



# Mini Encapsulated SWITCHING REGULATED

- PC Board mounting or
  - with screw terminals
- DC output  
(accepts either AC or DC input)

- Shipped Within 6 Days
- One Year Warranty

RoHS  
COMPLIANT



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- Fast Shipping? Acopian invented it! For over half a century, Acopian has built and shipped thousands of power supplies within 3-DAYS after receipt of order. And we still do today! View our 3-DAY Shipping Promise: [www.acopian.com/3dayship.html](http://www.acopian.com/3dayship.html)
- You ALWAYS talk to a real person when you call Acopian.
- Acopian power supplies last a *very long time!*
- You can email [3day@acopian.com](mailto:3day@acopian.com) anytime for 24/7 product support.
- The *Online System Builder* ([www.acopian.com/SystemBuilder](http://www.acopian.com/SystemBuilder)) is a convenient way to get your own custom power supply or power system (and they ship within 9 Days).
- You can order Acopian power supplies factory direct.
- ALL Acopian products are made in the USA.



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Order Factory Direct  
Made in USA



single output

## Mini Encapsulated - PC Board mounting

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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. 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.



### 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

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

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

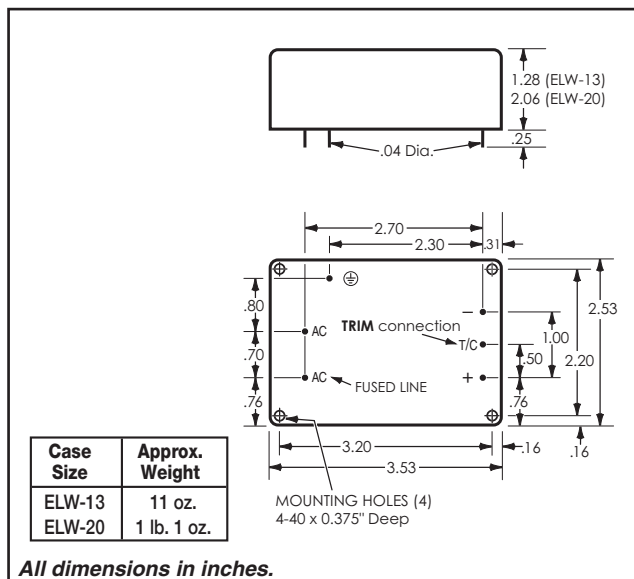
**Transient Response:** Returns to within  $\pm 1\%$  of output setting within 300  $\mu\text{s}$ . Maximum of  $\pm 3\%$  output excursion following a load step change from 50% to 100% of rating.

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

**Mounting:** Models for PC Board mounting may also be mounted in the socket shown below. For models with screw terminals, when wall-mounting or DIN rail mounting is desired, use accessory Mounting Kits on page H4.

