | 1             | 305       | 30J150  | WS        |
| 30                     | .5                   | 2.0                  | .1           | .05          | 1             | 340       | 30J200  | WS        |

| Nominal Output Voltage | Adjust Range $\pm$ V | Output Current Amps. | Regulation   |              | Ripple mV RMS | (\$ Price | Model  | Case Size |
|------------------------|----------------------|----------------------|--------------|--------------|---------------|-----------|--------|-----------|
|                        |                      |                      | Load $\pm$ % | Line $\pm$ % |               |           |        |           |
| 32                     | 1                    | .300                 | .05          | .05          | 1             | 220       | 32J30  | AS        |
| 32                     | 1                    | .500                 | .05          | .05          | 1             | 230       | 32J50  | AS        |
| 32                     | 1                    | .600                 | .1           | .05          | 1             | 245       | 32J60  | TS        |
| 32                     | 1                    | 1.0                  | .1           | .05          | 1             | 260       | 32J100 | US        |
| 32                     | 1                    | 1.5                  | .1           | .05          | 1             | 305       | 32J150 | WS        |
| 34                     | 1                    | .500                 | .05          | .05          | 1             | 230       | 34J50  | AS        |
| 35                     | 1                    | .500                 | .05          | .05          | 1             | 230       | 35J50  | AS        |
| 36                     | 1                    | .300                 | .05          | .05          | 1             | 220       | 36J30  | AS        |
| 36                     | 1                    | .500                 | .05          | .05          | 1             | 230       | 36J50  | AS        |
| 36                     | 1                    | .600                 | .1           | .05          | 1             | 245       | 36J60  | TS        |
| 36                     | 1                    | .800                 | .1           | .05          | 1             | 255       | 36J80  | TS        |
| 36                     | 1                    | 1.0                  | .2           | .05          | 1             | 275       | 36J100 | US        |
| 36                     | 1                    | 1.5                  | .1           | .05          | 1             | 310       | 36J150 | WS        |
| 38                     | 1                    | .500                 | .05          | .05          | 1             | 245       | 38J50  | AS        |
| 38                     | 1                    | 1.0                  | .2           | .05          | 1             | 280       | 38J100 | US        |
| 40                     | 1                    | .300                 | .05          | .05          | 1             | 225       | 40J30  | AS        |
| 40                     | 1                    | .400                 | .1           | .05          | 1             | 245       | 40J40  | AS        |
| 40                     | 1                    | .600                 | .1           | .05          | 1             | 255       | 40J60  | TS        |
| 40                     | 1                    | 1.0                  | .2           | .05          | 1             | 285       | 40J100 | US        |
| 42                     | 1                    | .400                 | .1           | .05          | 1             | 230       | 42J40  | AS        |
| 42                     | 1                    | .600                 | .15          | .05          | 1             | 260       | 42J60  | TS        |
| 45                     | 1                    | .400                 | .1           | .05          | 1             | 250       | 45J40  | AS        |
| 45                     | 1                    | .600                 | .15          | .05          | 1             | 275       | 45J60  | TS        |
| 48                     | 1                    | .300                 | .05          | .05          | 1             | 245       | 48J30  | AS        |
| 48                     | 1                    | .400                 | .1           | .05          | 1             | 255       | 48J40  | AS        |
| 48                     | 1                    | .600                 | .15          | .05          | 1             | 285       | 48J60  | TS        |
| 50                     | 1                    | .300                 | .05          | .05          | 1             | 250       | 50J30  | AS        |
| 50                     | 1                    | .500                 | .1           | .05          | 1             | 285       | 50J50  | TS        |
| 55                     | 1                    | .200                 | .05          | .05          | 1             | 230       | 55J20  | AS        |
| 60                     | 1                    | .200                 | .05          | .05          | 1             | 250       | 60J20  | AS        |
| 60                     | 1                    | .300                 | .05          | .05          | 1             | 260       | 60J30  | AS        |
| 60                     | 1                    | .400                 | .05          | .05          | 1             | 285       | 60J40  | TS        |
| 65                     | 1                    | .100                 | .05          | .05          | 1             | 230       | 65J10  | AS        |
| 65                     | 1                    | .300                 | .05          | .05          | 1             | 275       | 65J30  | AS        |
| 70                     | 1                    | .200                 | .05          | .05          | 1             | 255       | 70J20  | AS        |
| 70                     | 1                    | .300                 | .05          | .05          | 1             | 280       | 70J30  | AS        |
| 75                     | 1                    | .200                 | .05          | .05          | 1             | 275       | 75J20  | AS        |
| 80                     | 1                    | .200                 | .05          | .05          | 1             | 280       | 80J20  | AS        |
| 90                     | 1                    | .100                 | .05          | .05          | 1             | 255       | 90J10  | AS        |
| 90                     | 1                    | .200                 | .05          | .05          | 1             | 285       | 90J20  | AS        |
| 95                     | 1                    | .100                 | .05          | .05          | 1             | 260       | 95J10  | AS        |
| 95                     | 1                    | .200                 | .05          | .05          | 1             | 290       | 95J20  | AS        |
| 100                    | 1                    | .100                 | .05          | .05          | 1             | 280       | 100J10 | AS        |
| 100                    | 1                    | .200                 | .05          | .05          | 1             | 310       | 100J20 | AS        |
| 105                    | 1                    | .100                 | .05          | .05          | 1             | 280       | 105J10 | AS        |
| 105                    | 1                    | .200                 | .05          | .05          | 1             | 310       | 105J20 | AS        |
| 110                    | 1                    | .100                 | .05          | .05          | 1             | 285       | 110J10 | AS        |
| 110                    | 1                    | .200                 | .05          | .05          | 1             | 315       | 110J20 | AS        |
| 120                    | 1                    | .100                 | .05          | .05          | 1             | 305       | 120J10 | AS        |
| 120                    | 1                    | .200                 | .05          | .05          | 1             | 335       | 120J20 | AS        |
| 125                    | 1                    | .100                 | .05          | .05          | 1             | 305       | 125J10 | AS        |
| 125                    | 1                    | .200                 | .05          | .05          | 1             | 335       | 125J20 | AS        |
| 130                    | 1                    | .100                 | .05          | .05          | 1             | 310       | 130J10 | AS        |
| 130                    | 1                    | .200                 | .05          | .05          | 1             | 340       | 130J20 | AS        |
| 140                    | 1                    | .200                 | .05          | .05          | 1             | 345       | 140J20 | AS        |
| 150                    | 1                    | .050                 | .05          | .05          | 1             | 285       | 150J05 | AS        |
| 150                    | 1                    | .200                 | .05          | .05          | 1             | 345       | 150J20 | AS        |
| 200                    | 1                    | .100                 | .05          | .05          | 1             | 340       | 200J10 | AS        |

## WIDE ADJUST OUTPUT

Shown below is a partial listing of models with increased voltage adjustment ranges. Contact the factory for information on other models.

| Output Voltage Range | Output Current Amps. | Regulation | | Ripple mV RMS | (\$ Price | Model | Case Size |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Load  $\pm$  % | Line  $\pm$  % |

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## Plug-in DUAL ISOLATED OUTPUTS (User-selectable)

LINEAR REGULATED  
AC-DC

- Shipped Within 3 Days
- All Models U.L. Recognized
- Five Year Warranty

**Space-saving Acopian duals** combine two electrically independent DC outputs in a single case. Either identical or different outputs may be selected. And every combination is supplied with Acopian's usual 3 day shipment guarantee and 5 year warranty.

