



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 50th 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.)

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Customized Solutions to meet your needs

Acopian has been customizing power supplies and building Power Systems for over 48 years. **PAGE 4-5**

Shipped within 9 DAYS



POWER SYSTEMS

Any combination of power supplies can be mounted in an assembly that includes the operating features you require **6-13**

Try the convenient
Online System Builder
at www.acopian.com

Shipped within 9 DAYS



REDUNDANT POWER PACKAGES, AC-DC

(includes models with
Power Factor Correction
and Universal Input)

RACK MOUNTING, WALL MOUNTING

Using two linear supplies **18-19, 14-17**

Using two switching supplies **20-21, 14-17**

PLUGGABLE REDUNDANT SYSTEMS

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**



{ 5-48 volts
0.65-10 amps
30 & 50 watt }

MINI ENCAPSULATED - PC Board Mounting - with Screw Terminals

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
1.3-25 amps
to 288 watts }

Single output (to 120 watts) **42-43**

Single output (to 288 watts)

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
15-70 amps
to 720 watts }

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
8-150 amps
325-1200 watts }

Single output **54-55**

Wide Adjust output **54-55**

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**

Sockets **34**

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**

Mounting Kits (for wall mounting or DIN rail mounting) **91**

HIGH VOLTAGE REGULATED, AC-DC & DC-DC

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**

To 30 kV

LINEAR REGULATED, AC-DC

**Shipped
within
3 DAYS**



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

MINI ENCAPSULATED - PC Board Mounting

PAGE

Single output	32-33
Dual output	34
Sockets	34

MINI ENCAPSULATED - With Screw Terminals

Single and Dual output	36-37
Mounting Kits (for wall mounting or DIN rail mounting)	77

**Shipped
within
3 DAYS**



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

NARROW PROFILE

Single output	40-41
Dual output	62
Wide Adjust output	58-59
Mounting Kits (for wall mounting or DIN rail mounting)	91

**Shipped
within
3 DAYS**



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

GOLD BOX

Single output	46-49
Dual output	62-66
Triple output	67
Wide Adjust output	58-61
Adjustable Current Limiting	58-59
Programmable (with a control voltage or potentiometer)	60-61
Mounting Kits (for wall mounting or DIN rail mounting)	91

**Shipped
within
3 DAYS**



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

PLUG-IN

Single output	84-85
Dual output	86-88
Wide Adjust output	84-85
MIL tested	81
Sockets	81
Solder terminals (optional)	84-88

Shipped within 9 DAYS



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

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 }



GOLD BOX

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

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



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

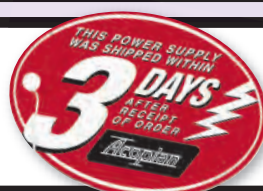
FIND POWER SUPPLY BY MODEL NUMBER 92

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
3-DAY AND 9-DAY SHIPPING GUARANTEE 1

Need a non-standard power supply?

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

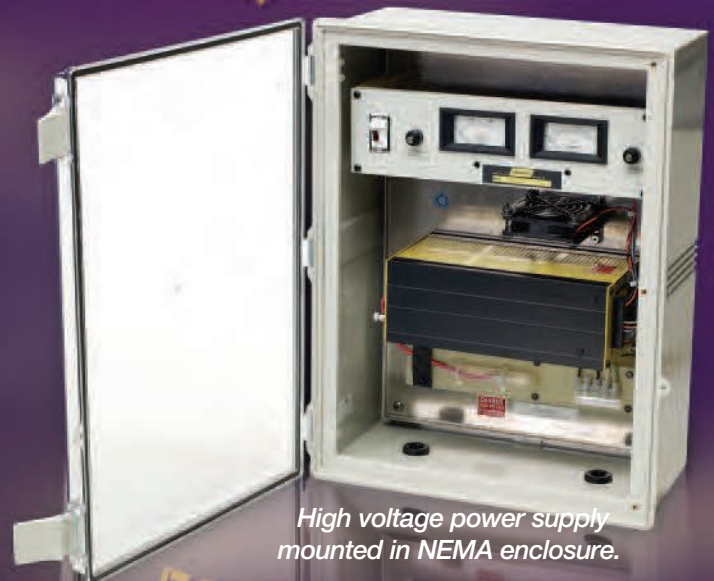
Acopian has been customizing power supplies to meet our customers' unique requirements for over 48 years. The cost is reasonable, even in small quantities. We ship them quickly – often within the same 3 working days as our standard models. And they carry the same five year warranty. Tell us your requirements, 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 1¾" to 12¾"
- 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 warrants 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?

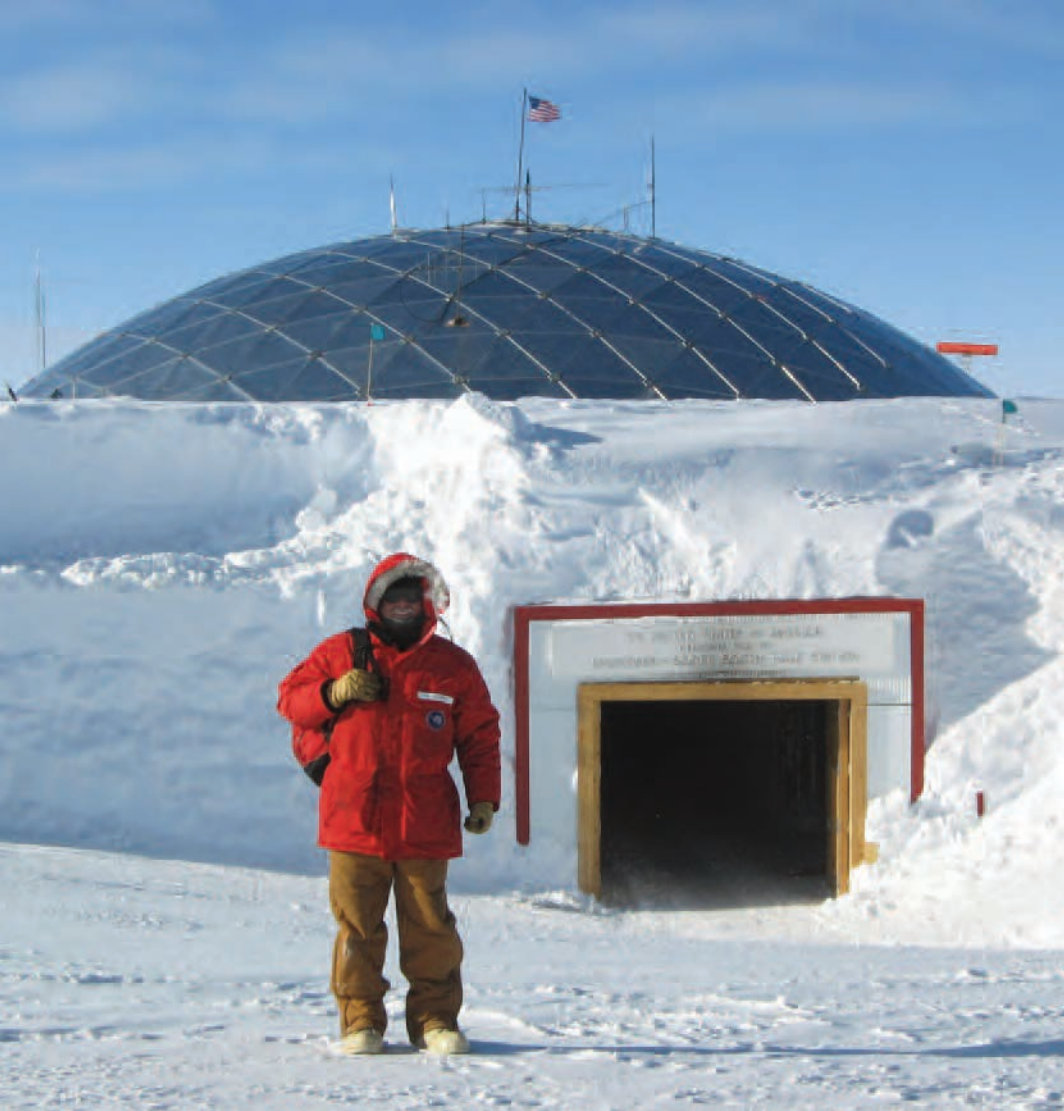


PHOTO COURTESY OF THE ICECUBE PROJECT

"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. 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

1-800-523-9478 • 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

Once Online, click here. Then...

Simply 'check' or fill in whichever items you require.

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

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.

How Many Outputs Do You Need For Your System? 2 Choose up to 30 outputs

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)


Power Supplies
 Shipped Within 3 Days

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[Find a Power Supply](#)
[Build a Custom 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.

My Account Cart Checkout

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

Would you like Redundant* outputs?

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

Acopian Redundant Power Package style (primary/backup)

☐ N+1 (current sharing)

☒ Redundancy not required

Notes/special instructions:

Input voltage:

☐ 100 VAC nominal

☐ 115 VAC nominal

☐ 208 VAC nominal

☐ 230 VAC nominal

☐ 240 VAC nominal

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.**





Power Supplies

Shipped Within 3 Days

[My Account](#) [Cart](#) [Checkout](#)

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[Why Acopian?](#)

[Find a Power Supply](#)

[Build a Custom Power System](#)

Enter DC Voltage

[GO](#)

Enter Model #

[GO](#)

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.

The screenshot shows the Acopian Power Supplies website interface. At the top, there's a navigation bar with the Acopian logo, 'Power Supplies', and 'Shipped Within 3 Days'. Below this are links for 'Contact an Engineer', 'Tech Talk', 'News', 'Testimonials', 'About Us', 'Contact Us', and 'Why Acopian?'. A search bar allows users to 'Find a Power Supply' or 'Build a Custom Power System' by entering 'DC Voltage' or 'Model #'. The main form area includes a 'Test points' section with checkboxes for 'on the front panel', 'on the rear panel', 'banana jacks', 'tip jacks', and 'binding posts'. Below this is a 'Notes/special instructions:' field, followed by an 'Individual fusing or switches:' field. A disclaimer states: '(If you require non-stocked components, such as special connectors or circuit breakers, more than 9 days may be required.)'. At the bottom is an 'Any other special instructions:' field. Red circles highlight the 'Test points:', 'Individual fusing or switches:', and 'Any other special instructions:' labels.

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



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.

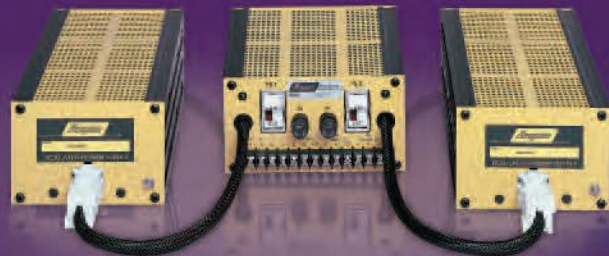


Need Ultra-Reliability?

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.

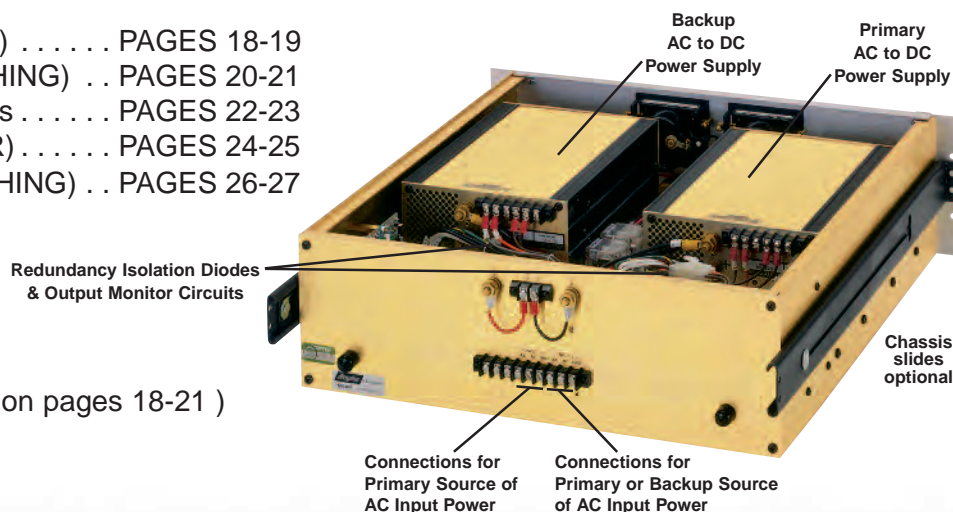


REDUNDANT POWER PACKAGES and MODULAR REDUNDANT SYSTEMS (Rack Mounting, Wall Mounting & Pluggable) (Three separate modules)

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).

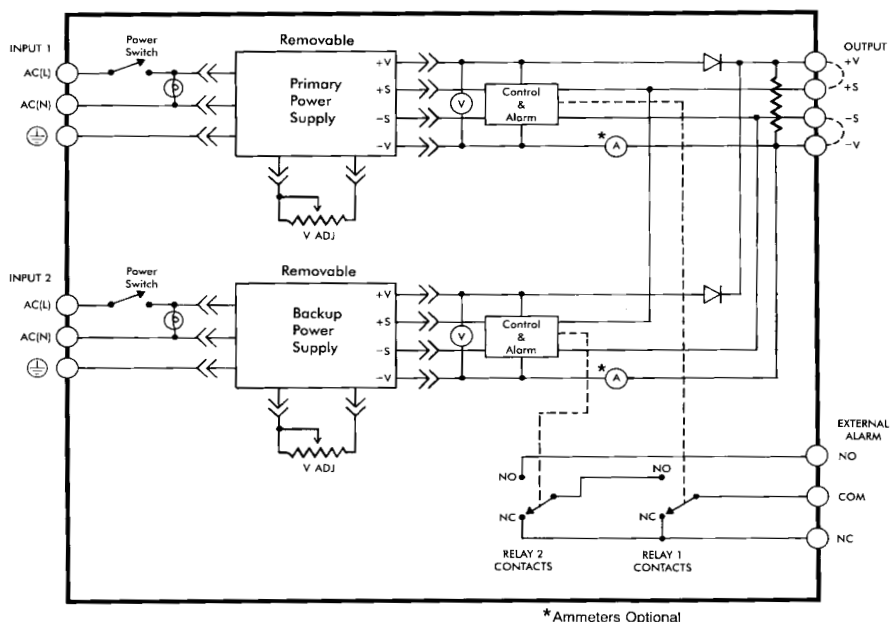
Overvoltage Protection: Automatic recovery. Each power supply contains an overvoltage protection circuit, to assure that neither power supply output will significantly exceed the nominal output voltage rating under any condition, including incorrect application and misadjustment.

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: Overvoltage 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.



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

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 $\pm V$	Output Current Amps. at			Ripple mV RMS	Rack Mounting Models			Wall Mounting Models		
		40°C	55°C	71°C		(\$) Price	Model	Case Size	(\$) Price	Model	Case Size
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, 14 13/16" deep. (15 lb.)
5R14	5¼" x 19" panel, 14 13/16" deep. (23 lb.)
5R18	5¼" x 19" panel, 17 7/8" deep. (29 lb.)
7R18	7" x 19" panel, 18 ½" deep. (50 lb.)
7R20	7" x 19" panel, 20 ½" deep. (64 lb.)

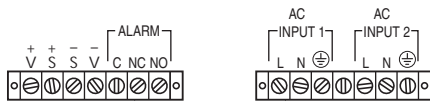
Wall Mounting: See page 21.

CONNECTIONS FOR CASE SIZES 3R14, 317R18, 5R14, 5R18, 517R18 and 517R20:



Barrier Strip with 6-32 terminal screws

CONNECTIONS FOR CASE SIZES 7R18, 7R20, 719R20, and 719R25:



Barrier Strips with 8-32 terminal screws

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

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



PARALLELABLE "SEMISYSTEM" 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, 16 13/16" deep. (53 lbs.)

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

PARALLELABLE "SEMISYSTEM" POWER SUPPLIES Linear Regulated

For a redundant system, order two units.

Nominal Output Voltage	Adjust Range ±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



(Handles and chassis slides optional)

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

Rack Mounting Case Sizes:

5RW16 5 1/4" x 19" panel, 16 13/16" deep. (21 lb.)

5RW18 5 1/4" x 19" panel, 18 13/16" deep. (27 lb.)

5RW22 5 1/4" x 19" panel, 22 13/16" deep. (32 lb.)

Wall Mounting Case Sizes: See page 21.

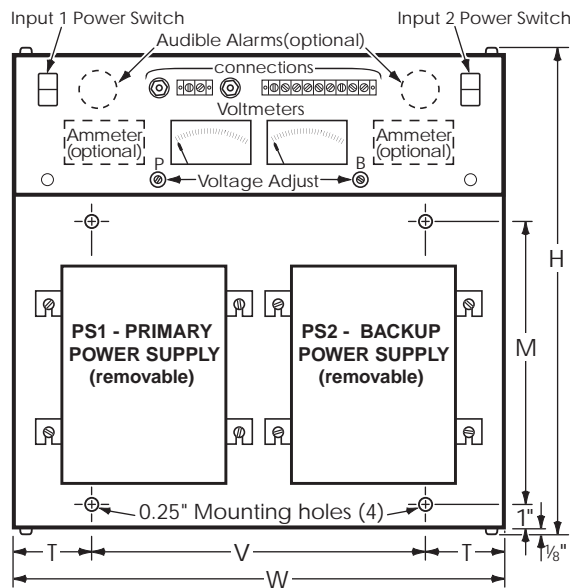
Switching Regulated REDUNDANT POWER PACKAGES

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



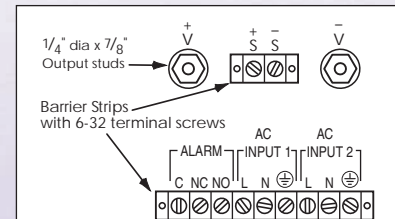
Wall Mounting Case Sizes:



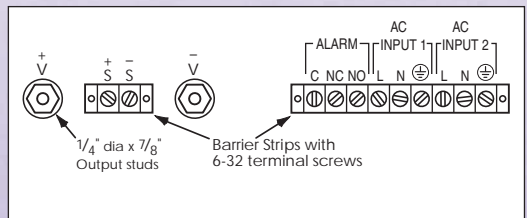
Case Size	H	W	M	V	T	Depth	Approx. Weight
317R18	18 1/2"	17	11	14	1 1/2	4 1/4	18 lb.
517R18	18 1/2"	17	11	14	1 1/2	6	22-26 lb.
517R20	20 1/2"	17	13	13	2	6	34 lb.
519RW15	15 1/2"	19	8	13	3	6 1/16	24 lb.
519RW18	18 1/2"	19	11	13	3	6 1/16	27 lb.
522RW17	17 1/4"	22 1/2	10	16 1/2	3	6 1/16	33 lb.
719R20	20 1/2"	19	13	13	3	7 3/4	58 lb.
719R25	25 1/2"	19	18	13	3	7 3/4	70 lb.

CONNECTIONS:

RACK MOUNTING

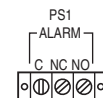


WALL MOUNTING



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, (thermistor 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 μ 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

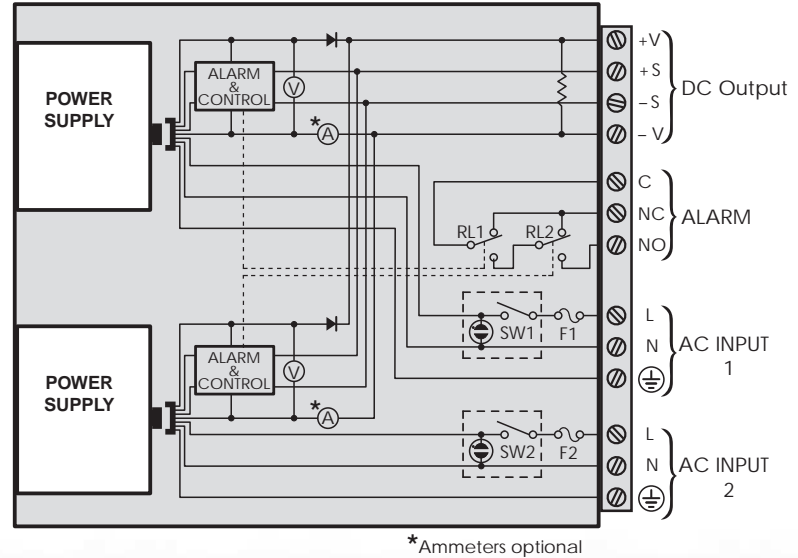
Thermal Protection: Thermostat, self-resetting.

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

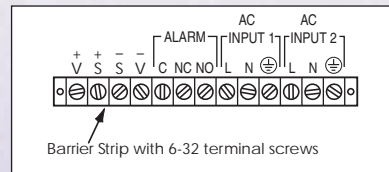
CASE SIZE: 5RP13 5 $\frac{1}{4}$ " x 19" panel, 12 $\frac{3}{4}$ " deep. (14 lb. 4 oz.)