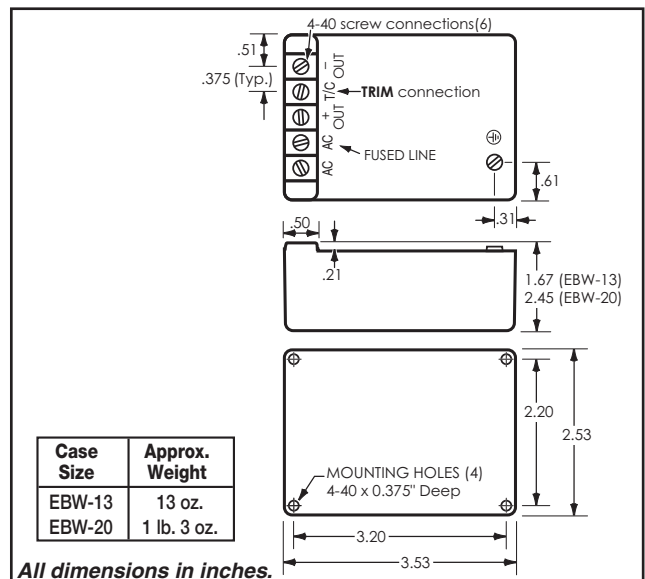
## FOR PC BOARD MOUNTING

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	205	5WL600	ELW-13
5	10.00	6.00	10	50	230	5WL1000	ELW-20
6	5.00	3.00	10	50	205	6WL500	ELW-13
6	8.30	4.95	10	50	230	6WL830	ELW-20
7	4.20	2.50	15	100	205	7WL420	ELW-13
7	7.10	4.26	15	100	230	7WL710	ELW-20
8	3.70	2.20	15	100	205	8WL370	ELW-13
8	6.20	3.70	15	100	230	8WL620	ELW-20
9	3.30	2.00	15	100	205	9WL330	ELW-13
9	5.50	3.30	15	100	230	9WL550	ELW-20
10	3.00	1.80	15	100	205	10WL300	ELW-13
10	5.00	3.00	15	100	230	10WL500	ELW-20
11	2.70	1.60	15	100	205	11WL270	ELW-13
11	4.50	2.70	15	100	230	11WL450	ELW-20
12	2.50	1.50	15	100	205	12WL250	ELW-13
12	4.10	2.45	15	100	230	12WL410	ELW-20
13	2.30	1.38	15	100	205	13WL230	ELW-13
13	3.80	2.25	15	100	230	13WL380	ELW-20
14	2.10	1.25	15	100	205	14WL210	ELW-13
14	3.50	2.10	15	100	230	14WL350	ELW-20
15	2.00	1.20	15	100	205	15WL200	ELW-13
15	3.30	1.95	15	100	230	15WL330	ELW-20
16	1.85	1.10	15	100	205	16WL185	ELW-13
16	3.10	1.85	15	100	230	16WL310	ELW-20
17	1.75	1.05	15	100	205	17WL175	ELW-13
17	2.90	1.75	15	100	230	17WL290	ELW-20
18	1.65	1.00	15	100	205	18WL165	ELW-13
18	2.75	1.65	15	100	230	18WL275	ELW-20
19	1.55	.93	15	100	205	19WL155	ELW-13
19	2.60	1.55	15	100	230	19WL260	ELW-20
20	1.50	.90	15	100	205	20WL150	ELW-13
20	2.50	1.50	15	100	230	20WL250	ELW-20
21	1.40	.84	15	100	205	21WL140	ELW-13
21	2.35	1.40	15	100	230	21WL235	ELW-20
22	1.35	.80	15	100	205	22WL135	ELW-13
22	2.25	1.35	15	100	230	22WL225	ELW-20
23	1.30	.78	15	100	205	23WL130	ELW-13
23	2.15	1.30	15	100	230	23WL215	ELW-20
24	1.25	.75	15	100	205	24WL125	ELW-13
24	2.10	1.25	15	100	230	24WL210	ELW-20
25	1.20	.72	15	100	205	25WL120	ELW-13
25	2.00	1.20	15	100	230	25WL200	ELW-20
26	1.15	.70	15	100	205	26WL115	ELW-13
26	1.90	1.15	15	100	230	26WL190	ELW-20
27	1.10	.66	15	100	205	27WL110	ELW-13
27	1.85	1.10	15	100	230	27WL185	ELW-20
28	1.05	.63	15	100	205	28WL105	ELW-13
28	1.75	1.05	15	100	230	28WL175	ELW-20
30	1.00	.60	25	150	205	30WL100	ELW-13
30	1.65	1.00	25	150	230	30WL165	ELW-20
36	.85	.50	25	150	205	36WL85	ELW-13
36	1.35	.80	25	150	230	36WL135	ELW-20
40	.75	.45	25	150	205	40WL75	ELW-13
40	1.25	.75	25	150	230	40WL125	ELW-20
45	.65	.40	25	150	205	45WL65	ELW-13
45	1.10	.65	25	150	230	45WL110	ELW-20
48	.65	.40	25	150	205	48WL65	ELW-13
48	1.05	.60	25	150	230	48WL105	ELW-20



## WITH SCREW TERMINALS

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5	6.00	3.60	10	50	210	5WB600	EBW-13
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13	2.30	1.38	15	100	210	13WB230	EBW-13
13	3.80	2.25	15	100	240	13WB380	EBW-20
14	2.10	1.25	15	100	210	14WB210	EBW-13
14	3.50	2.10	15	100	240	14WB350	EBW-20
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16	1.85	1.10	15	100	210	16WB185	EBW-13
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22	1.35	.80	15	100	210	22WB135	EBW-13
22	2.25	1.35	15	100	240	22WB225	EBW-20
23	1.30	.78	15	100	210	23WB130	EBW-13
23	2.15	1.30	15	100	240	23WB215	EBW-20
24	1.25	.75	15	100	210	24WB125	EBW-13
24	2.10	1.25	15	100	240	24WB210	EBW-20
25	1.20	.72	15	100	210	25WB120	EBW-13
25	2.00	1.20	15	100	240	25WB200	EBW-20
26	1.15	.70	15	100	210	26WB115	EBW-13
26	1.90	1.15	15	100	240	26WB190	EBW-20
27	1.10	.66	15	100	210	27WB110	EBW-13
27	1.85	1.10	15	100	240	27WB185	EBW-20
28	1.05	.63	15	100	210	28WB105	EBW-13
28	1.75	1.05	15	100	240	28WB175	EBW-20
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36	.85	.50	25	150	210	36WB85	EBW-13
36	1.35	.80	25	150	240	36WB135	EBW-20
40	.75	.45	25	150	210	40WB75	EBW-13
40	1.25	.75	25	150	240	40WB125	EBW-20
45	.65	.40	25	150	210	45WB65	EBW-13
45	1.10	.65	25	150	240	45WB110	EBW-20
48	.65	.40	25	150	210	48WB65	EBW-13
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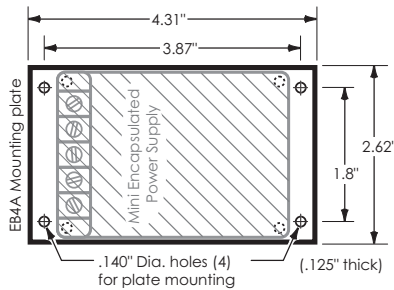