### SPECIFICATIONS

**Input Voltage:** 105-125 VAC, 50-400 Hz, single phase.

**Output Specifications:** See page 87.

**Polarity:** Outputs are floating. Each section may be independently connected to provide any combination of positive and negative outputs.

**Short Circuit Protection:** Delivers current surges without damage—to protect against prolonged overloads and shorts, use of an input fuse is recommended.

**Temperature Coefficient:** 0.02%/°C (Typical).

**Ambient Operating Temperature:** -10 to +65°C.  
No derating required.

**MIL Tested and Extended Temperature Range:**  
See page 81.

**Storage Temperature:** -55 to +85°C.

**Installation:** Plugs into standard 11-pin octal-type socket (see page 81). Four mounting holes (6-32) are provided in the base for fastening the module when used in other than the upright position, or if extreme vibration will be encountered.

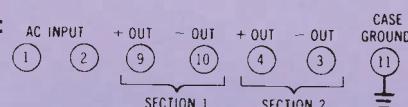
### HOW TO ORDER

Select two **sections** from the table on page 87. The complete model number is the combination of the two **sections** selected. Example: The combination of section 6J40D and section 12J100D is Model 6J40D-12J100D. Always assign the lower voltage section first. (Two of the same section can also be selected.) Where the indicated case sizes for the two sections differ, the larger case size applies.

For pricing purposes, add the costs of the individual sections selected. Example: The price of Model 6J40D-12J100D is \$215.00 total (\$95.00 plus \$120.00).

### PIN CONNECTIONS:

Standard model.

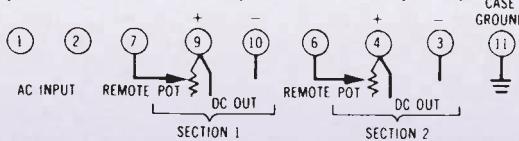


Like all Acopian Plug-ins, a dual-output module can be installed in seconds. Simply plug it into a standard 11-pin socket. Acopian duals are exceptionally dependable, too - offering the highest reliability of any available series-regulated power supply.

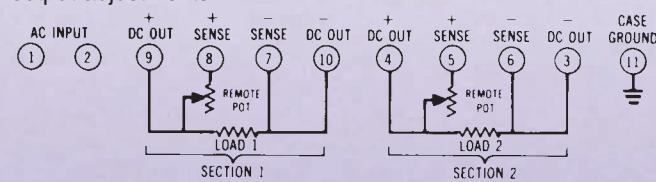
### OPTIONS

**Solder Terminals:** All models can be furnished with solder terminals instead of the octal type plug. Contact factory or see web site for detailed information.

**Remote Output Adjustment:** All models have local voltage adjustments. When provision for remote (external) adjustments is also desired, add prefix "E" to model number. Example: E6J40D-12J100D. (No increase in price.)



**Remote Sensing:** Provision for remote sensing of the output voltages, to compensate for drops in the load lines, can be furnished at an additional charge of \$20.00 per unit. Add prefix "R" to model number when ordering. "R" power supplies have local voltage adjustments and provision for remote (external) output adjustments.



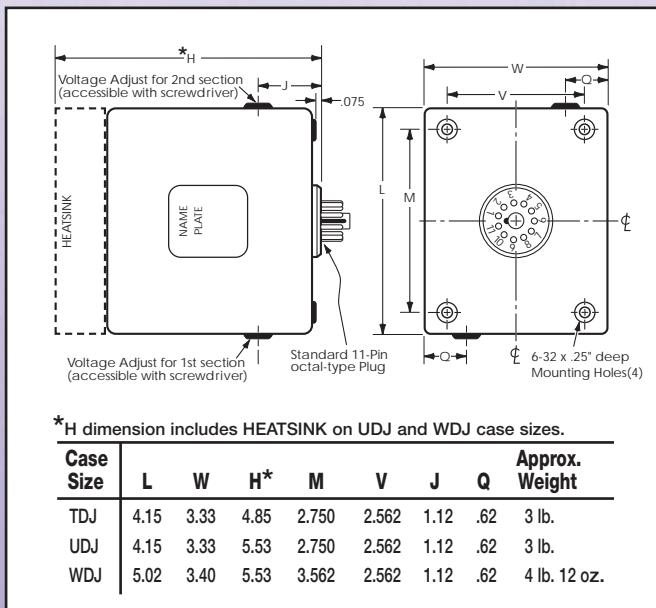
**230 Volt Input:** All models can be alternately furnished for operation on inputs of 210 to 250 VAC, 50 to 400 Hz. Add suffix "-230" to model number and \$25.00 to price. The "-230" option requires two additional days.

**Oversupply Protection:** Two separate, preset oversupply protection circuits, one for each output. To order, add prefix "V" to model number and add \$30.00 to the standard price for outputs up to 70 volts; add \$50.00 if either or both outputs are greater than 70 volts.