Simplified Diagram for Pluggable Redundant Power Packages

Nominal Output Voltage	Adjust Range ±V	Output Current Amps. at			Ripple mV (@ 25 MHz BW)		Price (\$)	Model	Case Size
		40°C	55°C	71°C	RMS	P-P			
3.3	.5	15.4	13	10.7	10	50	1520	R3.3WP8X	5RP13
3.3	.5	24	20.5	16.8	10	50	1700	R3.3WP8	5RP13
5	.5	15.4	13	10.7	10	50	1520	R5WP8X	5RP13
5	.5	24	20.5	16.8	10	50	1700	R5WP8	5RP13
6	.5	15	12.6	10.5	10	50	1520	R6WP8X	5RP13
6	.5	23	19.5	16.8	10	50	1700	R6WP8	5RP13
7	.5	14.7	12.4	10.3	10	50	1520	R7WP8X	5RP13
7	.5	23	19.5	16.1	10	50	1700	R7WP8	5RP13
8	.5	14.4	12	10	15	100	1520	R8WP8X	5RP13
8	.5	23	19.5	16.1	15	100	1700	R8WP8	5RP13
9	.5	14.1	12	9.8	15	100	1520	R9WP8X	5RP13
9	.5	22	18.7	15.4	15	100	1700	R9WP8	5RP13
10	.5	13.5	11.5	9.5	15	100	1520	R10WP8X	5RP13
10	.5	21	18.5	15	15	100	1700	R10WP8	5RP13
12	.5	12.3	10.5	8.6	15	100	1520	R12WP8X	5RP13
12	.5	20	17	14	15	100	1700	R12WP8	5RP13
13	.5	11.3	9.7	7.9	15	100	1520	R13WP8X	5RP13
13	.5	18.4	15.7	12.9	15	100	1700	R13WP8	5RP13
14	.5	10.9	9.3	7.6	15	100	1520	R14WP8X	5RP13
14	.5	17.6	15	12.3	15	100	1700	R14WP8	5RP13
15	.5	10.2	8.7	7.1	15	100	1520	R15WP8X	5RP13
15	.5	16.5	14	11.5	15	100	1700	R15WP8	5RP13
18	.5	8.5	7.2	5.9	15	100	1520	R18WP8X	5RP13
18	.5	13.7	11.6	9.5	15	100	1700	R18WP8	5RP13
20	.5	7.6	6.5	5.3	15	100	1520	R20WP8X	5RP13
20	.5	12.7	10.7	8.8	15	100	1700	R20WP8	5RP13
24	.5	7.2	6.1	5	15	100	1520	R24WP8X	5RP13
24	.5	11.5	9.8	8	15	100	1700	R24WP8	5RP13
25	.5	6.6	5.6	4.6	15	100	1520	R25WP8X	5RP13
25	.5	10.6	9	7.4	15	100	1700	R25WP8	5RP13
28	.5	5.9	5	4.1	15	100	1520	R28WP8X	5RP13
28	.5	9.5	8.1	6.7	15	100	1700	R28WP8	5RP13
30	.5	5.6	4.8	4	25	150	1520	R30WP8X	5RP13
30	.5	8.7	7.4	6.1	25	150	1700	R30WP8	5RP13
32	.5	5.2	4.5	3.7	25	150	1520	R32WP8X	5RP13
32	.5	8.3	7	5.8	25	150	1700	R32WP8	5RP13
36	.5	4.7	4	3.3	25	150	1520	R36WP8X	5RP13
36	.5	7.7	6.5	5.4	25	150	1700	R36WP8	5RP13
40	.5	4.2	3.6	3	25	150	1520	R40WP8X	5RP13
40	.5	6.8	5.8	4.8	25	150	1700	R40WP8	5RP13
48	.5	3.5	3	2.5	25	150	1520	R48WP8X	5RP13
48	.5	5.7	4.9	4	25	150	1700	R48WP8	5RP13
50	1	3.3	2.8	2.3	50	150	1520	R50WP8X	5RP13
50	1	5	4.3	3.5	50	150	1700	R50WP8	5RP13
55	1	3	2.5	2.1	50	150	1520	R55WP8X	5RP13
55	1	4.5	3.8	3.1	50	150	1700	R55WP8	5RP13
60	1	2.8	2.3	1.9	50	150	1520	R60WP8X	5RP13
60	1	4.2	3.5	2.9	50	150	1700	R60WP8	5RP13
70	1	2.4	2	1.7	67	200	1520	R70WP8X	5RP13
70	1	3.6	3.1	2.5	67	200	1700	R70WP8	5RP13
75	1	2.2	1.8	1.5	67	200	1520	R75WP8X	5RP13
75	1	3.3	2.8	2.3	67	200	1700	R75WP8	5RP13
80	1	2.1	1.7	1.4	67	200	1520	R80WP8X	5RP13
80	1	3.1	2.6	2.2	67	200	1700	R80WP8	5RP13
90	1	1.8	1.5	1.3	100	300	1520	R90WP8X	5RP13
90	1	2.8	2.4	2	100	300	1700	R90WP8	5RP13
100	1	1.7	1.4	1.2	150	450	1520	R100WP8X	5RP13
100	1	2.5	2.1	1.8	150	450	1700	R100WP8	5RP13
110	1	1.5	1.3	1.1	150	450	1520	R110WP8X	5RP13
110	1	2.3	1.9	1.6	150	450	1700	R110WP8	5RP13
120	1	1.4	1.2	1	150	450	1520	R120WP8X	5RP13
120	1	2.1	1.8	1.5	150	450	1700	R120WP8	5RP13
125	1	1.3	1.1	0.9	150	450	1520	R125WP8X	5RP13
125	1	2	1.7	1.4	150	450	1700	R125WP8	5RP13

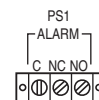


CONNECTIONS:



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

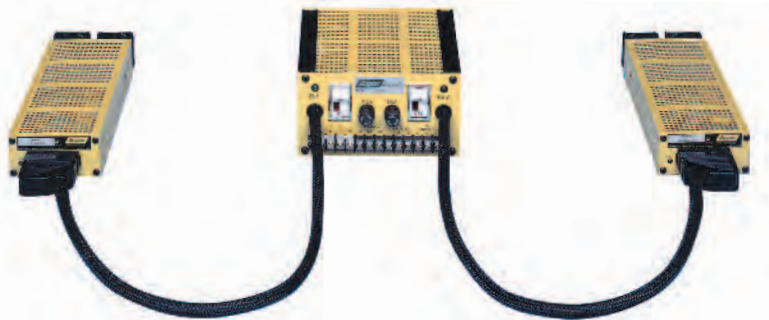
Nominal Output Voltage	Adjust Range $\pm V$	Output Current Amps. at			Ripple mV RMS	(\$ Price	Model	Case sizes	
		40°C	55°C	71°C				Integration Module	Power Supplies (2)
5	.5	2.6	2.5	2.4	1	980	RM5N8X	RM6	CN8H
5	.5	5.3	4.4	3.5	1	1080	RM5M6	RM6	CM6
5	.5	11	9.3	7.5	1	1195	RM5M13	RM6	CM13
5	.5	21	17	14	1	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

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.



For more Specifications and 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 27).

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

OPTIONS

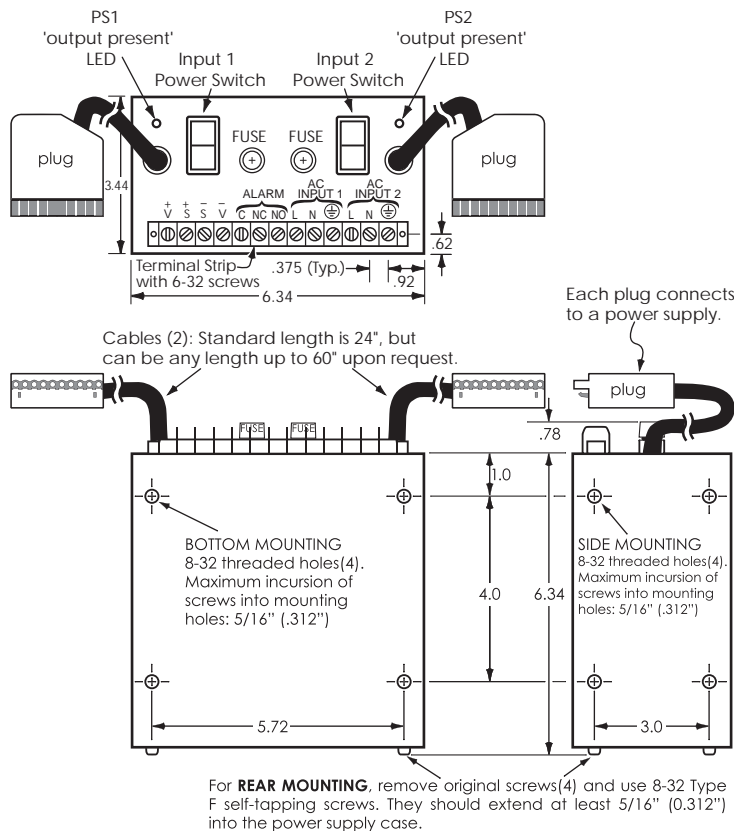
Cable lengths: Although 24" is standard, any other length from 12" to 60" may be ordered as an option. To order, add suffix "C??" to model number and \$60.00 to price. Replace the "???" with the cable length desired. For example, if you are ordering Model RM24WN8 with 4 foot (48") cables, the model number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

Simplified Diagram for
Modular Redundant Systems:
See page 25

Switching Regulated MODULAR REDUNDANT SYSTEMS

Nominal Output Voltage	Adjust Range ±V	Output Current Amps. at			Ripple mV (@ 25 MHz BW)		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	WN8

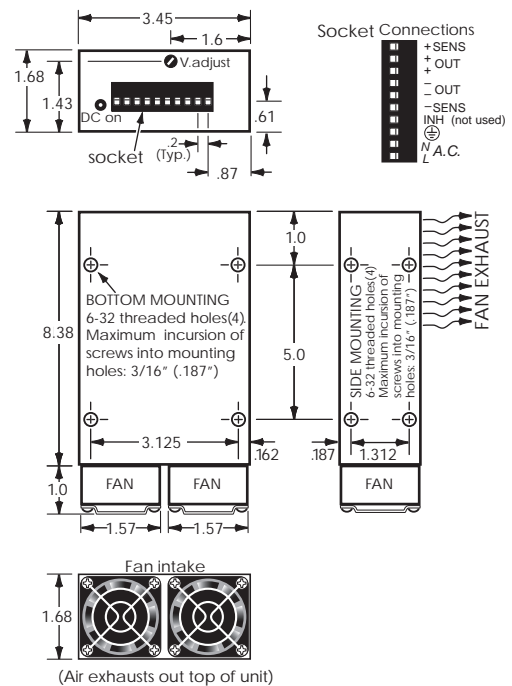
INTEGRATION MODULE



Case Size RW6
Approx. Weight: 3 lb. 4 oz.

POWER SUPPLIES

(Two in each Modular Redundant System)



Case Size	Number of fans on rear panel	Approx. Weight
WN8	2	2 lb. 2 oz.
WN8A	1 (centered on rear)	1 lb. 14 oz.

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.

Output Monitoring: 'Output Present' green LEDs are located on each power supply (DC on) and on the Integration Module.

Inrush current: Cold start, (thermistor 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 55 to 125 volt models), within the limits of the output voltage adjustment range.

Holdup Time: 16 mS minimum.

Transient Response: 300 μ 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; 300 Vdc. Output to case; 300 Vdc.

Thermal Protection: Thermostat, self-resetting.

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

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 size RW6

GB8 Mounting Kit (#8-32 mounting holes) . . . \$10

For case sizes WN8, WN8A

NP6 Mounting Kit (#6-32 mounting holes) . . . \$10

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

For Rear Mounting

GR35DIN Mounting Kit . . . \$15.00

Fits on case size RW6.

For Horizontal Mounting

CH35DIN Mounting Kit . . . \$15.00

Fits on case size RW6.

NPH35DIN Mounting Kit . . . \$15.00

Fits on case sizes WN8, WN8A.

For Vertical Mounting

NPV35DIN Mounting Kit . . . \$15.00

Fits on case sizes WN8, 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).

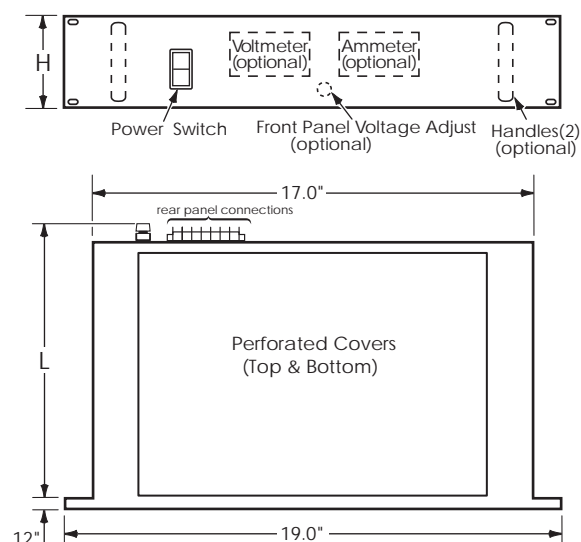
Ambient Operating Temperature:

Single Output Models: -20 to +55°C.

Dual Output Models: -10 to +55°C.

Storage Temperature: -55 to +85°C.

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

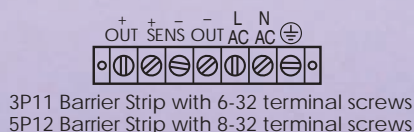


Case Size	H	L	Approx. Weight
3P11	3 1/2"	10 7/8"	22 lb.
3P17	3 1/2"	16 13/16"	38 lb.
5P12	5 1/4"	11 15/16"	28 lb.
5P17	5 1/4"	16 13/16"	53 lb.

CONNECTIONS (Single Output models):

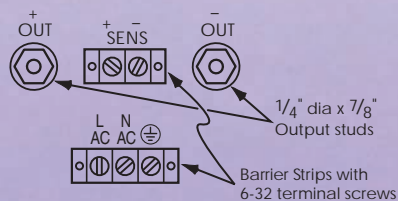
Case sizes

3P11 and 5P12:

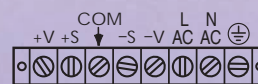


Case sizes

3P17 and 5P17:



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	1	950	24PT20	3P17
24	.5	30	23	.05	.05	1	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	1	950	28PT19	3P17
28	.5	28	22	.05	.05	1	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

DUAL TRACKING OUTPUTS

Nominal Output Voltages	Adjust Range $\pm V$	Amps. per Output at		Regulation		Ripple mV RMS	(\$ Price)	Model	Case Size
		40°C	55°C	Load $\pm\%$	Line $\pm\%$				
± 12	.5	7	5.6	.1	.1	1.5	640	PD12-700	3P11
± 12	.5	9	7.2	.1	.1	1.5	770	PD12-900	5P12
± 15	.5	7	5.6	.1	.1	1.5	640	PD15-700	3P11
± 15	.5	9	7.2	.1	.1	1.5	770	PD15-900	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 & 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.

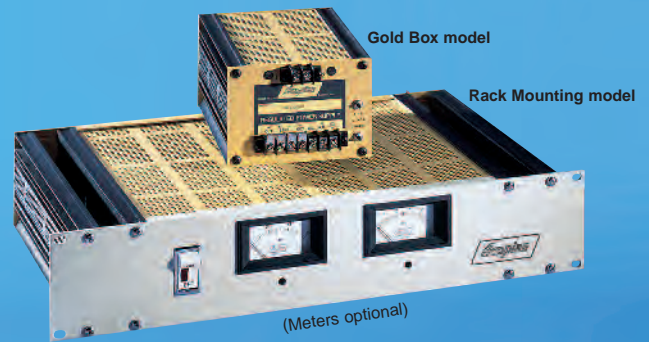
230 Volt Input: For operation on inputs of 210 to 250 VAC, 50-400 Hz. Add suffix "-230" to model number and \$40.00 to price. The "-230" option requires two additional days.

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.

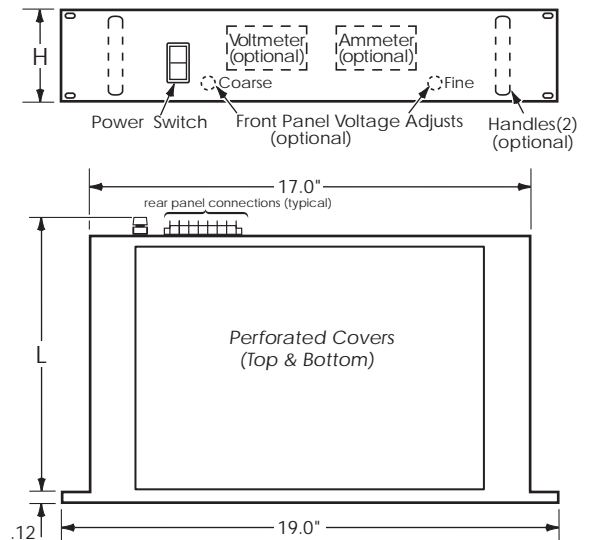
The output voltage may be manually controlled either at the power supply or remotely, or it may be programmed with the analog output from a PLC or digital-to-analog converter.

See pages 60 and 61



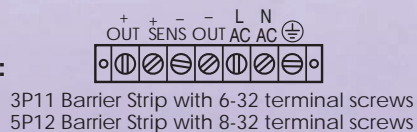
Output Voltage Range	Output Current Amps. at			Voltage Prgmg. Coeff. (Ω/V)	Case Size	Voltage Programmable Fixed Current Limiting		Voltage Programmable Adjust. Current Limiting	
	40°C	55°C	71°C			Model	Price(\$)	Model	Price(\$)
0-6	10.0	8.0	6.0	820	3P11	A06PX10	625	P06PX10	675
0-6	16.0	12.8	9.6	820	5P12	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.

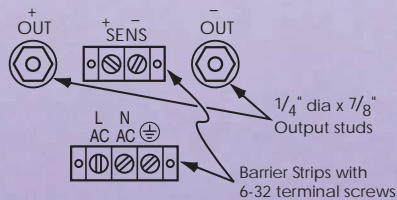


CONNECTIONS:

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



**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.

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.

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 $+71^{\circ}\text{C}$. No derating required.

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

Temperature Coefficient: From 9 to 75 volts, typically $0.015\%/^{\circ}\text{C}$; 1 to 8 volts, $0.03\%/^{\circ}\text{C}$.

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

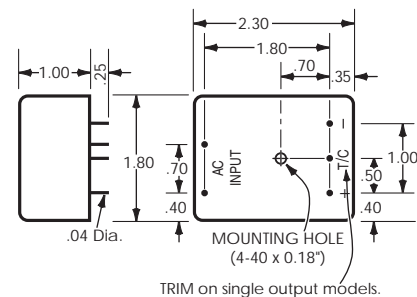
Weight:

- 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)

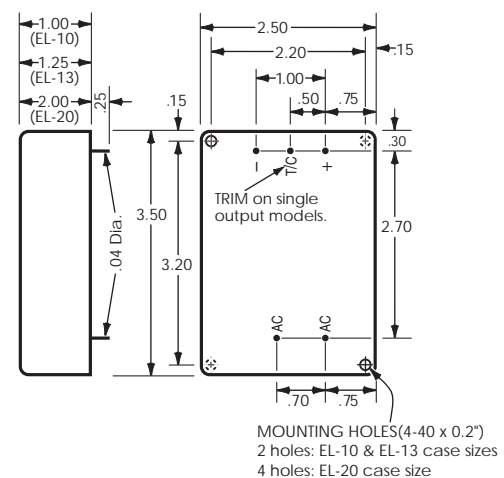
Mounting: May be mounted on printed circuit board or in socket (see page 34).

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.



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	(\$ Price)	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	(\$ Price)	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	130	75E03A	EL-13
185	.025	Unregulated		2V	70	NX-25A	EL-10
185	.050	Unregulated		3.5V	95	NX-50	EL-13

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 $0.015\%/^{\circ}\text{C}$; 5 volt models, $0.03\%/^{\circ}\text{C}$.

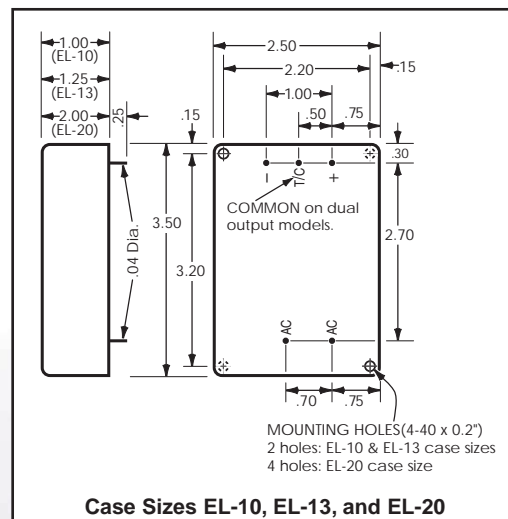
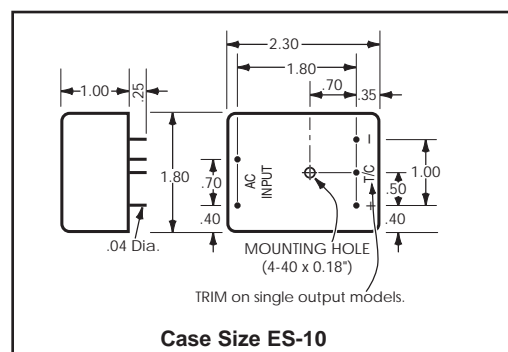
Impedance: 0.07 ohms at 1 kHz and 0.2 ohms at 10 kHz (approx.).

