



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

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



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single & dual tracking outputs

## Mini Encapsulated - with screw terminals

LINEAR REGULATED

AC-DC

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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°C. No derating required.

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

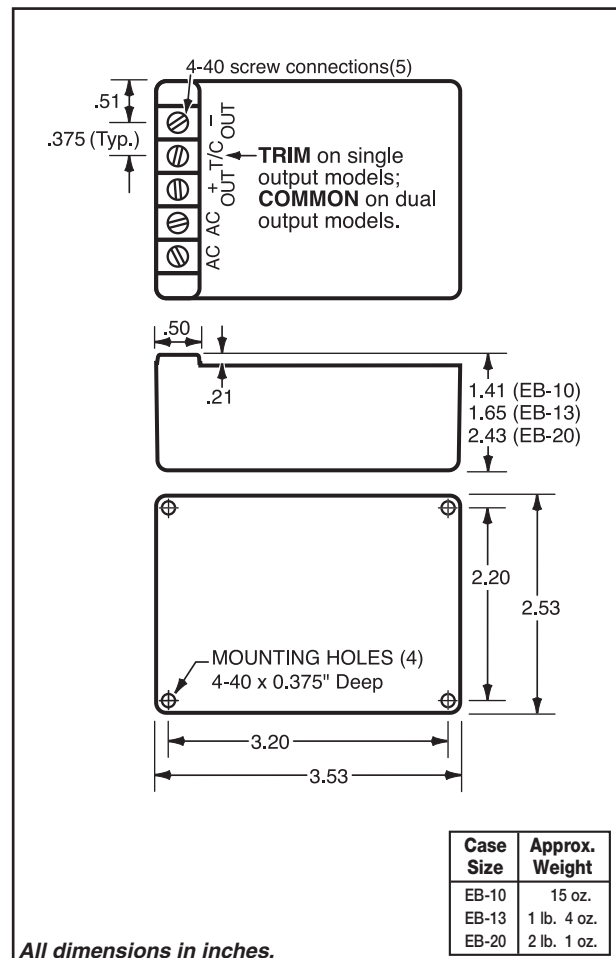
**Temperature Coefficient:** From 9 to 75 volts, typically 0.015%/°C; 1 to 8 volts, 0.03%/°C.

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

**Mounting:** Threaded mounting holes permit mounting to a chassis, cabinet wall or bracket, or they may be used on a test bench or tabletop. When wall-mounting or DIN rail mounting is desired, use accessory Mounting Kits on page H4.

### 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. The "-230" option requires two additional days.



## SINGLE OUTPUT, WITH SCREW TERMINALS

(For Mini Encapsulated power supplies with higher wattage outputs than those shown below, see pages C1-C2.)

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

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

\*UL478 certified only. Not CE certified.

## DUAL TRACKING OUTPUTS

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

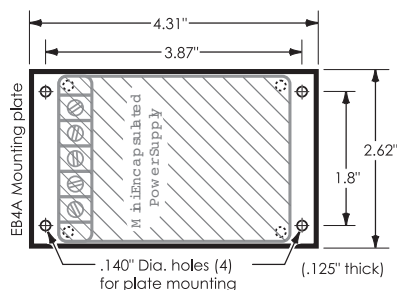
Nominal Output Voltages	Amps. per Output	Regulation		Ripple mV RMS	Model	Case Size
		Load ±%	Line ±%			
±12	.300	.05	.05	1	DB12-30	EB-13
±12	.350	.05	.05	1	DB12-35	EB-13
±12	.500	.1	.05	1	DB12-50	EB-20
±15	.100	.05	.05	1	DB15-10	EB-10
±15	.150	.05	.05	1	DB15-15	EB-10
±15	.200	.05	.05	1	DB15-20	EB-10
±15	.300	.05	.05	1	DB15-30	EB-13
±15	.350	.05	.05	1	DB15-35	EB-13
±15	.500	.1	.05	1	DB15-50	EB-20

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

### WALL MOUNTING

#### Model EB4A

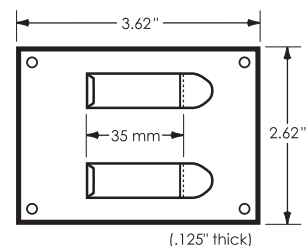
Use Mounting Kit EB4A to mount from the power supply side of the mounting surface, necessary when the other side of the mounting surface is inaccessible. This kit consists of an aluminum plate and four screws for attaching it to the power supply, effectively adding mounting flanges to any Mini Encapsulated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



### DIN RAIL MOUNTING

#### Model EB35DIN

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.

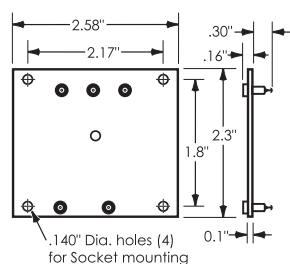


## Sockets for 'Mini Encapsulated - PC Board mounting' power supplies:

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.

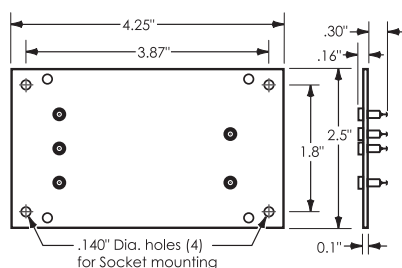
#### Model ES-1

For case sizes ES-10 and ESC-10



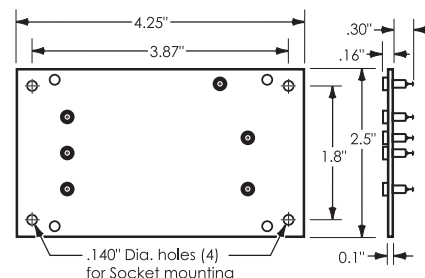
#### Model EL-1

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



#### Model ELW-1

For case sizes ELW-13 and ELW-20

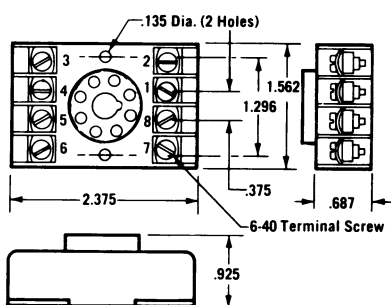


## Sockets for 'Plug-In' power supplies:

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

#### Model SL608

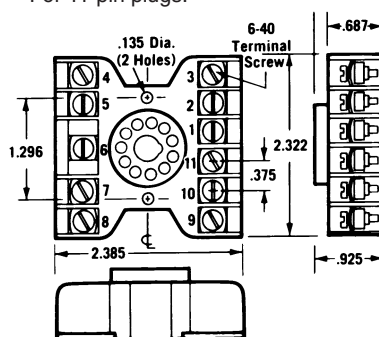
For 8-pin plugs.



All dimensions in inches.

#### Model SL611

For 11-pin plugs.



All dimensions in inches.



**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, 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.*

**ACOPIAN IS AN ISO 9001 CERTIFIED COMPANY**