## DUAL OUTPUT PLUG-IN (User-selectable)

| Nominal Output Voltage | Adjust Range $\pm$ V | Output Current Amps. | Regulation   |              | Ripple mV RMS | (see 'How to Order')   |          | Case Size |
|------------------------|----------------------|----------------------|--------------|--------------|---------------|------------------------|----------|-----------|
|                        |                      |                      | Load $\pm$ % | Line $\pm$ % |               | Price per Section (\$) | Section  |           |
| 3.3                    | .5                   | .500                 | .5           | .05          | 1             | 170                    | 3.3J50D  | TDJ       |
| 3.3                    | .5                   | .700                 | .5           | .05          | 1             | 185                    | 3.3J70D  | UDJ       |
| 3.3                    | .5                   | 1.0                  | .5           | .05          | 1             | 195                    | 3.3J100D | WDJ       |
| 4                      | 1                    | .500                 | .3           | .05          | 1             | 170                    | 4J50D    | TDJ       |
| 4                      | .5                   | .700                 | .4           | .05          | 1             | 185                    | 4J70D    | UDJ       |
| 4                      | .5                   | 1.0                  | .5           | .05          | 1             | 195                    | 4J100D   | WDJ       |
| 5                      | 1                    | .400                 | .3           | .05          | 1             | 165                    | 5J40D    | TDJ       |
| 5                      | 1                    | .500                 | .3           | .05          | 1             | 170                    | 5J50D    | TDJ       |
| 5                      | .5                   | .700                 | .4           | .05          | 1             | 185                    | 5J70D    | UDJ       |
| 5                      | .5                   | 1.0                  | .5           | .05          | 1             | 195                    | 5J100D   | WDJ       |
| 5                      | .25                  | 2.0                  | .5           | .05          | 1             | 230                    | 5J200D   | WDJ       |
| 6                      | 1                    | .400                 | .15          | .05          | 1             | 165                    | 6J40D    | TDJ       |
| 6                      | 1                    | .500                 | .15          | .05          | 1             | 170                    | 6J50D    | TDJ       |
| 6                      | .5                   | .700                 | .2           | .05          | 1             | 185                    | 6J70D    | UDJ       |
| 6                      | .5                   | 1.0                  | .3           | .05          | 1             | 195                    | 6J100D   | WDJ       |
| 7                      | 1                    | .400                 | .15          | .05          | 1             | 165                    | 7J40D    | TDJ       |
| 7                      | 1                    | .500                 | .15          | .05          | 1             | 170                    | 7J50D    | TDJ       |
| 7                      | .5                   | .700                 | .2           | .05          | 1             | 185                    | 7J70D    | UDJ       |
| 7                      | .5                   | 1.0                  | .3           | .05          | 1             | 195                    | 7J100D   | WDJ       |
| 8                      | 1                    | .400                 | .1           | .05          | 1             | 165                    | 8J40D    | TDJ       |
| 8                      | 1                    | .500                 | .1           | .05          | 1             | 170                    | 8J50D    | TDJ       |
| 8                      | .5                   | .700                 | .15          | .05          | 1             | 185                    | 8J70D    | UDJ       |
| 8                      | .5                   | 1.0                  | .2           | .05          | 1             | 195                    | 8J100D   | WDJ       |
| 9                      | 1                    | .500                 | .1           | .05          | 1             | 170                    | 9J50D    | TDJ       |
| 9                      | .5                   | .700                 | .15          | .05          | 1             | 185                    | 9J70D    | UDJ       |
| 9                      | .5                   | 1.0                  | .2           | .05          | 1             | 195                    | 9J100D   | WDJ       |
| 10                     | 1                    | .400                 | .1           | .05          | 1             | 165                    | 10J40D   | TDJ       |
| 10                     | 1                    | .500                 | .1           | .05          | 1             | 170                    | 10J50D   | TDJ       |
| 10                     | .5                   | .700                 | .15          | .05          | 1             | 185                    | 10J70D   | UDJ       |
| 10                     | .5                   | 1.0                  | .2           | .05          | 1             | 195                    | 10J100D  | WDJ       |
| 12                     | 1                    | .400                 | .1           | .05          | 1             | 165                    | 12J40D   | TDJ       |
| 12                     | 1                    | .500                 | .1           | .05          | 1             | 170                    | 12J50D   | TDJ       |
| 12                     | .5                   | .700                 | .1           | .05          | 1             | 185                    | 12J70D   | UDJ       |
| 12                     | .5                   | 1.0                  | .1           | .05          | 1             | 200                    | 12J100D  | WDJ       |
| 13                     | 1                    | .500                 | .1           | .05          | 1             | 170                    | 13J50D   | TDJ       |
| 13                     | .5                   | .700                 | .1           | .05          | 1             | 185                    | 13J70D   | UDJ       |
| 13                     | .5                   | 1.0                  | .15          | .05          | 1             | 200                    | 13J100D  | WDJ       |
| 15                     | 1                    | .400                 | .1           | .05          | 1             | 165                    | 15J40D   | TDJ       |
| 15                     | 1                    | .500                 | .1           | .05          | 1             | 170                    | 15J50D   | TDJ       |
| 15                     | .5                   | .700                 | .1           | .05          | 1             | 185                    | 15J70D   | UDJ       |
| 15                     | .5                   | 1.0                  | .15          | .05          | 1             | 200                    | 15J100D  | WDJ       |
| 18                     | 1                    | .400                 | .1           | .05          | 1             | 165                    | 18J40D   | TDJ       |
| 18                     | 1                    | .500                 | .1           | .05          | 1             | 170                    | 18J50D   | TDJ       |
| 18                     | 1                    | .750                 | .15          | .05          | 1             | 190                    | 18J75D   | WDJ       |
| 18                     | .5                   | 1.0                  | .15          | .05          | 1             | 200                    | 18J100D  | WDJ       |

| Nominal Output Voltage | Adjust Range $\pm$ V | Output Current Amps. | Regulation   |              | Ripple mV RMS | (see 'How to Order')   |         | Case Size |
|------------------------|----------------------|----------------------|--------------|--------------|---------------|------------------------|---------|-----------|
|                        |                      |                      | Load $\pm$ % | Line $\pm$ % |               | Price per Section (\$) | Section |           |
| 20                     | 1                    | .400                 | .1           | .05          | 1             | 165                    | 20J40D  | TDJ       |
| 20                     | 1                    | .500                 | .1           | .05          | 1             | 170                    | 20J50D  | TDJ       |
| 20                     | 1                    | .750                 | .15          | .05          | 1             | 190                    | 20J75D  | WDJ       |
| 22                     | 1                    | .400                 | .1           | .05          | 1             | 165                    | 22J40D  | TDJ       |
| 24                     | 1                    | .400                 | .1           | .05          | 1             | 165                    | 24J40D  | TDJ       |
| 26                     | 1                    | .400                 | .05          | .05          | 1             | 165                    | 26J40D  | TDJ       |
| 28                     | 1                    | .400                 | .05          | .05          | 1             | 165                    | 28J40D  | TDJ       |
| 30                     | 1                    | .400                 | .05          | .05          | 1             | 170                    | 30J40D  | TDJ       |
| 32                     | 1                    | .300                 | .05          | .05          | 1             | 170                    | 32J30D  | TDJ       |
| 34                     | 1                    | .300                 | .05          | .05          | 1             | 170                    | 34J30D  | TDJ       |
| 35                     | 1                    | .200                 | .05          | .05          | 1             | 165                    | 35J20D  | TDJ       |
| 36                     | 1                    | .200                 | .05          | .05          | 1             | 165                    | 36J20D  | TDJ       |
| 40                     | 1                    | .200                 | .05          | .05          | 1             | 170                    | 40J20D  | TDJ       |
| 45                     | 1                    | .200                 | .05          | .05          | 1             | 170                    | 45J20D  | TDJ       |
| 48                     | 1                    | .200                 | .05          | .05          | 1             | 185                    | 48J20D  | TDJ       |
| 50                     | 1                    | .200                 | .05          | .05          | 1             | 190                    | 50J20D  | TDJ       |
| 55                     | 1                    | .200                 | .05          | .05          | 1             | 195                    | 55J20D  | TDJ       |
| 60                     | 1                    | .100                 | .05          | .05          | 1             | 185                    | 60J10D  | TDJ       |
| 65                     | 1                    | .100                 | .05          | .05          | 1             | 190                    | 65J10D  | TDJ       |
| 70                     | 1                    | .050                 | .05          | .05          | 1             | 170                    | 70J05D  | TDJ       |
| 70                     | 1                    | .100                 | .05          | .05          | 1             | 190                    | 70J10D  | TDJ       |
| 75                     | 1                    | .100                 | .05          | .05          | 1             | 195                    | 75J10D  | TDJ       |
| 80                     | 1                    | .100                 | .05          | .05          | 1             | 200                    | 80J10D  | TDJ       |
| 85                     | 1                    | .100                 | .05          | .05          | 1             | 215                    | 85J10D  | TDJ       |
| 90                     | 1                    | .100                 | .05          | .05          | 1             | 220                    | 90J10D  | TDJ       |
| 95                     | 1                    | .100                 | .05          | .05          | 1             | 225                    | 95J10D  | TDJ       |
| 100                    | 1                    | .100                 | .05          | .05          | 1             | 230                    | 100J10D | TDJ       |
| 105                    | 1                    | .100                 | .05          | .05          | 1             | 230                    | 105J10D | TDJ       |
| 110                    | 1                    | .100                 | .05          | .05          | 1             | 245                    | 110J10D | TDJ       |
| 115                    | 1                    | .100                 | .05          | .05          | 1             | 250                    | 115J10D | TDJ       |
| 120                    | 1                    | .100                 | .05          | .05          | 1             | 255                    | 120J10D | TDJ       |
| 125                    | 1                    | .100                 | .05          | .05          | 1             | 255                    | 125J10D | TDJ       |
| 130                    | 1                    | .100                 | .05          | .05          | 1             | 260                    | 130J10D | TDJ       |
| 135                    | 1                    | .100                 | .05          | .05          | 1             | 260                    | 135J10D | TDJ       |
| 140                    | 1                    | .100                 | .05          | .05          | 1             | 275                    | 140J10D | TDJ       |
| 145                    | 1                    | .100                 | .05          | .05          | 1             | 275                    | 145J10D | TDJ       |
| 150                    | 1                    | .100                 | .05          | .05          | 1             | 275                    | 150J10D | TDJ       |