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.



DUAL TRACKING OUTPUTS

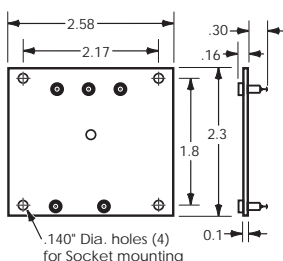
Nominal Output Voltages	Amps. per Output	Regulation		Ripple mV RMS	(\$)	Model	Case Size
		Load $\pm \%$	Line $\pm \%$				
± 5	.150	.1	.05	1.5	105	D5-15	EL-10
± 5	.250	.1	.05	1.5	130	D5-25	EL-10
± 5	.500	.1	.05	1.5	180	D5-50	EL-20
± 10	.200	.05	.05	1	120	D10-20	EL-10
± 10	.300	.05	.05	1	155	D10-30	EL-13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

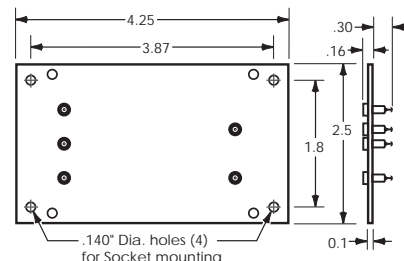
Each of these sockets has a sturdy phenolic base with gold plated teflon-insulated contacts.

Model ES-1
\$35



For case sizes ES-10 and ESC-10

Model EL-1
\$35



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

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.

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 $+71^{\circ}\text{C}$. No derating required.

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

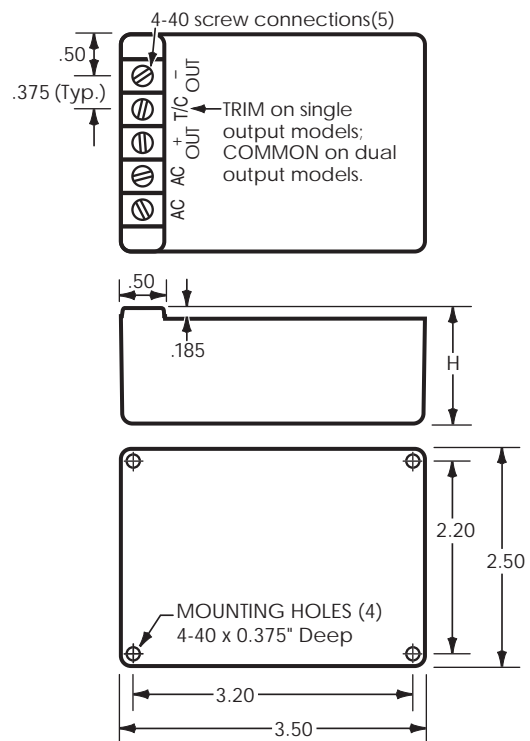
Temperature Coefficient: From 9 to 75 volts, typically $0.015\%/^{\circ}\text{C}$; 1 to 8 volts, $0.03\%/^{\circ}\text{C}$.

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.



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	(\$) Price	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	(\$) Price	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-10
20	.400	.1	.05	1	145	20EB40	EB-13
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	(\$) Price	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	(\$) Price	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
±12	.500	.1	.05	1	190	DB12-50	EB-20
±15	.100	.05	.05	1	100	DB15-10	EB-10
±15	.150	.05	.05	1	115	DB15-15	EB-10
±15	.200	.05	.05	1	125	DB15-20	EB-10
±15	.300	.05	.05	1	155	DB15-30	EB-13
±15	.350	.05	.05	1	165	DB15-35	EB-13
±15	.500	.1	.05	1	190	DB15-50	EB-20

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 $+71^\circ\text{C}$.

No derating required through $+50^\circ\text{C}$.

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

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

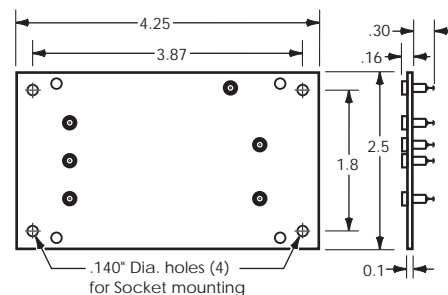
Switching Frequency: 225 kHz (Typical).

Transient Response: Returns to within $\pm 1\%$ of output setting within 300 μs . 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



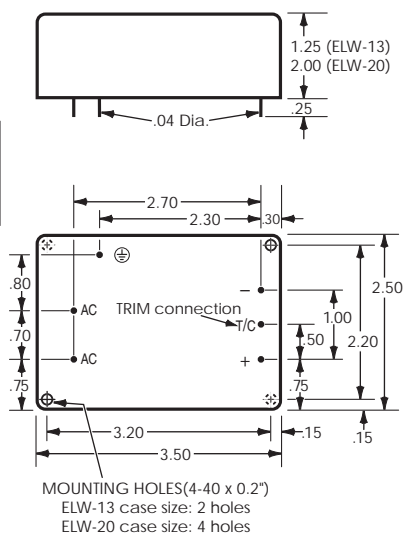
Accepts power supplies in case sizes ELW-13 and ELW-20. Sturdy phenolic base with gold plated teflon-insulated contacts.

Model ELW-1\$35

FOR PC BOARD MOUNTING

Nominal Output Voltage	Output Current Amps. at		Ripple mV (@ 25 MHz BW)		(\$) Price	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

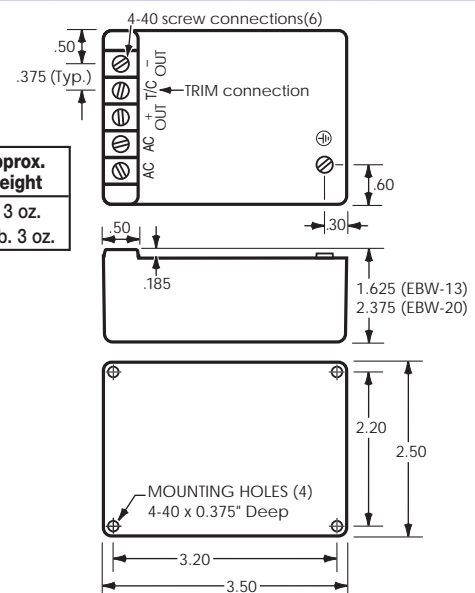
Case Size	Approx. Weight
ELW-13	11 oz.
ELW-20	1 lb. 1 oz.



WITH SCREW TERMINALS

Nominal Output Voltage	Output Current Amps. at		Ripple mV (@ 25 MHz BW)		(\$) Price	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

Case Size	Approx. Weight
EBW-13	13 oz.
EBW-20	1 lb. 3 oz.



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.

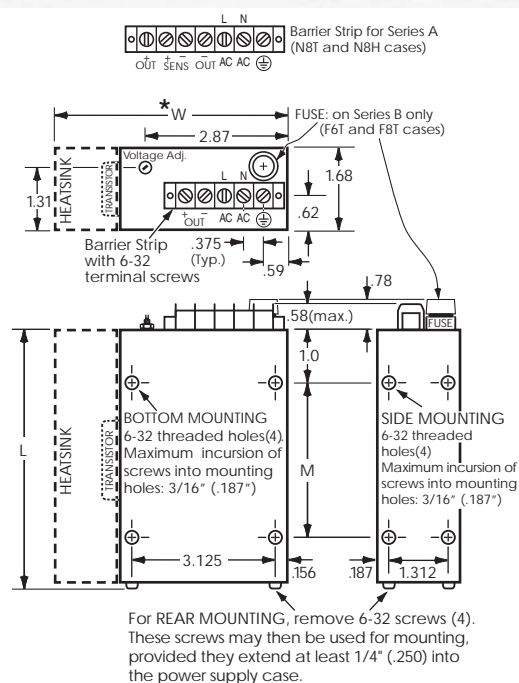
Series B: Input fuse and output current limiting.

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.



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	Ad-just ±V	Output Current Amps. at			Regulation		Ripple mV RMS	(\$)	Model	Case Size
		40°C	55°C	71°C	Load ± %*	Line ± %*				
1	.5	2.2	2.1	2.0	.005	.005	.250	210	A1NT220	N8T
1	.5	3.5	3.5	3.0	.005	.005	.250	245	A1NT350	N8H
1.5	.5	2.2	2.1	2.0	.005	.005	.250	210	A1.5NT220	N8T
1.5	.5	3.5	3.5	3.0	.005	.005	.250	245	A1.5NT350	N8H
2	.5	2.2	2.1	2.0	.005	.005	.250	210	A2NT220	N8T
2	.5	3.0	3.0	3.0	.005	.005	.250	245	A2NT300	N8H
3	.5	1.0	1.0	1.0	.5	.1	1	175	B3TN100	F6T
3	.5	2.2	2.1	2.0	.005	.005	.250	210	A3NT220	N8T
3	.5	3.5	3.5	3.0	.005	.005	.250	245	A3NT350	N8H
3.3	.5	1.0	1.0	1.0	.5	.1	1	175	B3.3TN100	F6T
3.3	.5	2.2	2.1	2.0	.005	.005	.250	210	A3.3NT220	N8T
3.3	.5	3.5	3.5	3.0	.005	.005	.250	245	A3.3NT350	N8H
5	.5	1.0	1.0	1.0	.1	.1	1	170	B5TN100	F6T
5	.5	1.1	1.0	1.0	.005	.005	.250	180	A5TN110	N8T
5	.5	2.2	2.1	2.0	.005	.005	.250	210	A5NT220	N8T
5	.5	3.5	3.5	3.0	.005	.005	.250	245	A5NT350	N8H
6	.5	1.0	1.0	1.0	.1	.1	1	175	B6TN100	F6T
6	.5	2.2	2.1	2.0	.005	.005	.250	210	A6NT220	N8T
6	.5	2.7	2.7	2.7	.005	.005	.250	245	A6NT270	N8H
7	1	1.0	1.0	1.0	.1	.1	1	175	B7TN100	F6T
7	.5	1.1	1.0	1.0	.005	.005	.250	195	A7TN110	N8T
7	.5	2.0	2.0	2.0	.005	.005	.250	230	A7NT200	N8H
8	1	1.0	1.0	1.0	.1	.1	1	175	B8TN100	F6T
8	.5	1.1	1.0	1.0	.005	.005	.250	195	A8TN110	N8T
8	.5	2.0	2.0	2.0	.005	.005	.250	230	A8NT200	N8H
9	1	1.0	1.0	1.0	.1	.1	1	175	B9TN100	F6T
9	.5	1.1	1.0	1.0	.005	.005	.250	195	A9TN110	N8T
9	.5	2.0	2.0	2.0	.005	.005	.250	230	A9NT200	N8H
10	1	1.0	1.0	1.0	.1	.1	1	180	B10TN100	F6T
10	.5	1.1	1.0	1.0	.005	.005	.250	195	A10TN110	N8T
10	.5	2.0	2.0	2.0	.005	.005	.250	230	A10NT200	N8H
11	1	1.0	1.0	.750	.1	.1	1	180	B11TN100	F6T
11	.5	1.1	1.0	1.0	.005	.005	.250	195	A11TN110	N8T
11	.5	2.0	2.0	2.0	.005	.005	.250	230	A11NT200	N8H
12	1	1.0	1.0	.750	.1	.1	1	180	B12TN100	F6T
12	.5	1.1	1.0	1.0	.005	.005	.250	195	A12TN110	N8T
12	.5	2.0	2.0	2.0	.005	.005	.250	230	A12NT200	N8H
13	1	1.0	1.0	.750	.1	.1	1	180	B13TN100	F6T
13	.5	1.1	1.0	1.0	.005	.005	.250	195	A13TN110	N8T
13	.5	2.0	2.0	2.0	.005	.005	.250	230	A13NT200	N8H
14	1	1.0	1.0	.750	.1	.1	1	180	B14TN100	F6T
14	.5	1.1	1.0	1.0	.005	.005	.250	195	A14TN110	N8T
14	.5	2.0	2.0	2.0	.005	.005	.250	230	A14NT200	N8H
15	1	1.0	1.0	.750	.1	.1	1	180	B15TN100	F6T
15	.5	1.1	1.0	1.0	.005	.005	.250	195	A15TN110	N8T
15	.5	2.0	2.0	2.0	.005	.005	.250	230	A15NT200	N8H
16	1	1.0	1.0	.750	.1	.1	1	180	B16TN100	F6T
16	.5	1.0	1.0	1.0	.005	.005	.250	195	A16TN100	N8T
16	.5	1.75	1.75	1.75	.005	.005	.250	230	A16NT175	N8H
18	1	.750	.750	.750	.1	.1	1	180	B18TN75	F6T
18	.5	1.0	1.0	1.0	.005	.005	.250	195	A18TN100	N8T
18	.5	1.5	1.5	1.5	.005	.005	.250	230	A18NT150	N8H
20	1	.500	.500	.500	.1	.1	1	165	B20TN50	F6T
20	.5	.900	.900	.900	.005	.005	.250	195	A20TN90	N8T
20	.5	1.25	1.25	1.25	.005	.005	.250	230	A20NT125	N8H
24	1	.750	.750	.750	.1	.1	1	180	B24TN75	F6T
24	.5	1.0	1.0	1.0	.005	.005	.250	210	A24TN100	N8T
24	.5	1.25	1.25	1.25	.005	.005	.250	235	A24NT125	N8H
25	1	.750	.750	.750	.1	.05	1	180	B25TN75	F6T
25	.5	.750	.750	.750	.005	.005	.250	210	A25TN75	N8T
25	.5	1.25	1.25	1.25	.005	.005	.250	235	A25NT125	N8H

* or 2 mv, whichever is greater

Nominal Output Voltage	Ad-just ±V	Output Current Amps. at			Regulation		Ripple mV RMS	(\$)	Model	Case Size
		40°C	55°C	71°C	Load ± %	Line ± %				
26	1	.750	.750	.750	.1	.05	1	180	B26TN75	F6T
26	.5	1.25	1.25	1.25	.005	.005	.250	235	A26NT125	N8H
28	1	.700	.700	.700	.1	.05	1	180	B28TN70	F6T
28	.5	.800	.800	.800	.005	.005	.250	210	A28NT80	N8T
28	.5	1.25	1.25	1.25	.005	.005	.250	235	A28NT125	N8H
30	1	.500	.500	.500	.05	.05	1	180	B30TN50	F6T
30	.5	.750	.750	.750	.005	.005	.250	215	A30TN75	N8T
30	.5	1.1	1.1	1.1	.005	.005	.250	245	A30NT110	N8H
32	1	.400	.400	.400	.05	.05	1	175	B32TN40	F6T
32	.5	.600	.600	.600	.005	.005	.250	210	A32TN60	N8T
34	1	.400	.400	.400	.05	.05	1	175	B34TN40	F6T
34	.5	1.1	1.1	1.1	.005	.005	.250	245	A34NT110	N8H
35	1	.400	.400	.400	.05	.05	1	175	B35TN40	F6T
35	.5	.600	.600	.600	.005	.005	.250	210	A35TN60	N8T
35	.5	1.1	1.1	1.1	.005	.005	.250	245	A35NT110	N8H
36	1	.400	.400	.400	.05	.05	1	175	B36TN40	F6T
36	.5	.600	.600	.600	.005	.005	.250	210	A36TN60	N8T
36	.5	1.0	1.0	1.0	.005	.005	.250	245	A36NT100	N8H
38	1	.200	.200	.200	.05	.05	1	165	B38TN20	F6T
40	1	.400	.400	.400	.05	.05	1	185	B40TN40	F6T
40	.5	.750	.750	.750	.005	.005	.250	230	A40NT75	N8T
45	1	.400	.400	.400	.05	.05	1	195	B45TN40	F6T
45	.5	.600	.600	.600	.005	.005	.250	235	A45NT60	N8T
48	1	.400	.400	.400	.05	.05	1	210	B48TN40	F6T
48	.5	.500	.500	.500	.005	.005	.250	245	A48NT50	N8T
50	1	.400	.400	.400	.05	.05	1	220	B50FT40	F6T
50	1	.450	.450	.450	.005	.005	.250	260	A50NT45	N8T
55	1	.200	.200	.200	.05	.05	1	185	B55FT20	F6T
55	1	.400	.400	.400	.005	.005	.250	260	A55NT40	N8T
60	1	.150	.150	.150	.05	.05	1	185	B60FT15	F6T
60	1	.350	.350	.350	.005	.005	.250	260	A60NT35	N8T
65	1	.100	.100	.100	.05	.05	1	180	B65FT10	F6T
65	1	.250	.250	.250	.05	.05	1	225	B65FT25	F8T
65	1	.270	.270	.270	.005	.005	.250	260	A65NT27	N8T
67	1	.100	.100	.100	.05	.05	1	180	B67FT10	F6T
70	1	.100	.100	.100	.05	.05	1	180	B70FT10	F6T
70	1	.250	.250	.250	.005	.005	.250	260	A70NT25	N8T
75	1	.200	.200	.200	.05	.05	1	220	B75FT20	F8T
75	1	.250	.250	.250	.005	.005	.250	260	A75NT25	N8T
80	1	.100	.100	.100	.05	.05	1	190	B80FT10	F6T
80	1	.200	.200	.200	.05	.05	1	220	B80FT20	F8T
80	1	.250	.250	.250	.005	.005	.250	260	A80NT25	N8T
85	1	.250	.250	.250	.005	.005	.250	260	A85NT25	N8T
90	1	.100	.100	.100	.05	.05	1	195	B90FT10	F6T
90	1	.200	.200	.200	.05	.05	1	225	B90FT20	F8T
90	1	.250	.250	.250	.005	.005	.250	265	A90NT25	N8T
95	1	.200	.200	.200	.05	.05	1	230	B95FT20	F8T
95	1	.200	.200	.200	.005	.005	.250	260	A95NT20	N8T
100	1	.100	.100	.100	.05	.05	1	220	B100FT10	F6T
100	1	.200	.200	.200	.05	.05	1	235	B100FT20	F8T
100	1	.200	.200	.200	.005	.005	.250	270	A100NT20	N8T
110	1	.100	.100	.100	.05	.05	1	220	B110FT10	F6T
115	1	.100	.100	.100	.05	.05	1	220	B115FT10	F6T
120	1	.050	.050	.050	.05	.05	1	215	B120FT05	F6T
120	1	.200	.200	.200	.05	.05	1	245	B120FT20	F8T
120	1	.200	.200	.200	.005	.005	.250	270	A120NT20	N8T
125	1	.050	.050	.050	.05	.05	1	215	B125FT05	F6T
125	1	.200	.200	.200	.05	.05	1	245	B125FT20	F8T
125	1	.200	.200	.200	.005	.005	.250	270	A125NT20	N8T
150	1	.100	.100	.100	.05	.05	1	235	B150FT10	F8T
150	1	.100	.100	.100	.005	.005	.250	270	A150NT10	N8T

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, (thermistor 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.

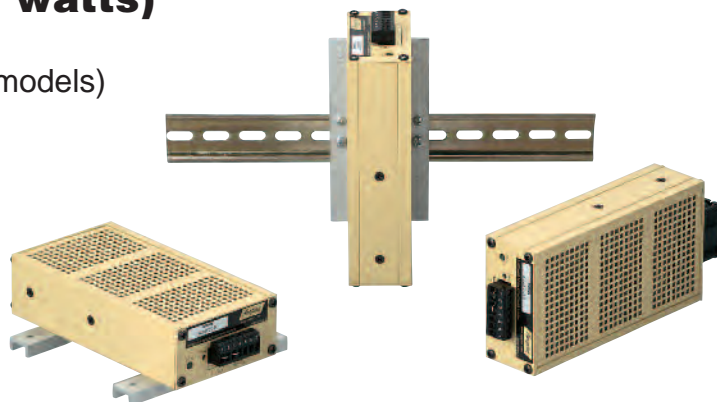
Drift: $\pm 0.1\%$ typical over 8 hours, after 30 minute warmup.

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

Holdup Time: 20 mS minimum.

Transient Response: 300 μS 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 $+71^{\circ}\text{C}$.

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

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).

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.

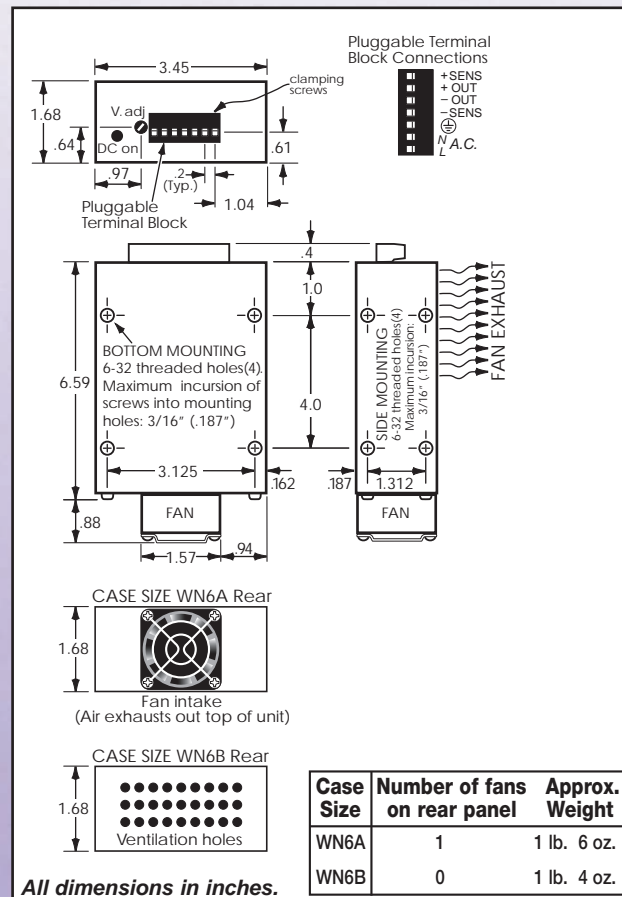
OPTIONS

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 $\pm V$	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, (thermistor 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: $\pm 0.02\%/^{\circ}\text{C}$ (Typical).