## Mounting Kits for 'Mini Encapsulated - with screw terminals' power supplies:

### WALL MOUNTING

**Model EB4A** . . . . . \$10

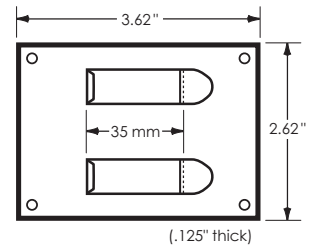
Use Mounting Kit EB4A to mount from the power supply side of the mounting surface, necessary when the other side of the mounting surface is inaccessible. This kit consists of an aluminum plate and four screws for attaching it to the power supply, effectively adding mounting flanges to any Mini Encapsulated power supply with screw terminals or any Mini DC-DC Converter with screw terminals.



### DIN RAIL MOUNTING

**Model EB35DIN** . . . . . \$15

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.

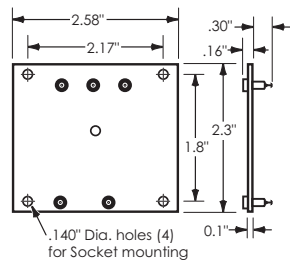


## Sockets for 'Mini Encapsulated - PC Board mounting' power supplies:

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.

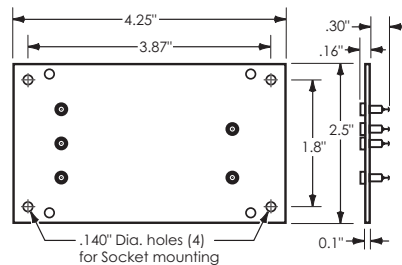
**Model ES-1** . . . . . \$40

For case sizes ES-10 and ESC-10



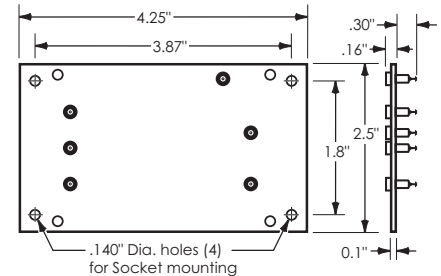
**Model EL-1** . . . . . \$40

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



**Model ELW-1** . . . . . \$40

For case sizes ELW-13 and ELW-20

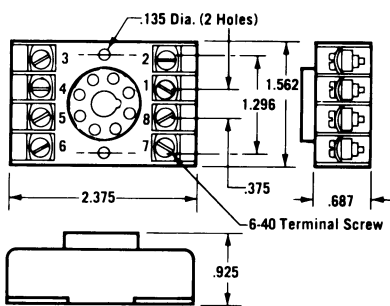


## Sockets for 'Plug-In' power supplies:

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

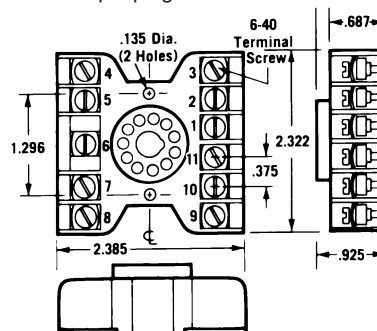
**Model SL608** . . . . . \$20

For 8-pin plugs.



**Model SL611** . . . . . \$20

For 11-pin plugs.





**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 or Melbourne, FL, 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. ('EXW Factory' if outside the 50 United States.) 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, FedEx, DHL (international orders) 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, reprourement, 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.*

**ACOPIAN IS AN ISO 9001 CERTIFIED COMPANY**