**Plug-in****DUAL TRACKING OUTPUTS**LINEAR REGULATED  
AC-DC

- Shipped Within 3 Days
- All Models U.L. Recognized
- Five Year Warranty



**Dual tracking output Plug-in** power supplies provide the balanced voltages commonly required for driving operational amplifiers and related linear circuitry. The convenient plug-in configuration simplifies mounting and wiring, and connections for the remote sensing of the output voltages, to permit compensation of load line voltage drops, are a standard feature.

**SPECIFICATIONS**

**Input Voltage:** 105-125 VAC, 50-400 Hz, single phase.

**Output Tracking:** Within 1%.

**Polarity:** Positive output, common, and negative output.

**Remote Voltage Sensing:** Provision for sensing the output voltage across the load, so that drops in the load lines are compensated, is a standard feature.

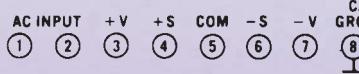
**Temperature Coefficient:** 0.02%/°C (Typical).

**Ambient Operating Temperature:** -10 to +65°C.

No derating required.

**Storage Temperature:** -55 to +85°C.

**Installation:** Plugs into standard 8-pin octal socket (see page 81). Four mounting holes (6-32) are provided in the base for fastening the module when used in other than the upright position, or if extreme vibration will be encountered.

**PIN CONNECTIONS:** 

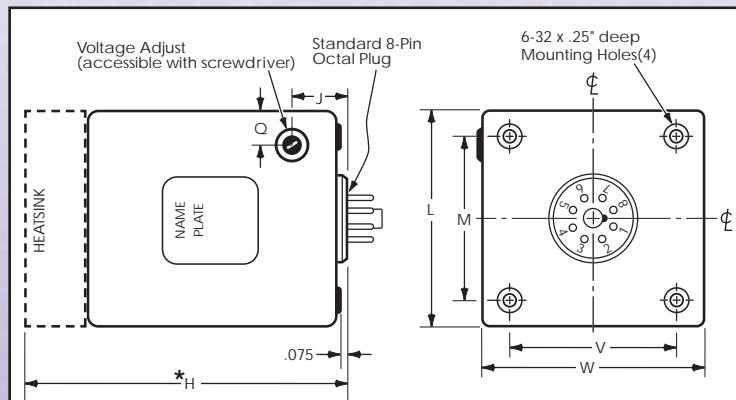
**OPTIONS**

**Solder Terminals:** All models can be furnished with solder terminals instead of the octal-type plug. To order, add suffix "L" to model number and \$50.00 to price.

**230 Volt Input:** All models can be alternately furnished for operation on inputs of 210-250 VAC, 50-400 Hz. Add suffix "-230" to model number and \$25.00 to price. The "-230" option requires two additional days.

**Oversupply Protection:** A built-in, preset oversupply protection circuit is available on all models. If either output fails, both outputs are 'crowbarred'. To order, add prefix "V" to the model number, and increase standard price by \$30.00.

| Nominal Output Voltages | Adjust Range $\pm$ V | Amps. per Output | Regulation   |              | Ripple mV RMS | (\$ Price | Model    | Case Size |
|-------------------------|----------------------|------------------|--------------|--------------|---------------|-----------|----------|-----------|
|                         |                      |                  | Load $\pm$ % | Line $\pm$ % |               |           |          |           |
| $\pm 5$                 | .25                  | .750             | .1           | .1           | 1.5           | 320       | JD5-75   | BD        |
| $\pm 5$                 | .25                  | 1.5              | .1           | .1           | 1.5           | 385       | JD5-150  | DU        |
| $\pm 12$                | 1                    | .400             | .1           | .1           | 1.5           | 285       | JD12-40  | DA        |
| $\pm 12$                | 1                    | .700             | .1           | .1           | 1.5           | 320       | JD12-70  | BD        |
| $\pm 12$                | 1                    | 1.0              | .1           | .1           | 1.5           | 385       | JD12-100 | DU        |
| $\pm 15$                | 1                    | .400             | .1           | .1           | 1.5           | 285       | JD15-40  | DA        |
| $\pm 15$                | 1                    | .700             | .1           | .1           | 1.5           | 320       | JD15-70  | BD        |
| $\pm 15$                | 1                    | 1.0              | .1           | .1           | 1.5           | 385       | JD15-100 | DU        |



\*H dimension includes HEATSINK on BD and DU case sizes.

| Case Size | L    | W    | H*   | M     | V     | J    | Q   | Approx. Weight |
|-----------|------|------|------|-------|-------|------|-----|----------------|
| DA        | 3.40 | 3.28 | 4.67 | 2.625 | 2.625 | 1.00 | .66 | 2 lb. 8 oz.    |
| BD        | 3.40 | 3.28 | 5.33 | 2.625 | 2.625 | 1.00 | .66 | 2 lb. 14 oz.   |
| DU        | 3.33 | 4.15 | 5.53 | 2.562 | 2.750 | 1.12 | .62 | 3 lb. 8 oz.    |

## CIRCUIT ENCLOSURE BOXES

Versatile enclosures for housing prototypes, adapters, testers, etc.

You can now package your own circuits in the same rugged casework used for Acopian power supplies.