Holdup Time: 16 mS minimum.

Transient Response: 300 μS 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 $+71^{\circ}\text{C}$.

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

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.

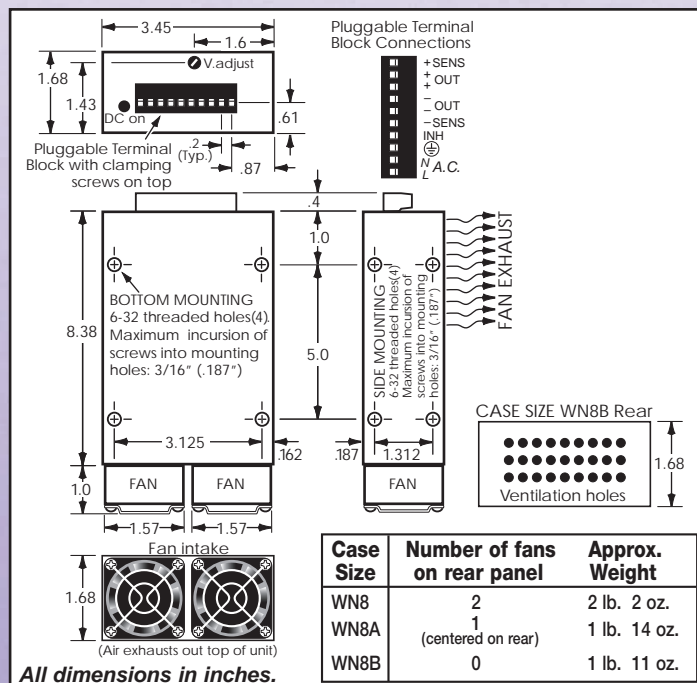
Mounting: Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket. To mount from the power supply side of the mounting surface or for DIN rail mounting, see accessory Mounting Kits on page 91.



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.) %	(\$)	Price	Model	Case Size
		40°C	71°C	RMS	P-P					
3.3	.5	12	8.4	10	50	66	300		W3.3NT1200	WN8B
3.3	.5	18.5	12.9	10	50	66	320		W3.3NT1850	WN8A
3.3	.5	25	17.5	10	50	66	390		W3.3NT2500	WN8
5	.5	12	8.4	10	50	69	300		W5NT1200	WN8B
5	.5	18.5	12.9	10	50	69	320		W5NT1850	WN8A
5	.5	25	17.5	10	50	69	390		W5NT2500	WN8
6	.5	10	7	10	50	70	300		W6NT1000	WN8B
6	.5	15.4	10.7	10	50	70	320		W6NT1540	WN8A
6	.5	24	16.8	10	50	70	390		W6NT2400	WN8
7	.5	8.5	5.9	10	50	70	300		W7NT850	WN8B
7	.5	15	10.5	10	50	70	320		W7NT1500	WN8A
7	.5	23	16.1	10	50	70	390		W7NT2300	WN8
8	.5	7.5	5.2	15	100	72	300		W8NT750	WN8B
8	.5	14.7	10.3	15	100	72	320		W8NT1470	WN8A
8	.5	23	16.1	15	100	72	390		W8NT2300	WN8
9	.5	6.6	4.6	15	100	72	300		W9NT660	WN8B
9	.5	14.4	10	15	100	72	320		W9NT1440	WN8A
9	.5	23	16.1	15	100	72	390		W9NT2300	WN8
10	.5	6	4.2	15	100	73	300		W10NT600	WN8B
10	.5	14.1	9.8	15	100	73	320		W10NT1410	WN8A
10	.5	22	15.4	15	100	73	390		W10NT2200	WN8
12	.5	5.8	4	15	100	75	300		W12NT580	WN8B
12	.5	13.7	9.6	15	100	75	320		W12NT1370	WN8A
12	.5	22	15.4	15	100	75	390		W12NT2200	WN8
13	.5	5.3	3.7	15	100	75	300		W13NT530	WN8B
13	.5	12.3	8.6	15	100	75	320		W13NT1230	WN8A
13	.5	20	14	15	100	75	390		W13NT2000	WN8
14	.5	4.9	3.4	15	100	75	300		W14NT490	WN8B
14	.5	11.7	8.2	15	100	75	320		W14NT1170	WN8A
14	.5	19	13.3	15	100	75	390		W14NT1900	WN8
15	.5	4.7	3.3	15	100	75	300		W15NT470	WN8B
15	.5	11.1	7.8	15	100	75	320		W15NT1110	WN8A
15	.5	18	12.6	15	100	75	390		W15NT1800	WN8
16	.5	4.4	3	15	100	75	300		W16NT440	WN8B
16	.5	10.2	7.1	15	100	75	320		W16NT1020	WN8A
16	.5	16.5	11.5	15	100	75	390		W16NT1650	WN8
18	.5	4	2.8	15	100	77	300		W18NT400	WN8B
18	.5	9.2	6.4	15	100	77	320		W18NT920	WN8A
18	.5	15	10.5	15	100	77	390		W18NT1500	WN8
20	.5	3.7	2.6	15	100	78	300		W20NT370	WN8B
20	.5	8.6	6	15	100	78	320		W20NT860	WN8A
20	.5	14	9.8	15	100	78	390		W20NT1400	WN8
22	.5	3.4	2.4	15	100	78	300		W22NT340	WN8B
22	.5	8	5.6	15	100	78	320		W22NT800	WN8A
22	.5	13	9.1	15	100	78	390		W22NT1300	WN8
24	.5	3.2	2.2	15	100	80	300		W24NT320	WN8B
24	.5	7.5	5.3	15	100	80	320		W24NT750	WN8A
24	.5	12	8.4	15	100	80	390		W24NT1200	WN8
25	.5	3	2.1	15	100	80	300		W25NT300	WN8B
25	.5	7.2	5	15	100	80	320		W25NT720	WN8A
25	.5	11.2	7.8	15	100	80	390		W25NT1120	WN8
26	.5	2.8	2	15	100	80	300		W26NT280	WN8B
26	.5	6.9	4.8	15	100	80	320		W26NT690	WN8A
26	.5	10.6	7.4	15	100	80	390		W26NT1060	WN8
28	.5	2.7	1.9	15	100	80	300		W28NT270	WN8B
28	.5	6.2	4.3	15	100	80	320		W28NT620	WN8A
28	.5	10	7	15	100	80	390		W28NT1000	WN8
30	.5	2.4	1.7	25	150	80	300		W30NT240	WN8B
30	.5	5.6	3.9	25	150	80	320		W30NT560	WN8A
30	.5	9	6.3	25	150	80	390		W30NT900	WN8
32	1	2.3	1.6	25	150	80	300		W32NT230	WN8B
32	1	5.4	3.7	25	150	80	320		W32NT540	WN8A
32	1	8.6	6	25	150	80	390		W32NT860	WN8
34	1	2.2	1.5	25	150	80	300		W34NT220	WN8B
34	1	5.2	3.6	25	150	80	320		W34NT520	WN8A
34	1	8.3	5.8	25	150	80	390		W34NT830	WN8
36	1	2.1	1.4	25	150	80	300		W36NT210	WN8B
36	1	5	3.5	25	150	80	320		W36NT500	WN8A
36	1	8	5.6	25	150	80	390		W36NT800	WN8
38	1	2	1.4	25	150	80	300		W38NT200	WN8B
38	1	4.7	3.3	25	150	80	320		W38NT470	WN8A
38	1	7.5	5.2	25	150	80	390		W38NT750	WN8

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					
40	1	1.9	1.3	25	180	81	300		W40NT190	WN8B
40	1	4.3	3	25	150	81	320		W40NT430	WN8A
40	1	7	4.9	25	150	81	390		W40NT700	WN8
42	1	1.8	1.2	25	150	81	300		W42NT180	WN8B
42	1	4.1	2.8	25	150	81	320		W42NT410	WN8A
42	1	6.8	4.7	25	150	81	390		W42NT680	WN8
45	1	1.7	1.2	25	150	81	300		W45NT170	WN8B
45	1	3.9	2.7	25	150	81	320		W45NT390	WN8A
45	1	6.4	4.4	25	150	81	390		W45NT640	WN8
48	1	1.6	1.1	25	150	81	300		W48NT160	WN8B
48	1	3.7	2.6	25	150	81	320		W48NT370	WN8A
48	1	6	4.2	25	150	81	390		W48NT600	WN8
50	1	1.5	1	50	150	80	300		W50NT150	WN8B
50	1	3.3	2.3	50	150	80	320		W50NT330	WN8A
50	1	5	3.5	50	150	80	390		W50NT500	WN8
55	1	1.3	0.91	50	150	80	300		W55NT130	WN8B
55	1	3	2.1	50	150	80	320		W55NT300	WN8A
55	1	4.5	3.2	50	150	80	390		W55NT450	WN8
60	1	1.2	0.84	50	150	80	300		W60NT120	WN8B
60	1	2.8	1.9	50	150	80	320		W60NT280	WN8A
60	1	4.2	2.9	50	150	80	390		W60NT420	WN8
70	1	1	0.7	67	200	80	300		W70NT100	WN8B
70	1	2.4	1.7	67	200	80	320		W70NT240	WN8A
70	1	3.6	2.5	67	200	80	390		W70NT360	WN8
75	1	1	0.7	67	200	80	300		W75NT100	WN8B
75	1	2.2	1.5	67	200	80	320		W75NT220	WN8A
75	1	3.3	2.3	67	200	80	390		W75NT330	WN8
80	1	0.9	0.63	67	200	80	300		W80NT90	WN8B
80	1	2.1	1.4	67	200	80	320		W80NT210	WN8A
80	1	3.1	2.2	67	200	80	390		W80NT310	WN8
90	1	0.8	0.55	100	300	80	300		W90NT80	WN8B
90	1	1.8	1.3	100	300	80	320		W90NT180	WN8A
90	1	2.8	1.9	100	300	80	390		W90NT280	WN8
100	1	0.75	0.52	150	450	80	300		W100NT75	WN8B
100	1	1.7	1.2	150	450	80	320		W100NT170	WN8A
100	1	2.5	1.8	150	450	80	390		W100NT250	WN8
110	1	0.65	0.45	150	450	80	300		W110NT65	WN8B
110	1	1.5	1.1	150	450	80	320		W110NT150	WN8A
110	1	2.3	1.6	150	450	80	390		W110NT230	WN8
120	1	0.6	0.42	150	450	80	300		W120NT60	WN8B
120	1	1.4	1	150	450	80	320		W120NT140	WN8A
120	1	2.1	1.5	150	450	80	390		W120NT210	WN8
125	1	0.6	0.42	150	450	80	300		W125NT60	WN8B
125	1	1.3	0.9	150	450	80	320		W125NT130	WN8A
125	1	2	1.4	150	450	80	390		W125NT200	WN8



**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.

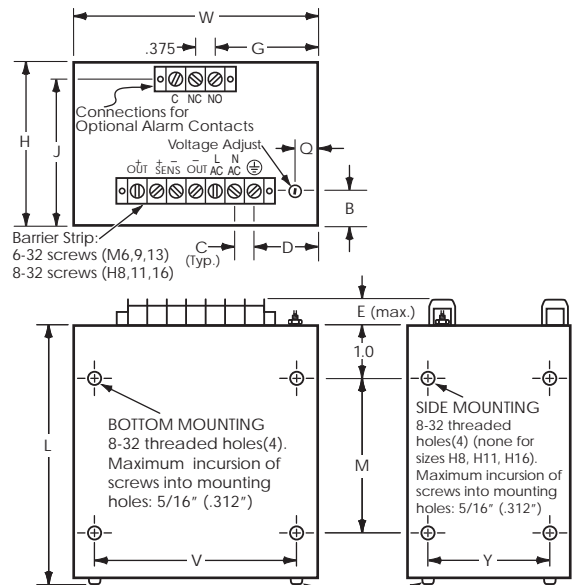
Overvoltage Protection: An internal preset overvoltage protector is available. To order, add prefix "V" to the model number, and increase standard price as follows:

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.



For REAR MOUNTING, remove original screws(4) and use 8-32 Type F self-tapping screws. They should extend at least 5/16" (0.312") into the power supply case.

Case Size	L	W	H	M	V	Y	Q	B	E	C	D	G	J	Approx. Weight
M6	6.59	5.12	3.44	4.0	4.5	3.0	.5	.75	.58	.375	1.44	2.19	3.09	4 lb. 4 oz.
M9	9.25	5.12	3.44	6.0	4.5	3.0	.5	.75	.58	.375	1.44	2.19	3.09	7 lb. 4 oz.
M13	13.25	5.12	3.44	10.0	4.5	3.0	.5	.75	.58	.375	1.44	2.19	3.09	11 lb.
H8	8.75	7.37	5.12	6.0	6.75	4.56	1.12	1.25	.78	.562	2.25	3.57	4.72	15 lb. 8 oz.
H11	11.25	7.37	5.12	8.0	6.75	4.56	1.12	1.25	.78	.562	2.25	3.57	4.72	18 lb. 4 oz.
H16	16.00	7.37	5.12	11.0	6.75	4.56	1.12	1.25	.78	.562	2.25	3.57	4.72	26 lb.

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.

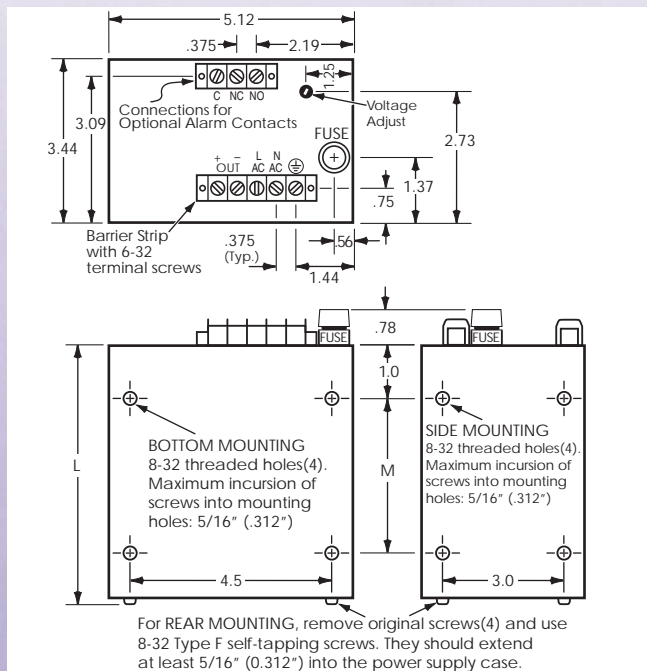
Overvoltage Protection: An internal preset overvoltage protector is available. To order, add prefix "V" to the model number, and add \$25.00 to the standard price of models with outputs of 1.5 to 70 volts; \$35.00, for 75 to 200 volt outputs.

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-just ±V	Output Current Amps. at			Regulation		Ripple mV RMS	(\$)	Model	Case Size
		40°C	55°C	71°C	Load ± %*	Line ± %*				
1.5	.5	6.0	4.3	3.5	.005	.005	.250	280	A1.5MT600	M6
1.5	.5	9.0	7.2	5.5	.005	.005	.250	325	A1.5MT900	M9
1.5	.5	12.0	10.0	8.0	.005	.005	.250	385	A1.5MT1200	M13
1.5	.5	22.0	18.5	15.5	.005	.005	.250	475	A1.5H2200	H11
1.5	.5	32.0	27.0	22.5	.005	.005	.250	565	A1.5H3200	H16
2	.5	6.0	4.3	3.5	.005	.005	.250	280	A2MT600	M6
2	.5	12.0	10.0	8.0	.005	.005	.250	385	A2MT1200	M13
3	.5	.500	.500	.500	.2	.1	1	130	B3G50	G3
3	.5	1.2	1.1	1.0	.2	.1	1	160	B3G120	G3
3	.5	2.1	2.1	2.0	.5	.1	1	185	B3G210	G5
3	.5	4.0	3.5	3.0	.5	.1	1.5	230	B3G400	G6
3	.5	6.0	4.3	3.5	.005	.005	.250	280	A3MT600	M6
3	.5	9.0	7.2	5.5	.005	.005	.250	325	A3MT900	M9
3	.5	12.0	10.0	8.0	.005	.005	.250	385	A3MT1200	M13
3	.5	17.0	14.5	12.0	.005	.005	.250	420	A3H1700	H8
3	.5	20.0	16.5	13.5	.005	.005	.250	475	A3H2000	H11
3	.5	30.0	25.0	20.0	.005	.005	.250	565	A3H3000	H16
3.3	.5	.500	.500	.500	.2	.1	1	130	B3.3G50	G3
3.3	.5	1.2	1.1	1.0	.2	.1	1	160	B3.3G120	G3
3.3	.5	2.1	2.1	2.0	.5	.1	1.5	230	B3.3G210	G5
3.3	.5	4.0	3.5	3.0	.5	.1	1.5	230	B3.3G400	G6
3.3	.5	6.0	4.3	3.5	.005	.005	.250	280	A3.3MT600	M6
3.3	.5	7.0	5.9	4.9	.5	.1	1.5	285	B3.3G700	G9
3.3	.5	9.0	7.2	5.5	.005	.005	.250	330	A3.3MT900	M9
3.3	.5	12.0	10.0	8.0	.005	.005	.250	385	A3.3MT1200	M13
3.3	.5	17.0	14.5	12.0	.005	.005	.250	420	A3.3H1700	H8
3.3	.5	22.0	18.5	15.5	.005	.005	.250	475	A3.3H2200	H11
3.3	.5	32.0	27.0	22.5	.005	.005	.250	565	A3.3H3200	H16
5	.5	.500	.500	.500	.1	.1	1	130	B5G50	G3
5	.5	1.2	1.1	1.0	.1	.1	1	160	B5G120	G3
5	.5	1.7	1.5	1.3	.2	.1	1.5	175	B5G170	G3
5	.5	2.1	2.1	2.0	.2	.1	1.5	185	B5G210	G5
5	.5	4.0	3.5	3.0	.3	.1	1.5	220	B5G400	G6
5	.5	5.0	4.4	3.0	.4	.1	1.5	235	B5G500	G6
5	.5	5.1	3.6	2.6	.005	.005	.250	265	A5MT510	M6
5	.5	6.0	4.3	3.5	.005	.005	.250	285	A5MT600	M6
5	.5	8.0	7.0	5.0	.4	.1	1.5	295	B5G800	G9
5	.5	9.0	7.2	5.5	.005	.005	.250	330	A5MT900	M9
5	.5	10.0	9.0	7.0	.4	.1	1.5	335	B5G1000	G13
5	.5	12.0	10.0	8.0	.005	.005	.250	385	A5MT1200	M13
5	.5	17.0	14.5	12.0	.005	.005	.250	420	A5H1700	H8
5	.5	22.0	18.5	15.0	.005	.005	.250	475	A5H2200	H11
5	.5	32.0	27.0	22.0	.005	.005	.250	565	A5H3200	H16
6	1	.500	.500	.500	.1	.1	1	130	B6G50	G3
6	.5	1.2	1.1	1.0	.1	.1	1	160	B6G120	G3
6	.5	1.7	1.5	1.3	.2	.1	1.5	175	B6G170	G3
6	.5	3.2	3.1	3.0	.3	.1	1.5	215	B6G320	G6
6	.5	4.9	3.5	2.5	.005	.005	.250	235	A6MT490	M6
6	.5	6.0	4.5	3.5	.005	.005	.250	275	A6MT600	M6
6	.5	8.5	7.5	5.2	.005	.005	.250	330	A6MT850	M9
6	.5	11.0	9.3	7.5	.005	.005	.250	385	A6MT1100	M13
6	.5	16.0	13.6	11.2	.005	.005	.250	425	A6H1600	H8
6	.5	21.0	17.0	14.0	.005	.005	.250	480	A6H2100	H11
6	.5	28.0	23.0	19.0	.005	.005	.250	565	A6H2800	H16
7	1	.500	.500	.500	.1	.05	1	135	B7G50	G3
7	1	1.0	1.0	1.0	.1	.1	1	175	B7G100	G3
7	.5	2.0	2.0	2.0	.2	.1	1.5	195	B7G200	G5
7	.5	3.0	2.7	2.5	.3	.1	1.5	225	B7G300	G6
7	.5	5.0	4.0	3.0	.005	.005	.250	275	A7MT500	M6
7	.5	6.5	5.2	4.0	.4	.1	1.0	285	B7G650	G9
7	.5	8.0	6.5	5.0	.005	.005	.250	335	A7MT800	M9
7	.5	10.0	8.0	7.0	.4	.1	1.5	345	B7G1000	G13
7	.5	10.0	8.8	7.0	.005	.005	.250	385	A7MT1000	M13
8	1	.500	.500	.500	.1	.05	1	135	B8G50	G3
8	1	1.0	1.0	1.0	.1	.1	1	175	B8G100	G3
8	.5	2.0	2.0	2.0	.2	.1	1.5	195	B8G200	G5
8	.5	3.0	2.7	2.5	.2	.1	1.5	225	B8G300	G6
8	.5	5.0	4.0	3.5	.005	.005	.250	275	A8MT500	M6
8	.5	6.5	5.2	4.0	.3	.1	1.5	300	B8G650	G9
8	.5	8.0	6.5	5.0	.005	.005	.250	335	A8MT800	M9
8	.5	10.0	8.0	7.0	.4	.1	1.5	345	B8G1000	G13
8	.5	10.5	8.8	7.0	.005	.005	.250	385	A8MT1050	M13
8	.5	20.0	16.8	13.5	.005	.005	.250	505	A8H2000	H11
8	.5	28.0	23.0	19.0	.005	.005	.250	565	A8H2800	H16
9	1	.500	.500	.500	.1	.05	1	135	B9G50	G3
9	1	1.0	1.0	1.0	.1	.1	1	175	B9G100	G3
9	.5	2.0	2.0	2.0	.2	.1	1.5	195	B9G200	G5
9	.5	3.0	2.7	2.5	.2	.1	1.5	225	B9G300	G6
9	.5	6.5	5.2	4.0	.3	.1	1.5	300	B9G650	G9
9	.5	10.0	8.3	7.0	.005	.005	.250	385	A9MT1000	M13