**Any case size shown in the Acopian catalog can be purchased as a Circuit Enclosure Box.**

### DESCRIPTION

Moderate-dissipation components may be directly mounted to the case for heat sinking. Connectors, switches, controls and indicators are easily installed on the front and rear covers.

**Sides and Bottom (Narrow Profile Enclosures):** Attractive extruded aluminum channel (.08" thick) withstands even severe abuse.

**Top cover (Narrow Profile Enclosures):** Perforated for ventilation, the sturdy aluminum top (0.032" thick) slides into slots without the need for mounting hardware.

**Sides (Gold Box Enclosures):** Grooved; attractive and rugged extruded aluminum sides (.08" thick) can withstand severe abuse.

**Top and Bottom Covers (Gold Box Enclosures):** Perforated aluminum (0.032" thick); ideal for ventilation.

**Front and Rear covers:** Aluminum (0.062" thick).

**Internal Circuit Board Mounting (Narrow Profile Enclosures):** Grooves 1/4" above the inside bottom of the case are for holding a circuit board (0.062" thick).

**Color:** Flat gold (sides are flat black on Gold Box Enclosures).

**Mounting:** Threaded mounting holes are provided to permit mounting the boxes to an equipment frame or bracket. Accessory Mounting Kits are available for wall mounting or DIN Rail mounting (see page 91).

### ACCESSORIES

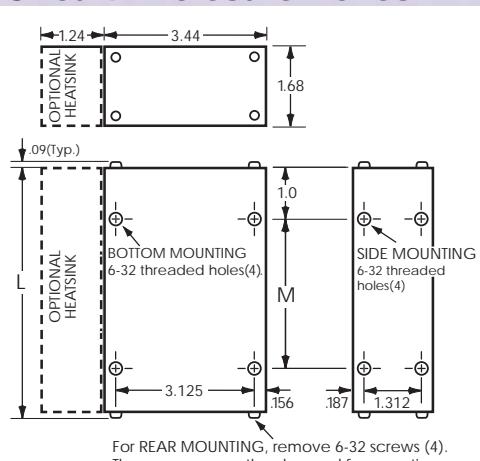
**Circuit Board (for Narrow Profile Enclosures):** Perforated board for mounting hand-wired components. Contact factory for sizes.

**Mounting Kits:** For wall mounting or DIN Rail mounting (see page 91).

**Heat sink (for Narrow Profile Enclosures):** High-dissipation semiconductors may be mounted on an accessory heat sink. (Provided with mounting hardware, including standoffs for thermal isolation. The heat sink is black anodized.) Contact factory.

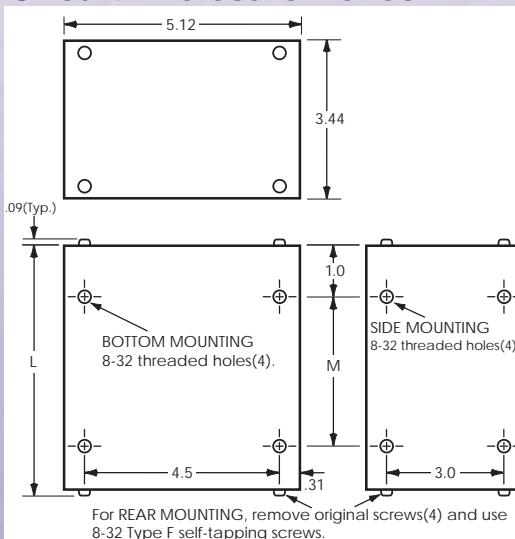
**Heat sink (for Gold Box Enclosures):** An optional heat sink can be ordered for the left side to replace the grooved aluminum side. High-dissipation semiconductors may be mounted on the accessory heat sink. To order, add suffix "H" to model number and \$2.00 to price (for models EG9H and EG13H, add \$4.00).

### Narrow Profile Circuit Enclosure Boxes



| Case Size | L    | M   | Approx. Weight | Price (\$) |
|-----------|------|-----|----------------|------------|
| EN6       | 6.59 | 4.0 | 9 oz.          | \$27       |
| EN8       | 8.47 | 5.0 | 12 oz.         | \$30       |

### Gold Box Circuit Enclosure Boxes



| Case Size | L     | M    | Approx. Weight | Price (\$) |
|-----------|-------|------|----------------|------------|
| EG3       | 3.71  | 1.62 | 11 oz.         | \$25       |
| EG5       | 5.09  | 3.0  | 14 oz.         | \$28       |
| EG6       | 6.59  | 4.0  | 1 lb. 2 oz.    | \$29       |
| EG9       | 9.25  | 6.0  | 1 lb. 7 oz.    | \$33       |
| EG13      | 13.25 | 10.0 | 2 lb. 1 oz.    | \$38       |

### Other size Circuit Enclosure Boxes

**Rack Mounting;**  
see page 28 & 69 drawings

**Wall Mounting;**  
see page 21 drawing

**SW Gold Box;**  
see page 55 drawing

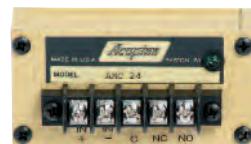
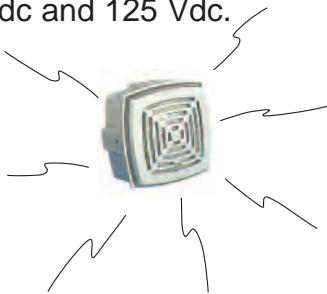
**HV Gold Box;**  
see page 71 & 73 drawings

**Plug-in;**  
see page 84 drawing

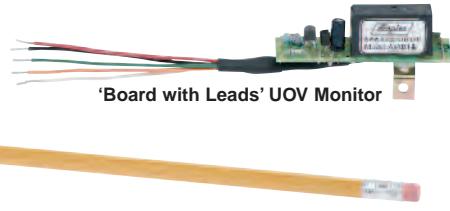
## Under/Overvoltage Monitors

These modules can be used with any manufacturer's power supply between 5 Vdc and 125 Vdc.

- Shipped Within 3 Days
- Five Year Warranty



Enclosed UOV Monitor



'Board with Leads' UOV Monitor

**These Under/Overvoltage Monitors** may be used as independent accessories for any power supply to control an external horn or light, or to signal your PLC. These modules can be used on power supplies with DC voltages from 5 to 125 Vdc. SPDT relay contacts switch if the power supply's output deviates by:

- 1.0 volt or more (for 5 volt outputs)
- 2.0 volts or more (for 6 to 48 volt outputs)
- 3.0 volts or more (for 49 to 125 volt outputs)

### SPECIFICATIONS

**Relay contact ratings:** 120 VAC, 8A / 60 Vdc, 1A. (To comply with SELV requirements, limit switched voltage to 60Vdc/42 VAC.)