*or 2 mv, whichever is greater

Nominal Output Voltage	Adj-just ±V	Output Current Amps. at			Regulation		Ripple mV RMS	(\$) Price	Model	Case Size
		40°C	55°C	71°C	Load ± %	Line ± %				
10	1	.500	.500	.500	.1	.05	1	130	B10G50	G3
10	1	1.0	1.0	1.0	.1	.1	1	160	B10G100	G3
10	.5	2.0	2.0	2.0	.2	.1	1.5	195	B10G200	G5
10	.5	3.0	2.7	2.5	.2	.1	1.5	225	B10G300	G6
10	.5	4.5	3.6	2.7	.005	.005	.250	275	A10MT450	M6
10	.5	6.0	5.0	4.0	.3	.1	1.5	300	B10G600	G9
10	.5	7.5	6.0	4.5	.005	.005	.250	340	A10MT750	M9
10	.5	10.0	8.3	7.0	.4	.1	1.5	345	B10G1000	G13
10	.5	10.0	8.3	7.0	.005	.005	.250	385	A10MT1000	M13
10	.5	14.0	11.9	9.8	.005	.005	.250	450	A10H1400	H8
10	.5	18.0	15.0	12.0	.005	.005	.250	505	A10H1800	H11
10	.5	25.0	20.0	16.5	.005	.005	.250	565	A10H2500	H16
12	1	.500	.500	.500	.1	.05	1	130	B12G50	G3
12	1	1.0	1.0	1.0	.1	.1	1	160	B12G100	G3
12	.5	2.0	1.7	1.5	.2	.1	1.5	190	B12G200	G5
12	.5	3.0	2.7	2.5	.2	.1	1.5	220	B12G300	G6
12	.5	3.8	3.3	2.6	.2	.1	1.5	230	B12G380	G6
12	.5	4.0	3.3	2.6	.005	.005	.250	270	A12MT400	M6
12	.5	6.5	5.3	4.0	.3	.1	1.5	300	B12G650	G9
12	.5	6.5	5.3	4.0	.005	.005	.250	335	A12MT650	M9
12	.5	9.0	7.5	6.0	.4	.1	1.5	345	B12G900	G13
12	.5	9.0	7.5	6.0	.005	.005	.250	385	A12MT900	M13
12	.5	13.0	11.0	9.1	.005	.005	.250	450	A12H1300	H8
12	.5	17.0	14.3	11.5	.005	.005	.250	505	A12H1700	H11
12	.5	21.0	17.5	14.5	.005	.005	.250	565	A12H2100	H16
13	1	.500	.500	.500	.1	.05	1	150	B13G50	G3
13	1	1.5	1.4	1.3	.1	.1	1.5	190	B13G150	G3
13	.5	2.0	2.0	2.0	.2	.1	1.5	215	B13G200	G5
13	.5	3.0	2.7	2.5	.2	.1	1.5	235	B13G300	G6
13	.5	3.5	3.0	2.5	.005	.005	.250	275	A13MT350	M6
13	.5	5.0	4.5	4.0	.2	.1	1.5	295	B13G500	G9
13	.5	8.0	7.5	7.0	.3	.1	1.5	345	B13G800	G13
13	.5	8.0	7.5	7.0	.005	.005	.250	385	A13MT800	M13
14	1	.500	.500	.500	.1	.05	1	150	B14G50	G3
14	1	1.5	1.4	1.3	.1	.1	1.5	190	B14G150	G3
14	.5	2.0	2.0	2.0	.2	.1	1.5	215	B14G200	G5
14	.5	3.0	2.7	2.5	.2	.1	1.5	235	B14G300	G6
14	.5	3.0	2.7	2.5	.005	.005	.250	270	A14MT300	M6
14	.5	5.0	4.5	4.0	.2	.1	1.5	285	B14G500	G9
14	.5	7.0	6.5	6.0	.3	.1	1.5	345	B14G700	G13
14	.5	8.0	7.5	7.0	.005	.005	.250	385	A14MT800	M13
15	1	.750	.750	.750	.1	.1	1	155	B15G75	G3
15	1	1.0	1.0	1.0	.1	.1	1	160	B15G100	G3
15	1	1.5	1.4	1.3	.1	.1	1.5	180	B15G150	G3
15	.5	2.0	1.7	1.5	.1	.1	1.5	195	B15G200	G5
15	.5	3.0	2.8	2.5	.1	.1	1.5	225	B15G300	G6
15	.5	3.0	2.8	2.5	.005	.005	.250	245	A15MT300	M6
15	.5	4.2	3.8	3.0	.15	.1	1.5	270	B15G420	G9
15	.5	5.5	4.7	4.0	.005	.005	.250	335	A15MT550	M9
15	.5	6.0	5.0	4.0	.2	.1	1.5	325	B15G600	G9
15	.5	7.0	6.0	5.0	.2	.1	1.5	345	B15G700	G13
15	.5	8.0	6.5	5.5	.005	.005	.250	385	A15MT800	M13
15	.5	11.5	9.7	8.0	.005	.005	.250	450	A15H1150	H8
15	.5	15.0	12.8	10.5	.005	.005	.250	500	A15H1500	H11
15	.5	19.0	16.3	13.5	.005	.005	.250	565	A15H1900	H16
16	1	.300	.300	.300	.05	.05	1	115	B16G30	G3
16	.5	1.0	1.0	1.0	.1	.1	1	175	B16G100	G3
16	.5	3.0	2.5	2.0	.15	.1	1	265	B16G300	G9
16	.5	5.0	5.0	5.0	.2	.1	1.5	335	B16G500	G9
16	.5	6.5	6.0	5.5	.005	.005	.250	385	A16MT650	M13
18	1	.300	.300	.300	.05	.05	1	115	B18G30	G3
18	1	.750	.750	.750	.1	.1	1	155	B18G75	G3
18	.5	1.1	1.1	1.0	.1	.1	1	175	B18G110	G5
18	.5	2.1	2.0	1.8	.1	.1	1	215	B18G210	G6
18	.5	2.1	2.1	2.0	.005	.005	.250	235	A18MT210	M6
18	.5	3.0	2.8	2.5	.15	.1	1	265	B18G300	G9
18	.5	4.5	4.0	3.5	.005	.005	.250	325	A18MT450	M9
18	.5	6.5	6.0	5.5	.005	.005	.250	385	A18MT650	M13
18	.5	14.0	12.0	10.0	.005	.005	.250	505	A18H1400	H11
18	.5	18.0	15.5	13.0	.005	.005	.250	565	A18H1800	H16
20	1	.300	.300	.300	.05	.05	1	115	B20G30	G3
20	1	.750	.750	.750	.1	.05	1	155	B20G75	G3
20	1	1.1	1.1	1.0	.1	.1	1	175	B20G110	G5
20	.5	1.7	1.7	1.5	.1	.1	1.5	190	B20G170	G5
20	.5	2.0	2.0	2.0	.005	.005	.250	245	A20MT200	M6
20	.5	2.7	2.0	1.2	.15	.1	1.5	265	B20G270	G6
20	.5	4.0	3.5	3.0	.005	.005	.250	325	A20MT400	M9
20	.5	5.0	5.0	5.0	.15	.1	1.5	340	B20G500	G13
20	.5	6.0	5.5	5.0	.005	.005	.250	385	A20MT600	M13
20	.5	9.5	8.0	6.6	.005	.005	.250	450	A20H950	H8
20	.5	13.0	11.3	9.5	.005	.005	.250	505	A20H1300	H11
20	.5	16.0	14.0	12.0	.005	.005	.250	565	A20H1600	H16

SERIES A & B

Nominal Output Voltage	Adj-just ±V	Output Current Amps. at			Regulation		Ripple mV RMS	(\$) Price	Model	Case Size
		40°C	55°C	71°C	Load ± %	Line ± %				
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	.1	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-just ±V	Output Current Amps. at			Regulation		Ripple mV RMS	(\$) Price	Model	Case Size
		40°C	55°C	71°C	Load ± %	Line ± %				
48	1	.200	.200	.200	.05	.05	1	150	B48GT20	G3
48	1	.400	.400	.400	.05	.05	1	195	B48GT40	G3
48	1	.600	.600	.600	.1	.1	1	235	B48GT60	G5
48	1	1.1	1.0	.600	.1	.1	1.5	265	B48GT110	G6
48	1	1.2	1.0	.800	.005	.005	.250	295	A48MT120	M6
48	1	1.8	1.6	1.2	.005	.005	.250	340	A48MT180	M9
48	1	3.0	2.6	2.1	.005	.005	.250	395	A48MT300	M13
48	1	6.0	5.0	4.0	.005	.005	.250	530	A48HT600	H11
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	165	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	1	5.6	4.6	3.6	.01	.01	1	655	A75HT560	H16
80	1	.100	.100	.100	.05	.05	1	185	B80GT10	G3
80	1	.200	.200	.200	.05	.05	1	220	B80GT20	G3
85	1	.200	.200	.200	.05	.05	1	220	B85GT20	G3
90	1	.200	.200	.200	.05	.05	1	220	B90GT20	G3
90	1	.500	.400	.300	.005	.005	.250	315	A90MT50	M6
90	1	.800	.700	.600	.005	.005	.250	370	A90MT80	M9
90	1	1.5	1.3	1.0	.005	.005	.250	410	A90MT150	M13
90	1	3.3	2.7	2.1	.01	.01	1	560	A90HT330	H11
90	1	4.4	3.6	2.9	.01	.01	1	665	A90HT440	H16
95	1	.200	.200	.200	.05	.05	1	225	B95GT20	G3
100	1	.100	.100	.100	.05	.05	1	210	B100GT10	G3
100	1	.200	.200	.200	.05	.05	1	225	B100GT20	G3
100	1	.460	.460	.340	.1	.1	1.5	275	B100GT46	G6
100	1	.650	.650	.650	.1	.1	1.5	310	B100G65	G6
100	1	.700	.600	.500	.005	.005	.250	355	A100M70	M6
100	1	1.3	1.2	1.0	.005	.005	.250	410	A100MT130	M13
100	1	3.0	2.5	2.0	.01	.01	1	560	A100HT300	H11
100	1	4.0	3.3	2.6	.01	.01	1	665	A100HT400	H16
110	1	.200	.200	.200	.05	.05	1	230	B110GT20	G3
120	1	.100	.100	.100	.05	.05	1	215	B120GT10	G3
120	1	.200	.200	.200	.05	.05	1	230	B120GT20	G3
120	1	.400	.400	.300	.1	.1	1.5	270	B120GT40	G6
120	1	.550	.550	.550	.1	.1	1.5	325	B120G55	G6
120	1	.600	.500	.400	.005	.005	.250	380	A120M60	M6
120	1	1.2	1.1	1.0	.005	.005	.250	410	A120MT120	M13
120	1	2.5	2.0	1.6	.01	.01	1	570	A120HT250	H11
120	1	3.5	2.9	2.3	.01	.01	1	675	A120HT350	H16
125	1	.200	.200	.200	.05	.05	1	265	B125GT20	G3
125	1	.400	.400	.300	.1	.1	1.5	280	B125GT40	G6
125	1	.500	.400	.300	.005	.005	.250	390	A125MT50	M6
125	1	.550	.550	.550	.1	.1	1.5	335	A125G55	G6
125	1	1.2	1.1	1.0	.005	.005	.250	420	A125MT120	M13
125	1	2.5	2.0	1.6	.01	.01	1	580	A125HT250	H11
125	1	3.5	2.9	2.3	.01	.01	1	680	A125HT350	H16
130	1	.200	.200	.200	.05	.05	1	270	B130GT20	G3
135	1	.200	.200	.200	.05	.05	1	270	B135GT20	G3
140	1	.200	.200	.200	.05	.05	1	270	B140GT20	G3
150	1	.100	.100	.100	.05	.05	1	220	B150GT10	G3
150	1	.200	.200	.200	.05	.05	1	265	B150GT20	G3
150	1	.320	.320	.250	.1	.1	1.5	285	B150GT32	G6
150	1	.420	.420	.420	.1	.1	1.5	310	B150GT42	G9
150	1	1.0	.900	.800	.005	.005	.250	450	A150MT100	M13
150	1	3.0	2.5	2.0	.01	.01	1	690	A150HT300	H16
200	1	.100	.100	.100	.1	.05	1.5	265	B200GT10	G3



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- Thermal protection
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- 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; $\pm 0.02\%/^{\circ}\text{C}$ (typical).
Current mode; $\pm 0.1\%/^{\circ}\text{C}$ (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 μs 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

Input to output:	4242 Vdc	300 Vdc
Input to case:	2121 Vdc	300 Vdc
Output to case:	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

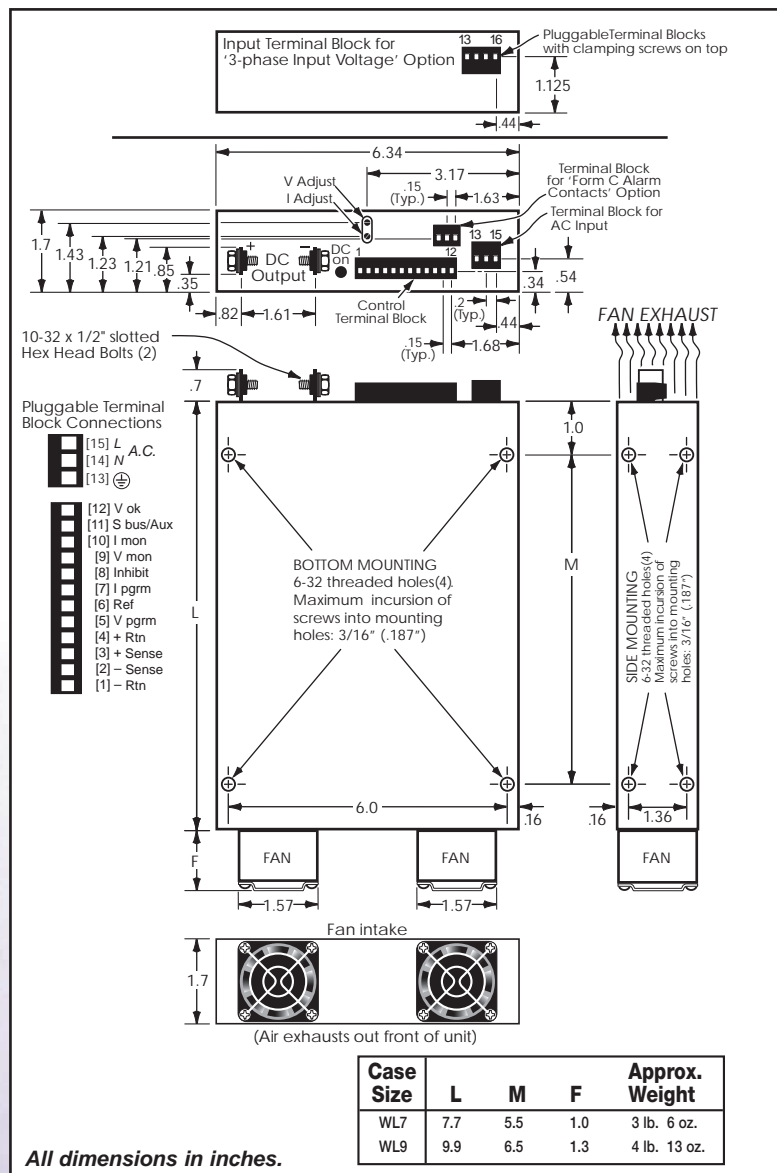
Output Enable: To enable the DC output, the Inhibit terminal must be tied to the -DC output. An open collector or contact closure can be used. To order, add suffix "E" to the model number. No increase in price.

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



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

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

Transient Response: 300 μS 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 $+71^{\circ}\text{C}$.

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

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)		Effic. (Typ.) %**	(\$ 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

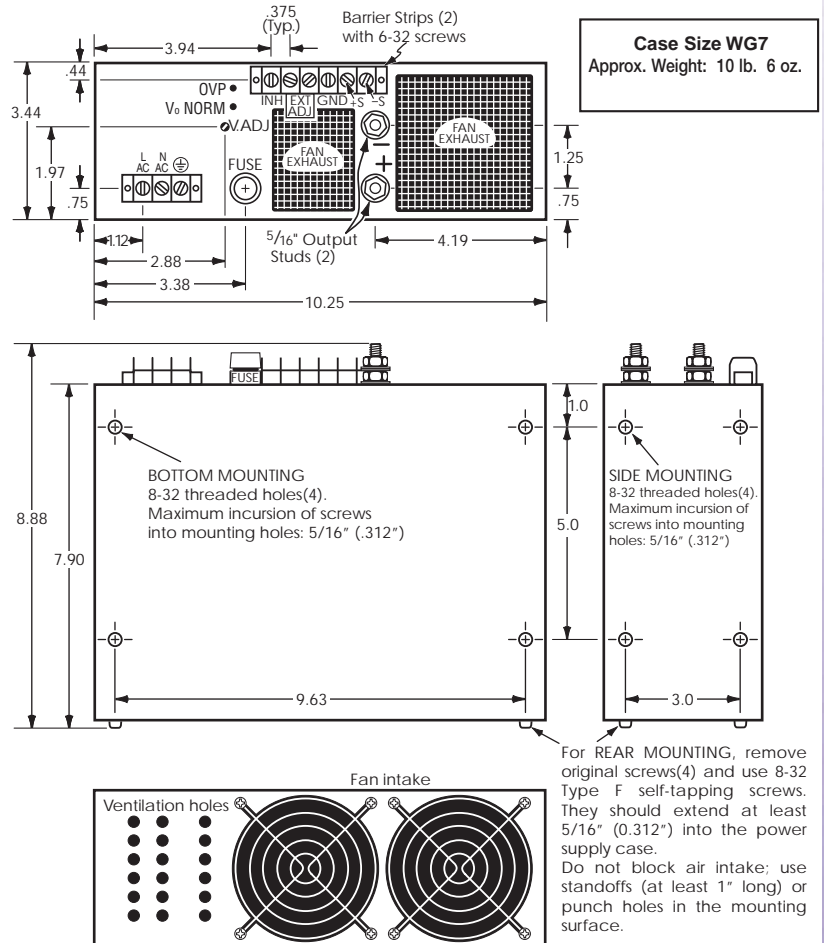
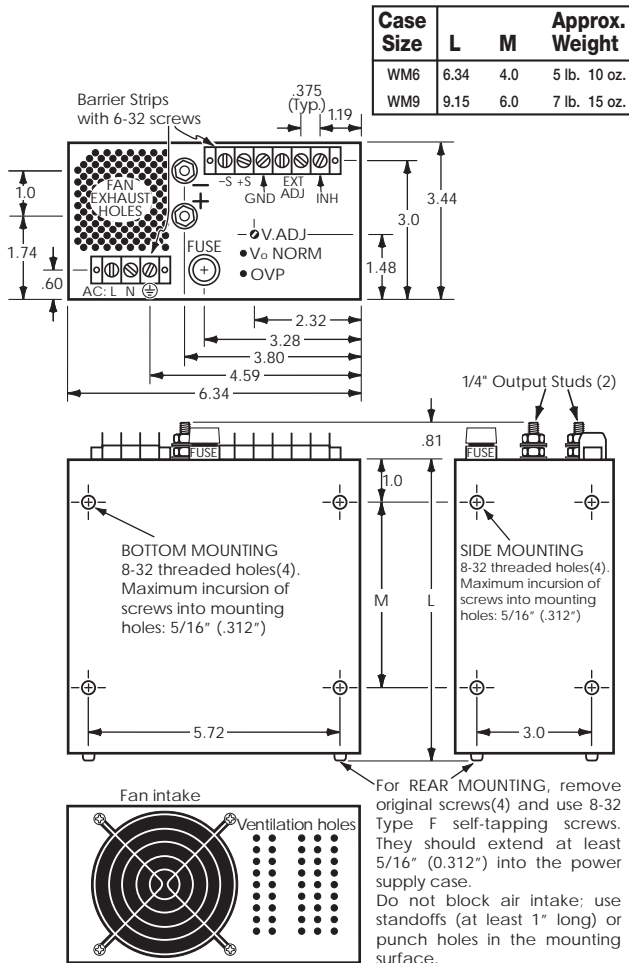


SINGLE OUTPUT MODELS

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



Models in case size YA have output voltage adjustment on rear panel.

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.

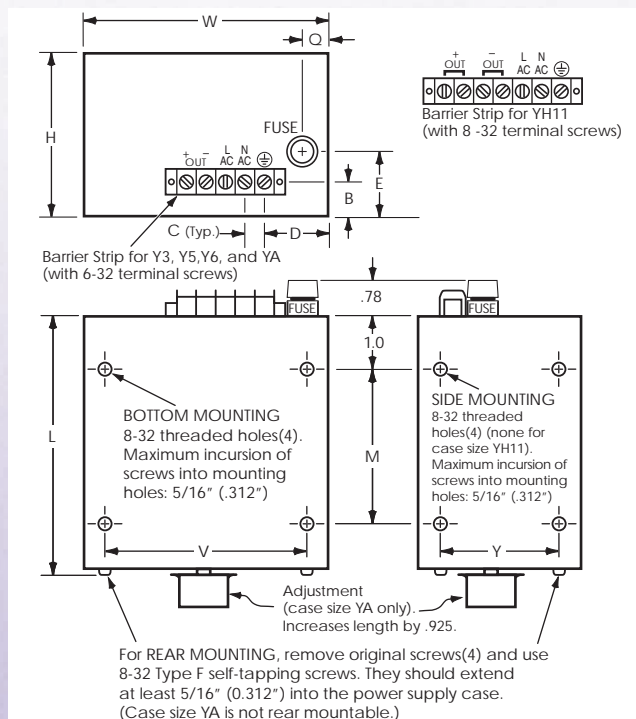
Ambient Operating Temperature: -10 to +65°C.
No derating required.

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	40UY100	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	45UY100	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	50UY100	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	250UY20	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
-  (Gold Box models)
- Five Year Warranty



Narrow Profile

Gold Box

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%/°C (Typical).

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

Storage Temperature: -55 to +85°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

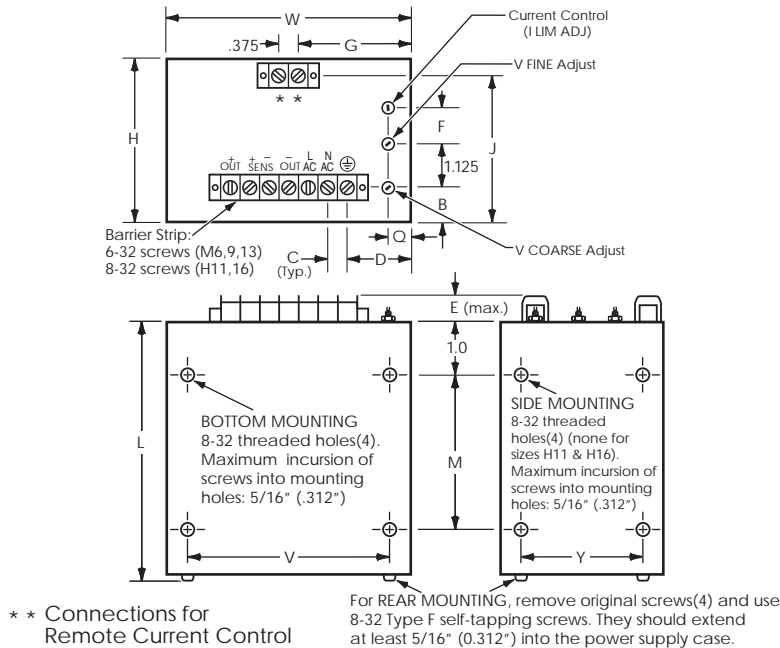
Output Voltage Range	Output Current Amps. at			Voltage Prgmg. Coeff. (Ω/V)	Case Size	Voltage Programmable Fixed Current Limiting		Voltage Programmable Adjust. Current Limiting	
	40°C	55°C	71°C			Model	Price(\$)	Model	Price(\$)
0-6	1.2	1.2	1.2	820	M6	A06MX120	225	P06MX120	260
0-6	2.0	2.0	2.0	820	M6	A06MX200	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 Prgmg. 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

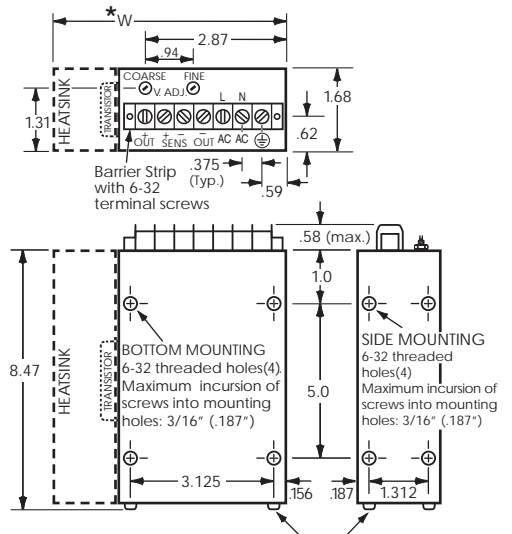
* Not CE certified.

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.

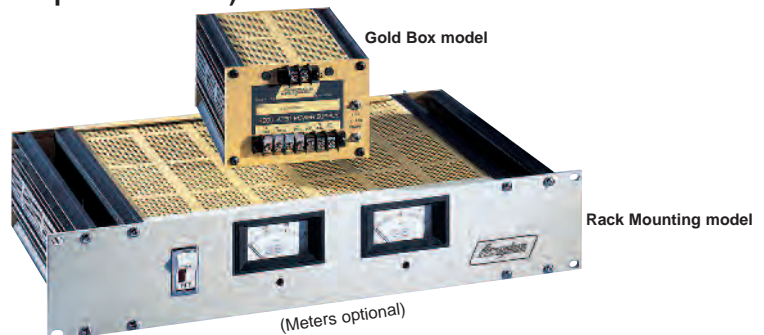
Polarity: Output is floating; either positive or negative terminal may be grounded or floated up to 300 volts above ground. When using a control voltage input, its negative side must be connected to the -S (sense) terminal.

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.

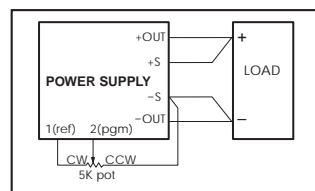
Voltmeter (Rack Mounting models): Add suffix "F" to model number and \$60.00 to price.

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

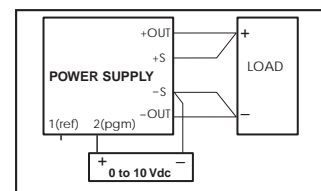
Front Panel Controls (Rack Mounting models): For voltage controls (coarse and fine) mounted on the front panel, instead of the standard screwdriver-slot adjustments at the rear, add suffix "P" to the model number and \$25.00 to price.

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	Y0100MX10	380
0-100	.25	.20	.15	M6	Y0100MX25	435
0-100	.45	.36	.27	M9	Y0100MX45	500
0-100	.60	.48	.36	M13	Y0100MX60	560
0-100	1.2	.96	.72	H11	Y0100HX120	690
0-100	1.5	1.2	.90	H16	Y0100HX150	785



Programming with a Potentiometer

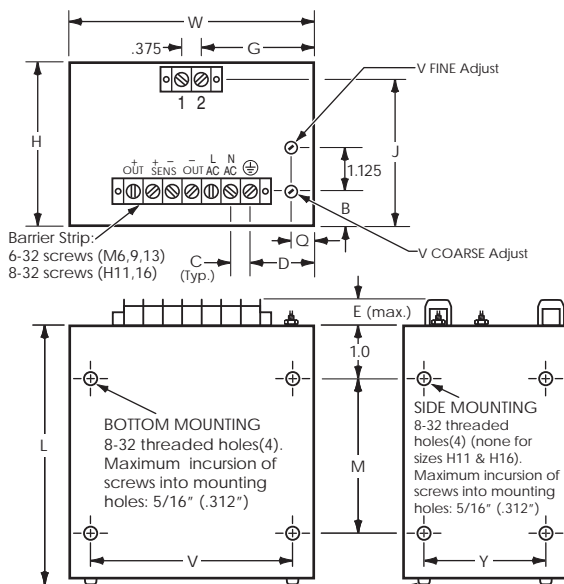


Programming with a Control Voltage

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	Y0100PX1.2	680
0-100	1.5	1.2	.9	5P12	Y0100PX1.5	860

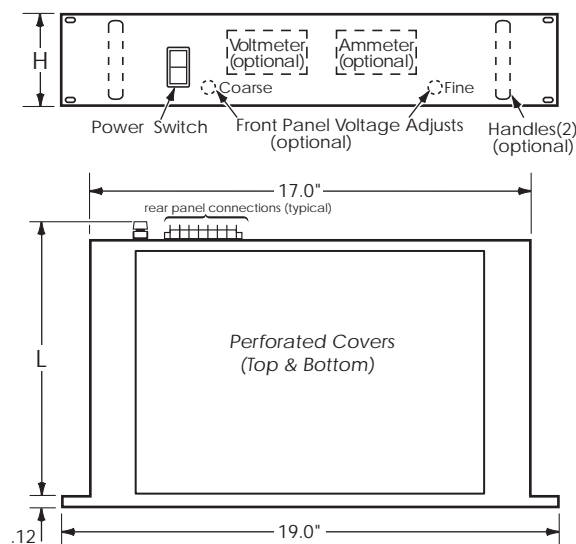
Gold Box



For REAR MOUNTING, remove original screws(4) and use 8-32 Type F self-tapping screws. They should extend at least 5/16" (0.312") into the power supply case.

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.

Rack Mounting



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.

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



Narrow Profile

Gold Box

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.

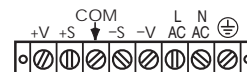
230 Volt Input: All models can be alternately furnished for operation on inputs of 210-250 VAC, 50-400 Hz. To order, add suffix "-230" to model number and \$25.00 to price. The "-230" option requires two additional days.

GOLD BOX MODELS

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

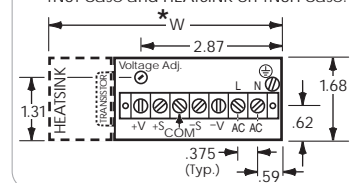
Nominal Output Voltages	Adjust Range $\pm V$	Amps. per Output at			(\$) Price	Model	Case Size
		40°C	55°C	71°C			
$\pm 12^*$	1	.500	.500	.400	225	FD12-50A	TN6T
$\pm 12^*$	.5	1.0	.900	.800	300	LD12-100	TN8H
$\pm 15^*$	1	.500	.500	.400	225	FD15-50A	TN6T
$\pm 15^*$	.5	1.0	.900	.800	300	LD15-100	TN8H

* Not CE certified.

See page 63 for complete drawing.

FRONT COVER for TN6T & TN8H cases.

* W dimension includes TRANSISTOR on TN6T case and HEATSINK on TN8H case.



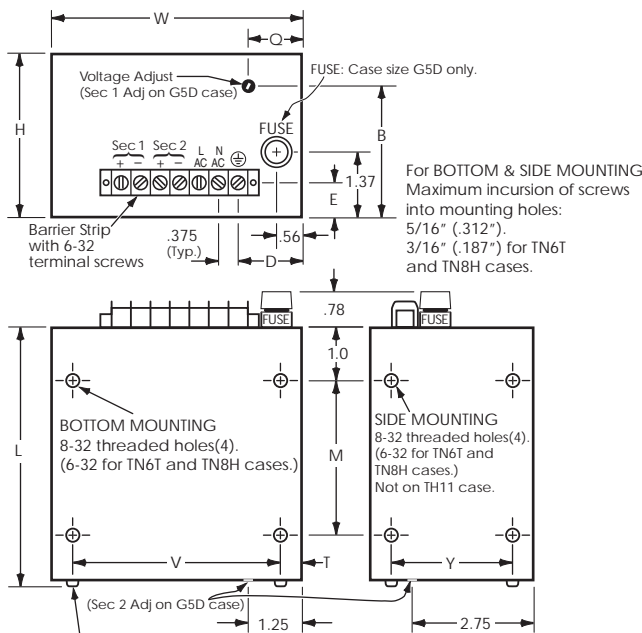
Gold Box
DUAL ISOLATED OUTPUTS
(User-selectable)
 LINEAR REGULATED
 AC-DC

- 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)



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.

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

Overvoltage 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.

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
-
- 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

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

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.

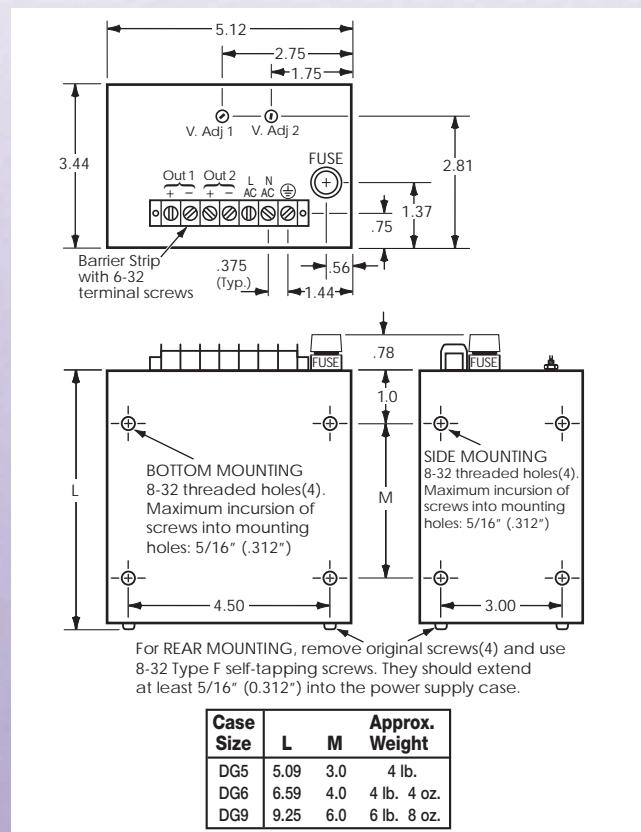
OPTIONS

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.

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



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

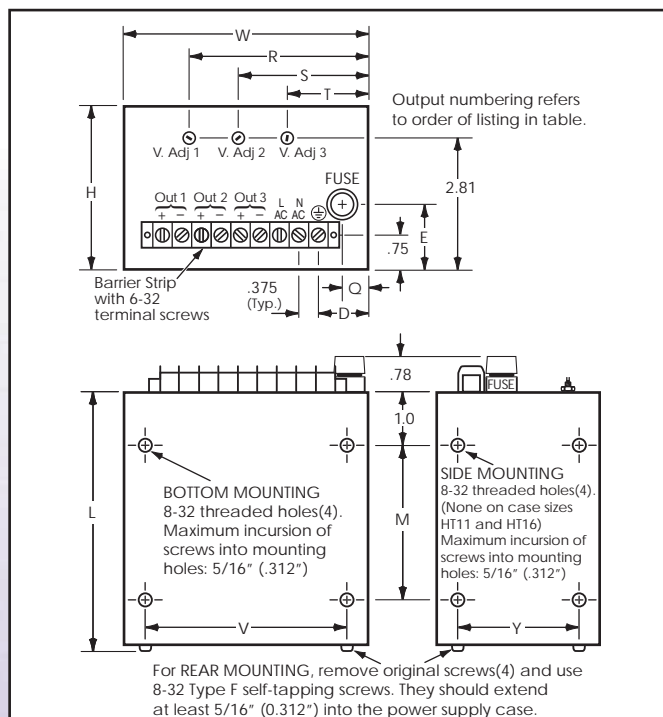
Case size HT11 \$65.00

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	(\$ Price)	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	400	5512T9A	GT9
5	.25	2.0	.15	.15	1			
12	1	1.2	.15	.15	1			
5	.25	6.0	.15	.15	1	400	5912T9A	GT9
5	.25	1.4	.15	.15	1			
12	1	1.2	.15	.15	1			
5	.25	2.0	.15	.15	1	295	51212T5A	GT5
5	.25	.300	.15	.15	1			
12	1	.300	.15	.15	1			
5	.25	3.0	.15	.15	1	330	51212T6A	GT6
5	.25	.600	.15	.15	1			
12	1	.600	.15	.15	1			
5	.25	6.0	.15	.15	1	400	51212T9A	GT9
5	.25	1.2	.15	.15	1			
12	1	1.2	.15	.15	1			
5	.25	8.0	.15	.15	1	450	51212T13A	GT13
5	.25	1.3	.15	.15	1			
12	1	1.3	.15	.15	1			
5	.5	15.0	.15	.15	1	530	51212T11A	HT11
5	.5	2.0	.15	.15	1			
12	1	2.0	.15	.15	1			
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.

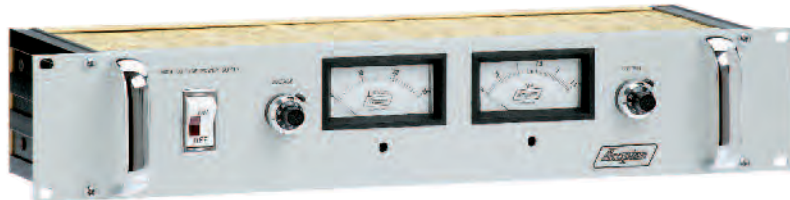
Nominal Output Voltages	Adjust Range \pm V	Output Current Amps.	Regulation		Ripple mV RMS	(\$ Price)	Model	Case Size
			Load \pm %	Line \pm %				
5	.5	20.0	.15	.15	1	595	51212T16A	HT16
12	1	3.0	.15	.15	1			
12	1	3.0	.15	.15	1			
5	.25	2.0	.15	.15	1	295	51515T5A	GT5
5	.25	.250	.15	.15	1			
15	1	.250	.15	.15	1			
5	.25	3.0	.15	.15	1	330	51515T6A	GT6
5	.25	.500	.15	.15	1			
15	1	.500	.15	.15	1			
5	.25	6.0	.15	.15	1	400	51515T9A	GT9
5	.25	1.0	.15	.15	1			
15	1	1.0	.15	.15	1			
5	.25	8.0	.15	.15	1	450	51515T13A	GT13
5	.25	1.1	.15	.15	1			
15	1	1.1	.15	.15	1			
5	.5	15.0	.15	.15	1	530	51515T11A	HT11
5	.5	1.5	.15	.15	1			
15	1	1.5	.15	.15	1			
5	.5	20.0	.15	.15	1	595	51515T16A	HT16
5	.5	2.5	.15	.15	1			
15	1	2.5	.15	.15	1			

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 μ 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 μ 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.

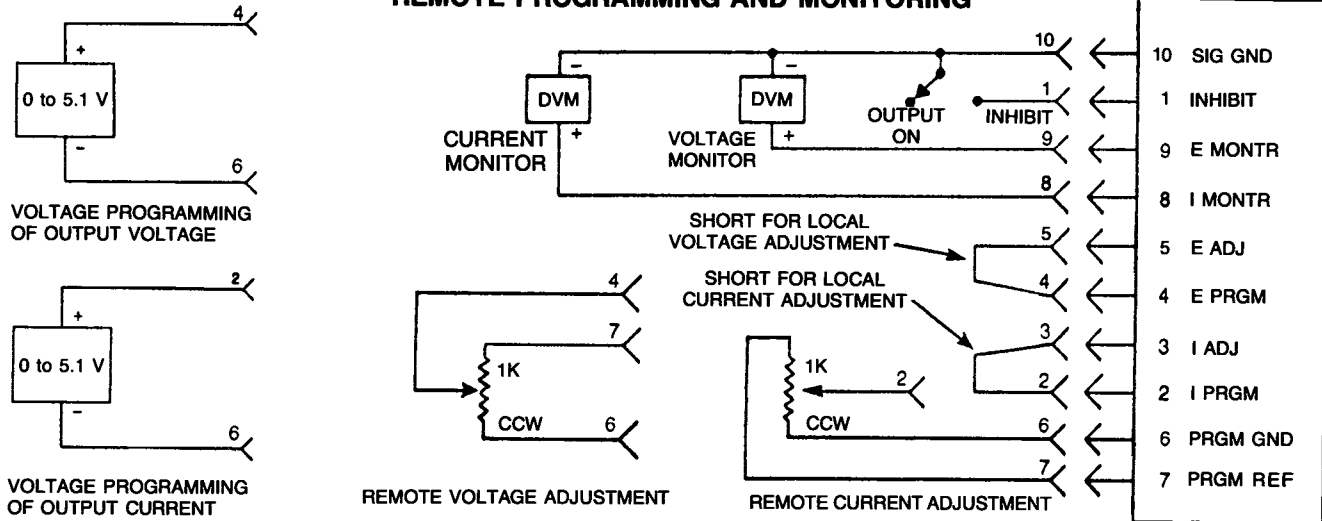
Output: High voltage connector (Type varies with model number). An 8' shielded output cable, with mating connector installed, is provided.