**Ambient Operating Temperature:** -20 to +71°C.

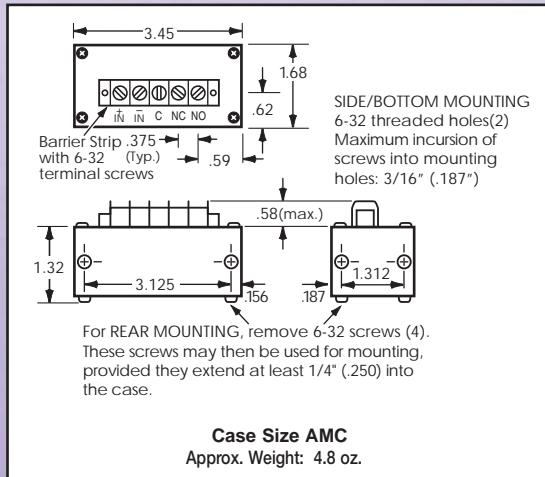
**Storage Temperature:** -40 to +85°C.

| Power Supply Output | UOV Monitor Operating Current |
|---------------------|-------------------------------|
| 5 Vdc to 11 Vdc     | (typ) 80ma                    |
| 12 Vdc to 23 Vdc    | (typ) 40ma                    |
| 24 Vdc to 47 Vdc    | (typ) 25ma                    |
| 48 Vdc to 125 Vdc   | (typ) 15ma                    |

### Enclosed UOV Monitor

The front panel LED lights when voltage is within range. Order model number AMC?? replacing the ?? with the DC voltage to be monitored. The price is \$65.00.

**Mounting:** Threaded holes on the bottom and right side surface may be used for mounting. Accessory Mounting Kit NP6 (see page 91) is available to enable mounting the Enclosed UOV Monitor when the opposite side of the mounting surface is inaccessible. To order a DIN rail mounting unit, add suffix "-DIN" to the model number and \$5.00 to the price.

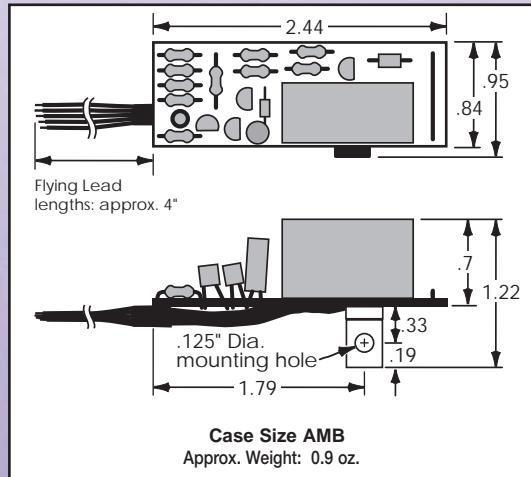


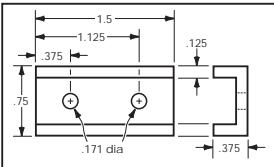
### 'Board with leads' UOV Monitor

Order model number AMB?? replacing the ?? with the DC voltage to be monitored. The price is \$35.00.

**Mounting:** An electrically isolated bracket with a .125" diameter mounting hole has been incorporated into the 'Board with leads' UOV Monitor to enable mounting in any orientation.

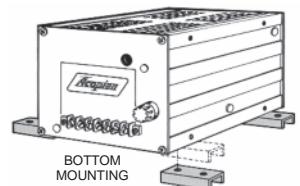
Red flying lead: Connects to '+ DC' being monitored.  
Black flying lead: Connects to '- DC' being monitored.  
White flying lead: Common (C) relay connection.  
Green flying lead: Normally Closed (NC) relay connection.  
Orange flying lead: Normally Open (NO) relay connection.





## WALL MOUNTING KITS ...\$10

These kits provide a way of mounting power supplies on a wall or panel when the other side of the mounting surface is inaccessible. Each kit consists of four aluminum brackets and four machine screws for fastening them to the power supply, effectively adding mounting flanges to the power supply.



### For Gold Box and modular High Voltage power supplies:

#### GB8 Mounting Kit (#8-32 mounting holes)

Can be used on these case sizes:

CM6, CM9, CM13, CH11, CH16, DG5, DG6, DG9, G3, G5, G5D, G6, G9, G13, GT5, GT6, GT9, GT13, H8, H11, H16, HD345, HD355, HA349, HA359, HT11, HT16, LM6A\*, LM8A\*, LM10A\*, M6, M9, M13, RM6, RW6 TG5, TG6, TG9, TG13, TH11, WG7, WM6, WM9, Y3, Y5, Y6, YH11, YA

\*For rear mounting brackets horizontally on LM cases only, use GBR Mounting Kit...\$15

### For Narrow Profile power supplies:

#### NP6 Mounting Kit (#6-32 mounting holes)

Can be used on these case sizes:

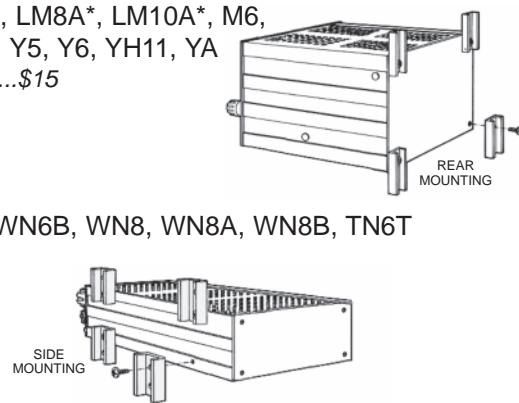
AMC, CN8T, DN6B, DN6A, DN8A, DN8, F6T, F8T, N8T, WL9, WN6A, WN6B, WN8, WN8A, WN8B, TN6T

#### NP6L Mounting Kit (#6-32 mounting holes)

Model NP6L consists of two brackets 1.5" long as shown above, and two 2.5" long brackets (to extend beyond heat sink).

Can be used on these case sizes:

CN8H, N8H, TN8H

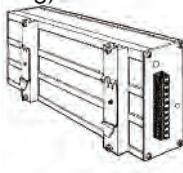


## DIN RAIL MOUNTING KITS ...\$15\*

#### NPH35DIN Mounting Kit (Horizontal mounting)

Can be used on these case sizes:

|      |      |     |     |      |      |
|------|------|-----|-----|------|------|
| CN8H | DN6A | F6T | N8H | TN6T | WN6A |
| CN8T | DN6B | F8T | N8T | TN8H | WN6B |
|      | DN8  |     |     |      | WN8  |
|      | DN8A |     |     |      | WN8A |
|      |      |     |     |      | WN8B |



#### NPV35DIN Mounting Kit (Vertical mounting)

Can be used on these case sizes:

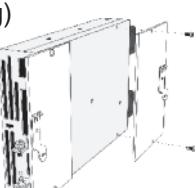
|      |      |     |     |      |      |
|------|------|-----|-----|------|------|
| CN8H | DN6A | F6T | N8H | TN6T | WN6A |
| CN8T | DN6B | F8T | N8T | TN8H | WN6B |
|      | DN8  |     |     |      | WN8  |
|      | DN8A |     |     |      | WN8A |
|      |      |     |     |      | WN8B |



#### WL35DIN Mounting Kit (Vertical mounting)

#### WLH35DIN Mounting Kit (Horizontal mounting)

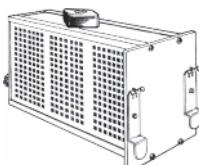
Can be used on these case sizes: WL7, WL9



#### NPR35DIN Mounting Kit (Rear mounting)

Can be used on these case sizes:

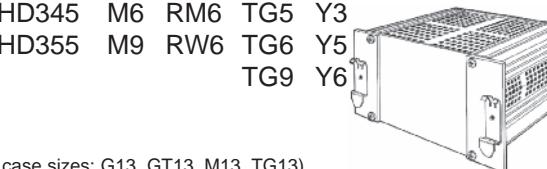
|      |     |     |      |
|------|-----|-----|------|
| CN8H | F6T | N8H | TN6T |
| CN8T | F8T | N8T | TN8H |



#### GR35DIN Mounting Kit (Rear mounting)

Can be used on these case sizes:

|     |     |     |     |       |    |     |     |      |    |
|-----|-----|-----|-----|-------|----|-----|-----|------|----|
| CM6 | DG5 | G3  | GT5 | HD345 | M6 | RM6 | TG5 | Y3   |    |
| CM9 | DG6 | G5  | GT6 | HD355 | M9 | RW6 | TG6 | Y5   |    |
|     | DG9 | G5D | GT9 |       |    |     | M13 | TG9  | Y6 |
|     |     | G6  |     |       |    |     |     | TG13 |    |
|     |     | G9  |     |       |    |     |     |      |    |



(Can be used, but not recommended on case sizes: G13, GT13, M13, TG13)

#### CH35DIN Mounting Kit (Horizontal mounting)

Can be used on these case sizes: RM6, RW6

#### WH35DIN Mounting Kit (Horizontal mounting)

Can be used on these case sizes: WM6, WM9



#### LR35DIN Mounting Kit (Rear mounting)

#### LV35DIN Mounting Kit (Vertical mounting)

#### LH35DIN Mounting Kit (Horizontal mounting)

Can be used on these case sizes: LM6A, LM8A, LM10A

\*All DIN Kits for LM cases \$20

#### GH35DIN Mounting Kit (Horizontal mounting)

Can be used on these case sizes:

|      |     |     |      |     |     |    |
|------|-----|-----|------|-----|-----|----|
| CM6  | DG5 | G3  | GT5  | M6  | TG5 | Y3 |
| CM9  | DG6 | G5  | GT6  | M9  | TG6 | Y5 |
| CM13 | DG9 | G5D | GT9  | M13 | TG9 | Y6 |
|      |     | G6  | GT13 |     |     |    |



## FIND POWER SUPPLY BY MODEL NUMBER

Over 500,000 different Acopian model numbers are possible considering all the different combinations of outputs, inputs and options available. However, **by matching the model number format of the power supply you are looking for with the model number format from the list below, you will be able to find the page it is on.**

- For the model that you are looking for, replace the 'numbers' in that model number with the # symbol.  
Examples: To find model number A24H8500, use A#H#. To find model number 24EB60, use #EB#  
(The numbers(#), which indicate voltage and current, will vary depending on your particular model number.  
The letters do not vary.)
- Ignore V or 3V (Overvoltage Protection option) if it is in the front of the model number you are looking for.
- Option letter prefixes E and R are included with parenthesis around them, (E) and (R), in the list below.
- Ignore any of these option letters/numbers which may appear at the end of the model number you are looking for: A,F,G,H,K,L,M,P,R,S,T,Y or -230.

| Model<br>Number<br>Format | Page  | Model<br>Number<br>Format | Page | Model<br>Number<br>Format | Page  |
|---------------------------|-------|---------------------------|------|---------------------------|-------|
| A#H#                      | 48-49 | J#                        | 85   | RM#N#XC#                  | 24    |
| A#HT#                     | 49    | #J#                       | 85   | RM#WN#                    | 26    |
| A#HX#                     | 59    | #J#D-#J#D                 | 87   | RM#WN#A                   | 26    |
| A#MT#                     | 48-49 | JD#-                      | 88   | RM#WN#AC#                 | 26    |
| A#MX#                     | 59    | LD#-                      | 62   | RM#WN#C#                  | 26    |
| A#NT#                     | 41    | N#HA#                     | 71   | RWL#G#                    | 20    |
| A#NX#                     | 59    | N#HD#                     | 73   | RWL#H#                    | 18    |
| A#PX#                     | 31    | N#HP#                     | 69   | RWL#M#                    | 18    |
| A#TN#                     | 41    | NX#-                      | 33   | RWL#M#X                   | 18    |
| A#XN#                     | 59    | NX-A                      | 33   | RWL#N#T                   | 18    |
| B#FT#                     | 41    | NX-B                      | 37   | RWL#N#X                   | 18    |
| B#G#                      | 48-49 | P#HA#                     | 71   | RWL#W#                    | 20    |
| B#GT#                     | 49    | P#HD#                     | 73   | (R)J#                     | 85    |
| B#TN#                     | 41    | P#HP#                     | 69   | (R)J#D-#J#D               | 87    |
| #C#FT#                    | 79    | P#HX#                     | 59   | (R)B#G#                   | 48-49 |
| #C#NT#                    | 79-80 | P#MX#                     | 59   | (R)B#GT#                  | 49    |
| D#-                       | 34    | P#PX#                     | 31   | (R)J#                     | 85    |
| D#-#A                     | 34    | PD#-                      | 29   | TD#-                      | 62    |
| #D#A                      | 66    | #PT#                      | 29   | #T#A                      | 67    |
| DB#-                      | 37    | #PH#                      | 29   | U#                        | 83    |
| #E#                       | 33    | R#G#                      | 20   | U#Y#                      | 57    |
| #E#A                      | 33    | R#H#                      | 18   | U#YA#                     | 57    |
| #E#D#                     | 75    | R#M#                      | 18   | #U#                       | 83    |
| #E#E#                     | 75    | R#N#T                     | 18   | #UA#                      | 83    |
| #EB#                      | 37    | R#N#X                     | 18   | #UP#                      | 83    |
| #EB#E#                    | 77    | R#P#                      | 19   | #UY#                      | 57    |
| #EB#D#                    | 77    | R#PH#                     | 19   | UP#                       | 83    |
| (E)J#                     | 85    | R#W#                      | 20   | US#                       | 83    |
| (E)J#D-#J#D               | 87    | R#WP#                     | 23   | W#FT#                     | 43    |
| (E)J#                     | 85    | R#WP#X                    | 23   | W#GT#                     | 55    |
| (E)P#HX#                  | 59    | RM#H#                     | 24   | W#MT#                     | 55    |
| (E)P#MX#                  | 59    | RM#H#C#                   | 24   | W#LT#                     | 53    |
| (E)P#PX#                  | 31    | RM#M#                     | 24   | W#NT#                     | 45    |
| FD#-#A                    | 62    | RM#M#C#                   | 24   | #WB#                      | 39    |
| #GT#D-#GT#D               | 64-65 | RM#N#T                    | 24   | #WL#                      | 39    |
|                           |       | RM#N#TC#                  | 24   | Y#HX#                     | 61    |
|                           |       | RM#N#X                    | 24   | Y#LX#                     | 53    |
|                           |       |                           |      | Y#MX#                     | 61    |
|                           |       |                           |      | Y#PX#                     | 61    |

# ORDERING INFORMATION & Terms and Conditions

**ACOPIAN SELLS FACTORY DIRECT WORLDWIDE:** We do not use representatives or distributors. Contact Acopian for technical information or a quote.