OPTIONS

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

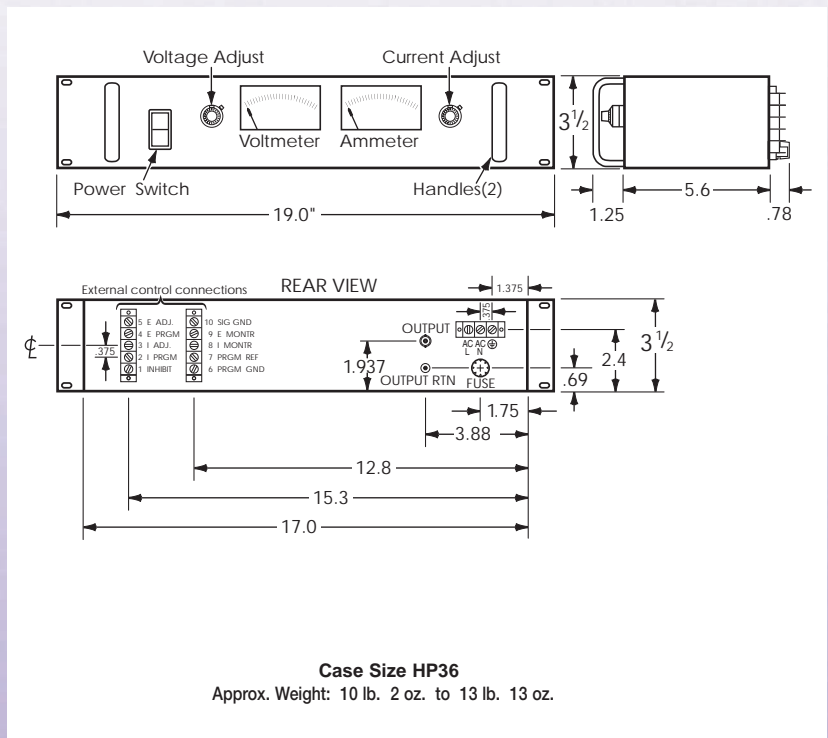
230 Volt Input: All models can be alternately furnished for operation on inputs of 210-250 VAC, 50-400 Hz, single phase. To order, add suffix "-230" to model number and add \$40.00 to price. The "-230" option requires two additional days.

REMOTE PROGRAMMING AND MONITORING



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	100:1	1305	P010HP6
0-12	2.5	10,000:1	1,000:1	1195	P012HP2.5
0-12	5	10,000:1	100:1	1305	P012HP5
0-15	2	10,000:1	1,000:1	1245	P015HP2
0-15	4	10,000:1	100:1	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.



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 μA .

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 μA 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.

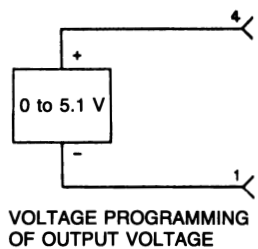
OPTIONS

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

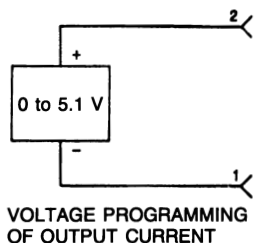
Output Connector: Models with an output of 5000 volts or less can be provided with an MHV connector (and 8' long detachable shielded output cable with mating MHV connector installed on one end) instead of the flying lead. To order, add suffix letter "T" to the model number and \$50.00 to price.

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.

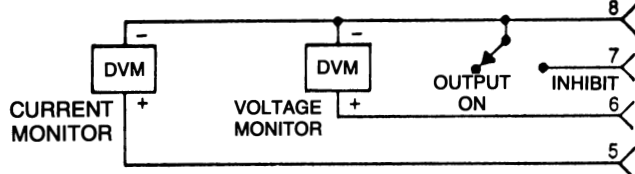
REMOTE PROGRAMMING AND MONITORING



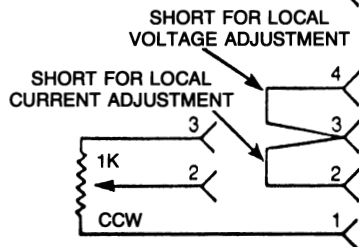
VOLTAGE PROGRAMMING OF OUTPUT VOLTAGE



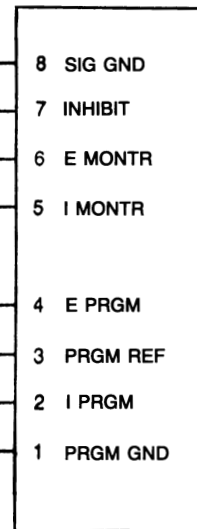
VOLTAGE PROGRAMMING OF OUTPUT CURRENT



REMOTE VOLTAGE ADJUSTMENT



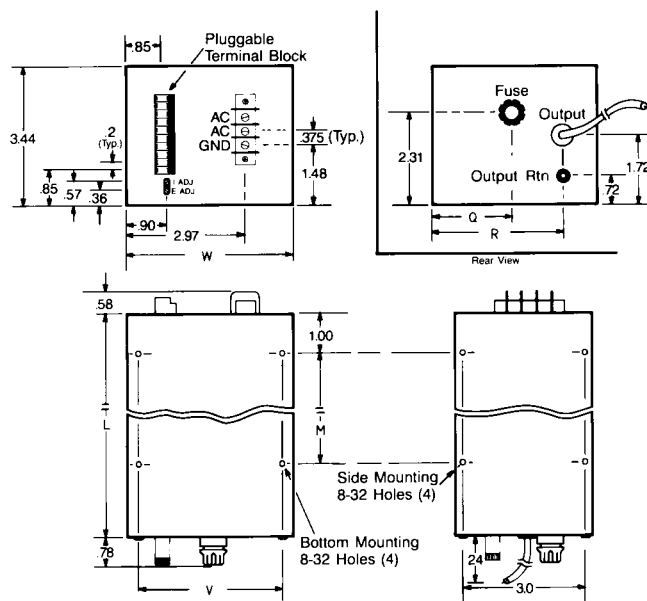
REMOTE CURRENT ADJUSTMENT



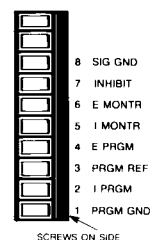
AC-DC MODELS

Output Range kVdc	Output Current mA	Output Monitor Ratio		(\$) Price	Model (Positive Output)*	Case Size
		Voltage	Current mV/mA			
0-1 0-1	30 60	1,000:1 1,000:1	100:1 10:1	700 810	P01HA30 P01HA60	HA349 HA359
0-1.5 0-1.5	20 40	1,000:1 1,000:1	100:1 100:1	700 810	P01.5HA20 P01.5HA40	HA349 HA359
0-2 0-2	15 30	1,000:1 1,000:1	100:1 100:1	700 810	P02HA15 P02HA30	HA349 HA359
0-2.5 0-2.5	12 24	1,000:1 1,000:1	100:1 100:1	700 810	P02.5HA12 P02.5HA24	HA349 HA359
0-3.5 0-3.5	8.5 17	1,000:1 1,000:1	100:1 100:1	700 810	P03.5HA8.5 P03.5HA17	HA349 HA359
0-5 0-5	6 12	10,000:1 10,000:1	100:1 100:1	770 880	P05HA6 P05HA12	HA349 HA359
0-7.5 0-7.5	4 8	10,000:1 10,000:1	100:1 100:1	770 880	P07.5HA4 P07.5HA8	HA349 HA359
0-10 0-10	3 6	10,000:1 10,000:1	1,000:1 100:1	770 880	P010HA3 P010HA6	HA349 HA359
0-12 0-12	2.5 5	10,000:1 10,000:1	1,000:1 100:1	770 880	P012HA2.5 P012HA5	HA349 HA359
0-15 0-15	2 4	10,000:1 10,000:1	1,000:1 100:1	810 920	P015HA2 P015HA4	HA349 HA359
0-18 0-18	1.6 3.2	10,000:1 10,000:1	1,000:1 1,000:1	810 920	P018HA1.6 P018HA3.2	HA349 HA359
0-20 0-20	1.5 3	10,000:1 10,000:1	1,000:1 1,000:1	920 1025	P020HA1.5 P020HA3	HA349 HA359
0-22 0-22	1.3 2.6	10,000:1 10,000:1	1,000:1 1,000:1	920 1025	P022HA1.3 P022HA2.6	HA349 HA359
0-25 0-25	1.2 2.4	10,000:1 10,000:1	1,000:1 1,000:1	1025 1135	P025HA1.2 P025HA2.4	HA349 HA359
0-30 0-30	1 2	10,000:1 10,000:1	1,000:1 1,000:1	1025 1135	P030HA1 P030HA2	HA349 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.

High Voltage DC-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)



DC inputs from 21.6 to 32.0 volts may be used for these versatile power supplies. Although their outputs are continuously adjustable from 0 to their maximum ratings, 20-turn controls permit precise setability.

SPECIFICATIONS

Input Voltage: +21.6 to 32.0 Vdc.

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 μ 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.

These supplies have been designed to withstand severe arcing and short circuits without damage. They are ruggedly constructed with quality components to provide many years of reliable service.

Efficiency: Greater than 70% at full load.

Response Time: Less than 5 mS for 100 μ 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). 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 or for DIN rail mounting, see accessory Mounting Kits on page 91.

OPTIONS

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.

OPTIONAL OUTPUT CONNECTOR

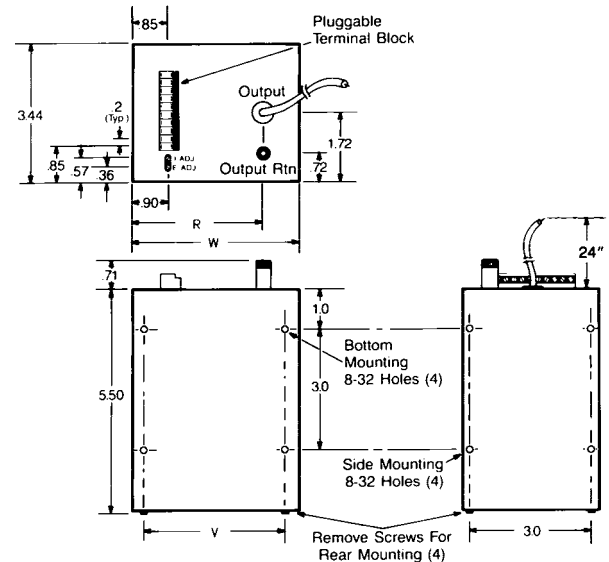
Models with an output of 5000 volts or less can be provided with an MHV connector (and 8' long detachable output cable with mating MHV connector installed on one end) instead of the flying lead. To order, add suffix letter "T" to the model number and \$50.00 to price.



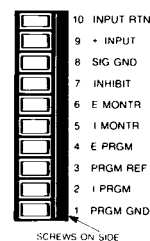
DC-DC MODELS

Output Range kVdc	Output Current mA	Output Monitor Ratio		(\$) Price	Model (Positive 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%/°C (Typical).

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

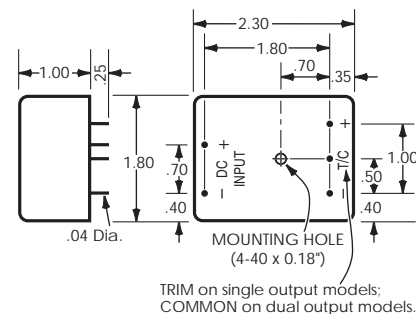
Storage Temperature: -40 to +85°C.

Humidity: 20% to 80% R.H. (non-condensing).

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

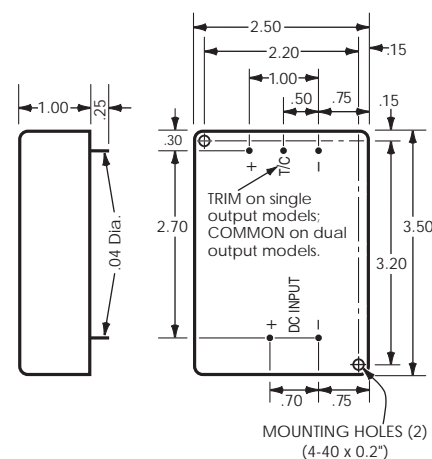


Efficiency is in the order of 65%, and is maintained down to low levels of output current. Input reflected ripple is reduced to less than 1% by means of a standard built-in pi filter, and electrostatic shielding on all six sides minimizes radiated energy. High input/output isolation permits separation 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			(\$) Price	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			(\$) Price	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			(\$) Price	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	5E15D25	ESC-10
5	±15	.50	.45	.40	145	5E15D50	ELC-10
5	±18	.20	.20	.20	120	5E18D20	ESC-10
5	±18	.40	.35	.30	145	5E18D40	ELC-10
12	±10	.30	.30	.25	120	12E10D30	ESC-10
12	±10	.60	.55	.50	145	12E10D60	ELC-10
12	±12	.30	.30	.25	120	12E12D30	ESC-10
12	±12	.60	.55	.50	145	12E12D60	ELC-10
12	±15	.25	.25	.25	120	12E15D25	ESC-10
12	±15	.50	.45	.40	145	12E15D50	ELC-10
12	±18	.20	.20	.20	120	12E18D20	ESC-10
12	±18	.40	.35	.30	145	12E18D40	ELC-10
15	±10	.30	.30	.25	120	15E10D30	ESC-10
15	±10	.60	.55	.50	145	15E10D60	ELC-10
15	±12	.30	.30	.25	120	15E12D30	ESC-10
15	±12	.60	.55	.50	145	15E12D60	ELC-10
15	±15	.25	.25	.25	120	15E15D25	ESC-10
15	±15	.50	.45	.40	145	15E15D50	ELC-10

Nominal Input Voltage	Nominal Output Voltages	Amps. per Output at			(\$) Price	Model	Case Size
		40°C	55°C	71°C			
15	±18	.20	.20	.20	120	15E18D20	ESC-10
15	±18	.40	.35	.30	145	15E18D40	ELC-10
24	±10	.30	.30	.25	120	24E10D30	ESC-10
24	±10	.60	.55	.50	145	24E10D60	ELC-10
24	±12	.30	.30	.25	120	24E12D30	ESC-10
24	±12	.60	.55	.50	145	24E12D60	ELC-10
24	±15	.25	.25	.25	120	24E15D25	ESC-10
24	±15	.50	.45	.40	145	24E15D50	ELC-10
24	±18	.20	.20	.20	120	24E18D20	ESC-10
24	±18	.40	.35	.30	145	24E18D40	ELC-10
28	±10	.30	.30	.25	120	28E10D30	ESC-10
28	±10	.60	.55	.50	145	28E10D60	ELC-10
28	±12	.30	.30	.25	120	28E12D30	ESC-10
28	±12	.60	.55	.50	145	28E12D60	ELC-10
28	±15	.25	.25	.25	120	28E15D25	ESC-10
28	±15	.50	.45	.40	145	28E15D50	ELC-10
28	±18	.20	.20	.20	120	28E18D20	ESC-10
28	±18	.40	.35	.30	145	28E18D40	ELC-10
48	±10	.30	.30	.25	120	48E10D30	ESC-10
48	±12	.30	.30	.25	120	48E12D30	ESC-10
48	±15	.25	.25	.25	120	48E15D25	ESC-10
48	±18	.20	.20	.20	120	48E18D20	ESC-10

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.

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.

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

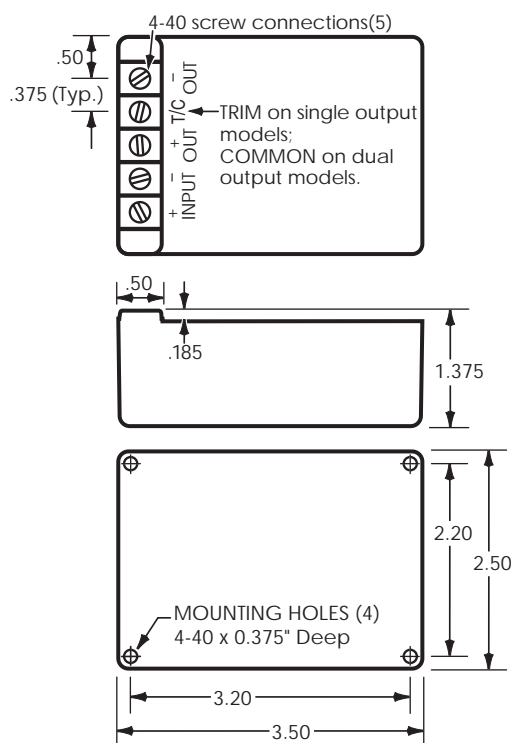
Ambient Operating Temperature: -20 to $+71^{\circ}\text{C}$.

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

Humidity: 20% to 80% R.H. (non-condensing).

Case Size: EBC-10.

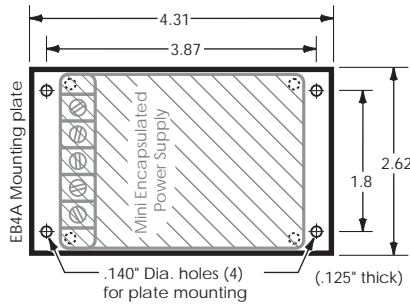
Mounting: Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket, or they may be used on a test bench or tabletop. When wall-mounting or DIN rail mounting is desired, use accessory Mounting Kits on page 77.



Case Size EBC-10
 Approx. Weight: 14 oz.

ACCESSORY MOUNTING KITS *For use with 'Mini Encapsulated - with Screw Terminals' power supplies.*

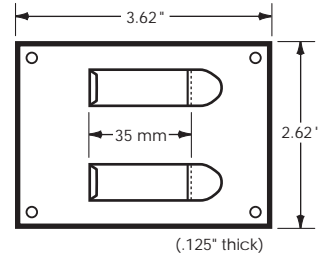
FOR WALL MOUNTING



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

Transient Response: 300 μS 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 $+71^{\circ}\text{C}$.

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

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 75 Vdc	110-350 Vdc input	Isolation
Input to output:	2828 Vdc	4242 Vdc	300 Vdc
Input to case:	2828 Vdc	2121 Vdc	300 Vdc
Output to case:	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 ±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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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	230C48NT600

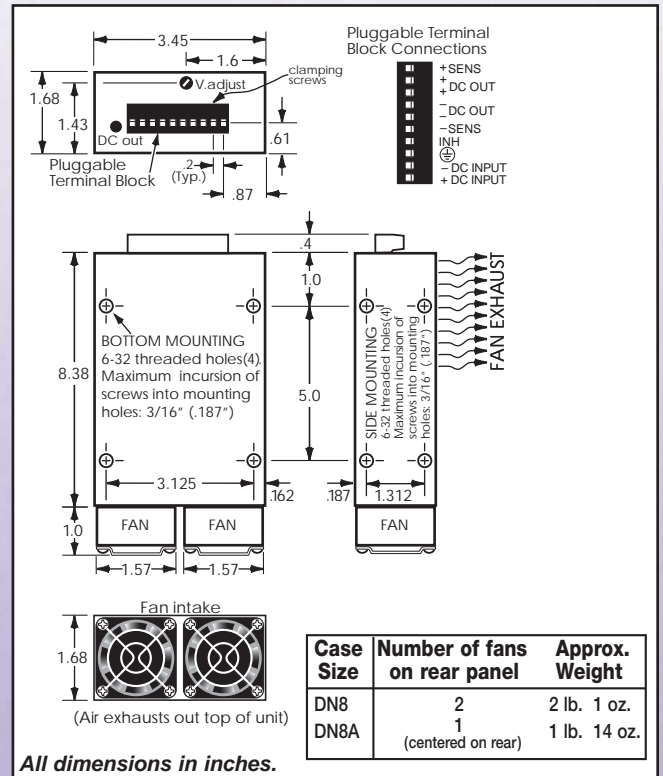
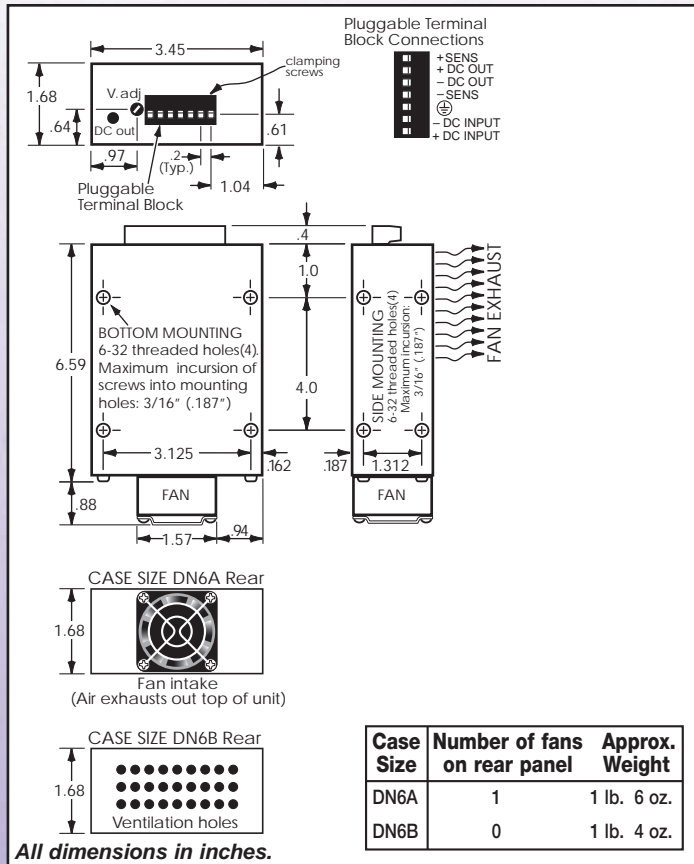
50 to 125

See next page!

* See pages 38-39 for information on Mini Switching Power Supplies that will operate on a 120-180 Vdc input and provide 30 and 50 watt DC outputs.

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.

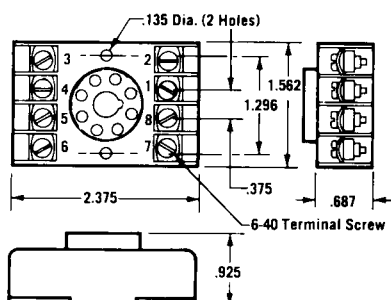
HUMIDITY: MIL-STD-810B, Method 507, Procedure I.

SALT FOG: MIL-STD-810B, Method 509, Procedure I.

ACCESSORY SOCKETS (for Plug-in models on pages 82-88)

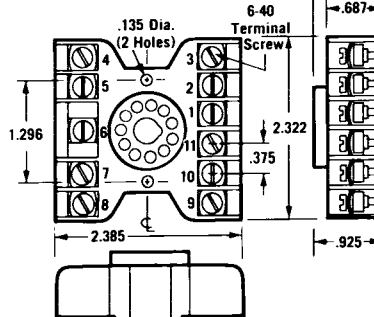
RETMA-numbered screw-type terminals simplify wiring and permit the use of wire terminals or bare wire, 12 to 20 gauge. Rated at 300 volts RMS, 10 Amp.

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.

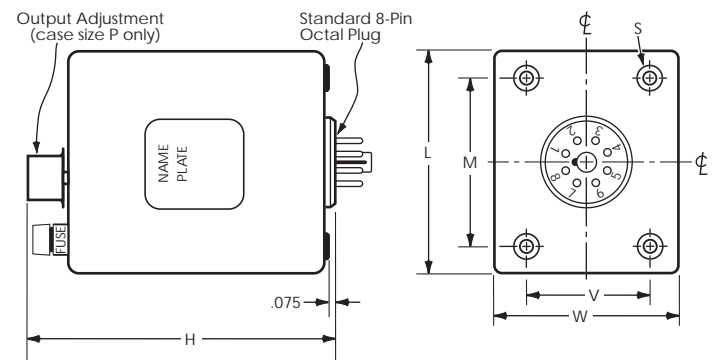
Ambient Operating Temperature: -10 to +65°C.
No derating required.

Storage Temperature: -55 to +85°C.

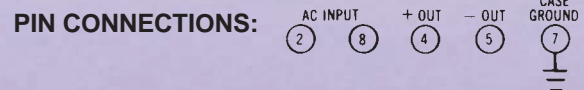
Installation: Plugs into standard 8-pin octal socket (see page 81). Four 6-32 mounting holes (on case sizes G and K) or four 10-32 mounting studs (on case sizes Q and P) are provided in the base for fastening the module when used in other than the upright position, or if extreme vibration will be encountered.



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.

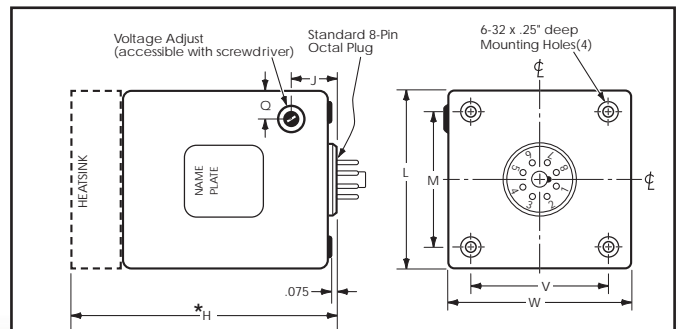
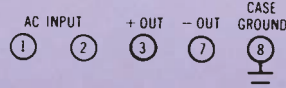
MIL Tested and Extended Temperature Range:
See page 81.

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.



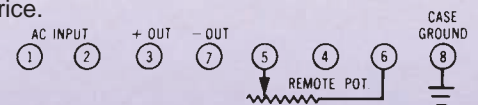
*H dimension includes HEATSINK on BS, US, WS, and HS case sizes.

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.

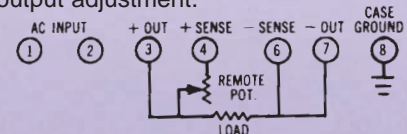
OPTIONS

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.

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 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 %				
2 to 30	.300	.5	.05	1	220	J230	AS
3 to 15	.400	.5	.05	1	220	J315	BS
4 to 10	1.5	.5	.05	1	335	J410	US
5 to 15	2.0	.5	.1	5	380	J515	HS
5 to 25	.100	.1	.05	1	215	J525	AS
6 to 30	.200	.1	.05	1	220	J630	AS
10 to 18	.600	.3	.05	1	230	J1018	BS
10 to 40	.200	.1	.05	1	225	J1040	AS
15 to 25	.500	.1	.05	1	250	J1525	BS
15 to 30	.300	.1	.05	1	250	J1530	BS
16 to 24	.750	.15	.05	1	255	J1624	BS
18 to 30	.400	.1	.05	1	245	J1830	BS
20 to 28	.500	.1	.05	1	250	J2028	BS
23 to 32	1.0	.15	.05	1	285	J2332	US
24 to 32	.500	.1	.05	1	220	J2432	BS
24 to 40	.400	.1	.05	1	250	J2440	BS
24 to 50	.250	.1	.05	1	220	J2450	AS
28 to 60	.250	.1	.05	1	285	J2860	BS
30 to 70	.300	.1	.05	1	320	J3070	BS

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.

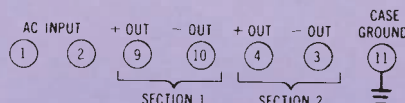
HOW TO ORDER

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.

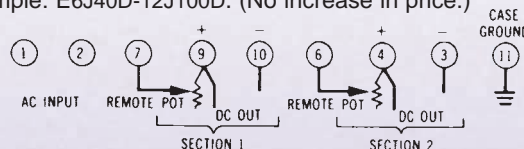


Like all Acopian Plug-ins, a dual-output module can be installed in seconds. Simply plug it into a standard 11-pin socket. Acopian duals are exceptionally dependable, too - offering the highest reliability of any available series-regulated power supply.

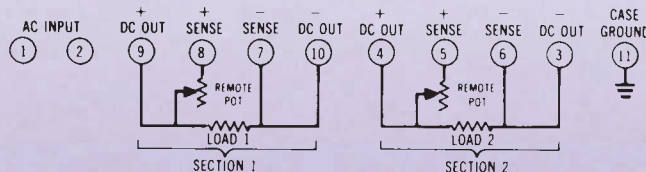
OPTIONS

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.



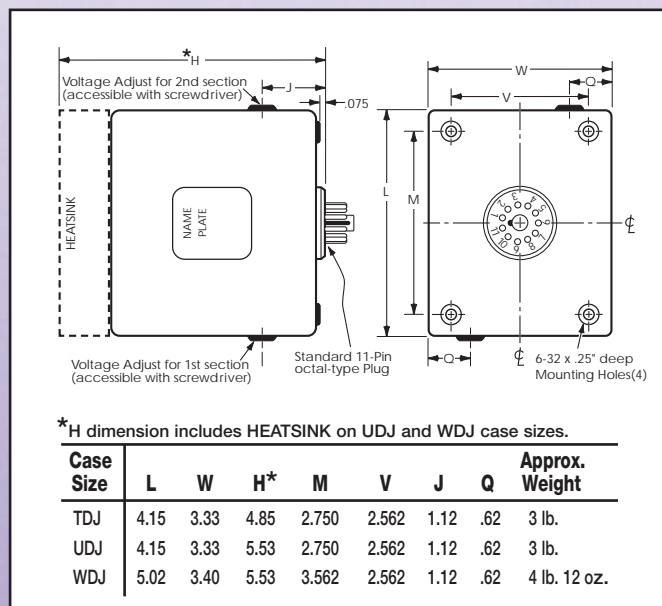
230 Volt Input: All models can be alternately furnished for operation on inputs of 210 to 250 VAC, 50 to 400 Hz. Add suffix "-230" to model number and \$25.00 to price. The "-230" option requires two additional days.

Overvoltage 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 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:

AC INPUT	+V	+S	COM	-S	-V	CASE GROUND
1	2	3	4	5	6	7
8						

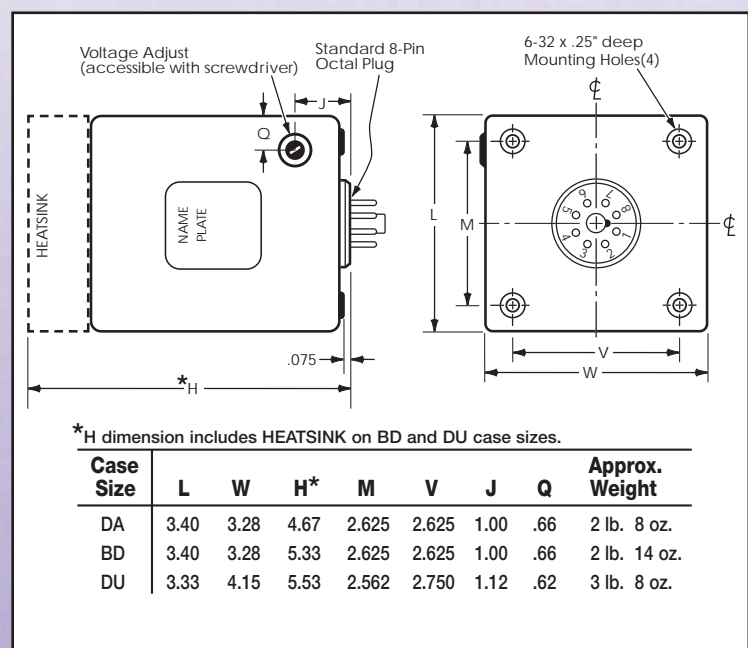
OPTIONS

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.

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.

Nominal Output Voltages	Adjust Range \pm V	Amps. per Output	Regulation Load \pm %	Regulation Line \pm %	Ripple mV RMS	(\$ Price)	Model	Case Size
± 5	.25	.750	.1	.1	1.5	320	JD5-75	BD
± 5	.25	1.5	.1	.1	1.5	385	JD5-150	DU
± 12	1	.400	.1	.1	1.5	285	JD12-40	DA
± 12	1	.700	.1	.1	1.5	320	JD12-70	BD
± 12	1	1.0	.1	.1	1.5	385	JD12-100	DU
± 15	1	.400	.1	.1	1.5	285	JD15-40	DA
± 15	1	.700	.1	.1	1.5	320	JD15-70	BD
± 15	1	1.0	.1	.1	1.5	385	JD15-100	DU

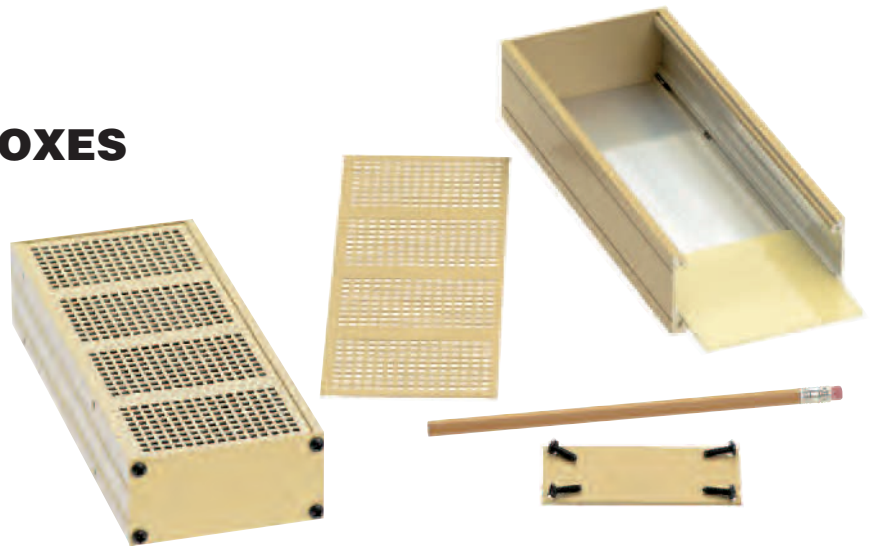




CIRCUIT ENCLOSURE BOXES

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

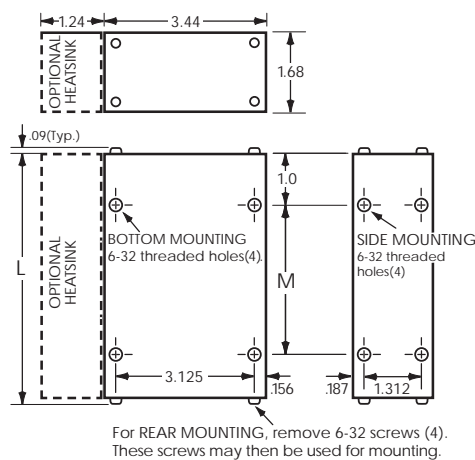
Circuit Board (for Narrow Profile Enclosures): Perforated board for mounting hand-wired components. Contact factory for sizes.

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.

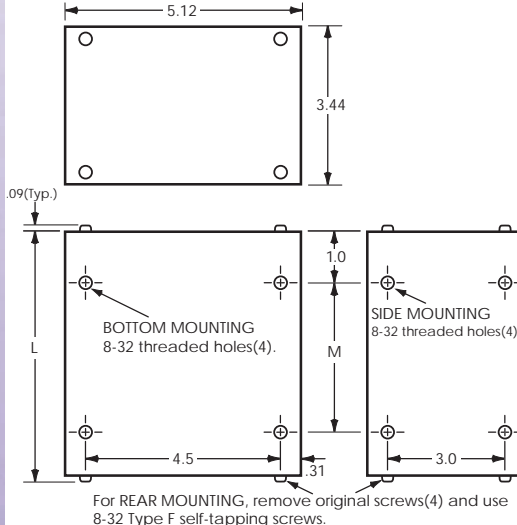
Heat sink (for Gold Box Enclosures): An optional heat sink can be ordered for the left side to replace the grooved aluminum side. High-dissipation semiconductors may be mounted on the accessory heat sink. To order, add suffix "H" to model number and \$2.00 to price (for models EG9H and EG13H, add \$4.00).

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

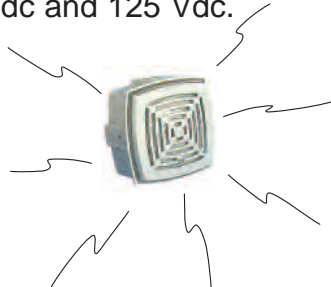
HV Gold Box;
see page 71 & 73 drawings

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.

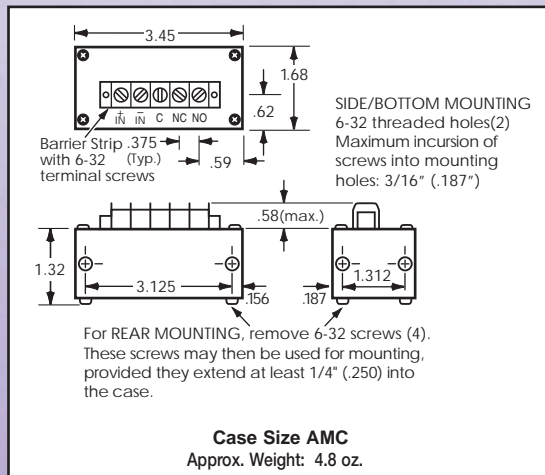
Storage Temperature: -40 to +85°C.

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.

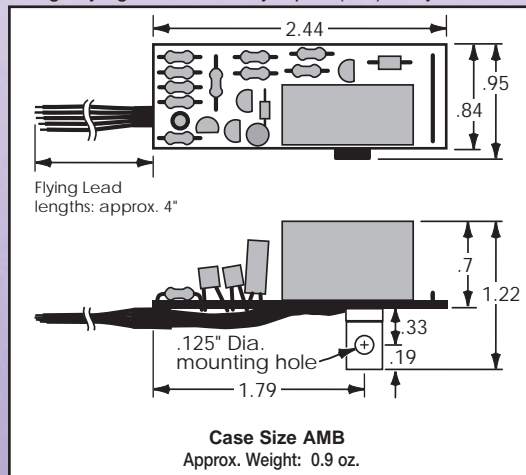


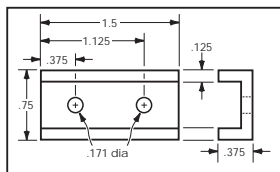
'Board with leads' UOV Monitor

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.

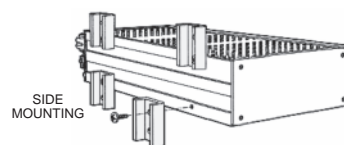
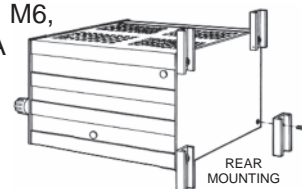
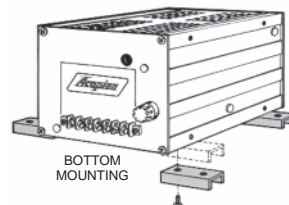
Red flying lead: Connects to '+ DC' being monitored.
Black flying lead: Connects to '- DC' being monitored.
White flying lead: Common (C) relay connection.
Green flying lead: Normally Closed (NC) relay connection.
Orange flying lead: Normally Open (NO) relay connection.





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:

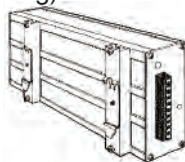
CN8H, N8H, TN8H

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)

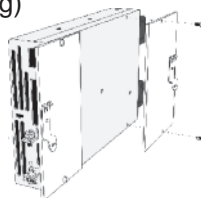
WLH35DIN Mounting Kit (Horizontal mounting)

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				TG9	Y6
		G6						
		G9						

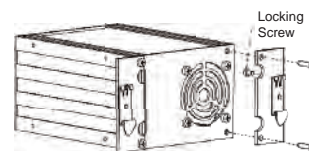
(Can be used, but not recommended on case sizes: G13, GT13, M13, TG13)

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

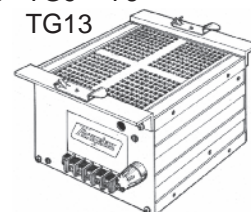
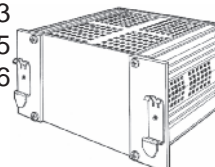
*All DIN Kits for LM cases \$20



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		TG13	
		G9				
		G13				



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 Number Format	Page
A#H#	48-49
A#HT#	49
A#HX#	59
A#MT#	48-49
A#MX#	59
A#NT#	41
A#NX#	59
A#PX#	31
A#TN#	41
A#XN#	59
B#FT#	41
B#G#	48-49
B#GT#	49
B#TN#	41
#C#FT#	79
#C#NT#	79-80
D#-#	34
D#-#A	34
#D#A	66
DB#-#	37
#E#	33
#E#A	33
#E#D#	75
#E#E#	75
#EB#	37
#EB#E#	77
#EB#D#	77
(E)#J#	85
(E)#J#D-#J#D	87
(E)J#	85
(E)P#HX#	59
(E)P#MX#	59
(E)P#PX#	31
FD#-#A	62
#GT#D-#GT#D	64-65

Model Number Format	Page
J#	85
#J#	85
#J#D-#J#D	87
JD#-#	88
LD#-#	62
N#HA#	71
N#HD#	73
N#HP#	69
NX-#	33
NX-#A	33
NX-#B	37
P#HA#	71
P#HD#	73
P#HP#	69
P#HX#	59
P#MX#	59
P#PX#	31
PD#-#	29
#PT#	29
#PH#	29
R#G#	20
R#H#	18
R#M#	18
R#N#T	18
R#N#X	18
R#P#	19
R#PH#	19
R#W#	20
R#WP#	23
R#WP#X	23
RM#H#	24
RM#H#C#	24
RM#M#	24
RM#M#C#	24
RM#N#T	24
RM#N#TC#	24
RM#N#X	24

Model Number Format	Page
RM#N#XC#	24
RM#WN#	26
RM#WN#A	26
RM#WN#AC#	26
RM#WN#C#	26
RWL#G#	20
RWL#H#	18
RWL#M#	18
RWL#M#X	18
RWL#N#T	18
RWL#N#X	18
RWL#W#	20
(R)#J#	85
(R)#J#D-#J#D	87
(R)B#G#	48-49
(R)B#GT#	49
(R)J#	85
TD#-#	62
#T#A	67
U#	83
U#Y#	57
U#YA#	57
#U#	83
#UA#	83
#UP#	83
#UY#	57
UP#	83
US#	83
W#FT#	43
W#GT#	55
W#MT#	55
W#LT#	53
W#NT#	45
#WB#	39
#WL#	39
Y#HX#	61
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, procurement, 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.

www.acopian.com - Online Ordering and Instant Quotes Online!



Since 1956

Acopian Technical Company
P.O. Box 638, Easton, PA 18044 • Phone: (610) 258-5441 • FAX: (610) 258-2842
Call toll free: (800) 523-9478 (International: Country Code 01)

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

110415