**WARRANTY:** Acopian power supplies are warranted to be free from defects in material and workmanship for a period of five years (encapsulated devices, for one year) from date of original shipment. Acopian's obligation under this warranty is limited to repairing any power supply returned to the factory Service Department in Easton, PA and replacing any defective parts. Mini Encapsulated power supplies are not repairable. Authorization must be obtained from Acopian before a power supply may be returned for repair. Units must be well packed when shipping to Acopian; the repair of any damage incurred during shipment will be charged. Transportation charges are to be paid by the purchaser. A reinspection and handling charge will be applied to returned units found to have no defects. If a failure has been caused by misuse, operation in excess of specifications, or modification by the customer, repairs will be billed at cost; in such cases, a cost estimate will be submitted before work is started.

Acopian reserves the right to make changes or improvements in its products without incurring any obligation to install the same on products previously manufactured.

This warranty is in lieu of all other warranties, obligations, and liabilities, expressed or implied, and is the purchaser's exclusive remedy. Acopian makes no warranty, either express or implied, of merchantability, fitness for a particular purpose or otherwise. In no event shall Acopian be liable whether in contract, tort, or negligence, for special, indirect, incidental or consequential damages of any kind, including loss of business or profits, or any other losses incurred by the purchaser or any third party, the Customer's remedies being limited, at Acopian's option, to replacement, repair or credit at the price on the date of claim.

The validity, performance and construction of all terms and conditions and any sale made by Acopian shall be determined by the law of Pennsylvania, without regard to its conflict of law principles, and all parties to the transaction expressly consent to the jurisdiction of such courts and consent to the venue of the Court of Common Pleas for Northampton County, Pennsylvania.

**PRICES:** The prices shown are F.O.B. our factory; Easton, PA or Melbourne, FL. All prices and specifications are subject to change without notice.

**TERMS:** Net 30 days, subject to credit approval. Visa, MasterCard and American Express also accepted.

**SHIPPING:** Location permitting, small shipments are made by United Parcel Service, or by Parcel Post; larger shipments, by insured motor freight collect. Shipments can be made by air upon request. Risk of loss shall be F.O.B. Our Factory, even in cases where freight may be prepaid or allowed to destination by Acopian. If equipment is received in damaged condition, it is the customer's responsibility to contact the carrier and file a claim for damages.

**TIME FOR DELIVERY:** The time for delivery quoted by Acopian is the time required to ship from our plants. We will not be liable for delays in delivery caused by any reason beyond our control, including but not limited to acts of God, casualty, civil disturbance, labor disputes, transportation or supply difficulties, or any interruption of our facilities, and the quoted time for delivery shall be extended during the continuance of such conditions and for a reasonable time thereafter. In no event will Acopian be liable for any premium transportation, reprocurement, or similar costs incurred by the Customer as a result of conditions beyond Acopian's control resulting in Acopian's inability to deliver product in accordance with customer's requested delivery schedules.

**QUANTITY DISCOUNTS:** Discounts are available to quantity buyers and are dependent upon the order quantity and the manufacturing scheduling anticipated by the order, and apply only to the quantity and delivery ordered. Partial shipments are considered as separate orders for discounting purposes.

**EXPORT ORDERS:** A minimum export documentation charge of \$60.00 applies. (A minimum charge of \$25.00 applies on orders to certain U.S. territories requiring customs forms.)

**MOISTURE/FUNGUS PROOFING:** Power supplies can be furnished with a moisture and fungus resistant varnish applied to interior surfaces. To order, add the suffix letter F to the model number. This option requires two additional days and is not available on High Voltage, Mini Encapsulated, Rack Mounting, and Gold Box Switching models.

**TAGGING:** Add \$10.00 to price.

**TEST DATA:** Cost, \$35.00 or 2% of order, whichever is greater.

**SPECIAL MODELS/MODIFICATIONS:** Cataloged models can be altered at the factory to meet special requirements. Contact the Applications Engineering Department to discuss your needs.

**PARTS:** The designs used in Acopian power supplies utilize standard components to the greatest practical extent. When replacements are required, the types originally used, or their equivalents, can usually be obtained most quickly from a local electronic components distributor.

Special components, such as transformers, are stocked at the factory warehouses. Contact the Applications Engineering Department for information on the parts required, referencing the model number of the power supply, the circuit designation of the component, and a description.

**PURCHASE ORDER ACCEPTANCE:** Orders are accepted subject to Acopian's Terms and Conditions. Any Terms and Conditions of any Purchaser's order, agreement, or understanding which are in addition to or inconsistent with Acopian's shall not be binding upon Acopian unless made in writing and accepted over the signature of an authorized officer of Acopian. Orders shall not be considered accepted until entered into production at our plant. Acopian reserves the right to refuse any order. All typographical and clerical errors are subject to correction by Acopian.

**RETURNED GOODS:** Acopian products are built on a per-order basis, and ordinarily no credit can be extended for their return. No goods will be accepted for return unless authorized in writing by Acopian.

**CHANGES:** The customer may, by a written notice, request changes within the general scope of the order, in the drawings, designs or specifications; method of shipment; and place of delivery. If any such change causes an increase or decrease in the cost, or the time required for the processing of any part of the order, an equitable adjustment shall be made in the price or delivery schedule, or both, and the order shall be modified in writing accordingly.

**CANCELLATION:** Suspension or cancellation of orders may be made only upon our written approval and on terms that will indemnify us against all loss.

**OVERTIME:** It is anticipated that any order will be processed during regular working hours on regular working days. If for any reason the Purchaser requests Acopian to process the order, or any portion of it, outside of such regular working hours, any overtime or other additional expense occasioned thereby shall be billed to and paid by the Purchaser as an extra cost. Acopian reserves the right to decline to process the order outside regular working hours.

**CUSTOMER DELAY OF WORK:** If the performance of all or any part of the work is delayed or interrupted by Customer's failure to act within the time specified (or within a reasonable time if no time is specified) and such act is not expressed or implied by the order, an adjustment shall be made in the cost of performance of the order caused by such delay or interruption and the order modified in writing accordingly. Adjustment will also be made in the delivery or performance dates and any other contractual provisions affected by such delay or interruption.

**GOVERNMENT SPECIFICATIONS:** Pricing is based upon industrial-grade construction, marking, packing, and packaging. Exception is taken to any MIL specifications, and to any requirements for the use of special forms, documentation other than quoted, and Government Source Inspection. Acopian must decline to quote on any other basis.

**APPLICATIONS ASSISTANCE:** *Questions regarding the specifications, features, and use of any Acopian product should be directed to the Applications Engineering Department. A staff of power supply specialists will be pleased to assist you.*

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