

Mini Encapsulated

LINEAR REGULATED

AC-DC single & dual tracking outputs

with screw terminals



Don't forget these facts about Acopian....

- 1. We ship within 3 Days after receipt of order.
- 2. Acopian power supplies last a very long time.
- 3. The *Voltage Finder* is the quickest way to find a power supply with the specs you need.
- 4. The *Online System Builder* (www.acopian.com/SystemBuilder) is a convenient way to get your own custom power supply or power system (and they ship within 9 Days).
- 5. You ALWAYS talk to a real person when you call Acopian.
- 6. You can order Acopian power supplies factory direct.
- 7. You can order Acopian power supplies online.
- 8. ALL Acopian products are made in the USA.



Easton, PA & Melbourne, FL

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Order Factory Direct
Made in USA





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°C. No derating required.

Storage Temperature: -55 to +85°C.

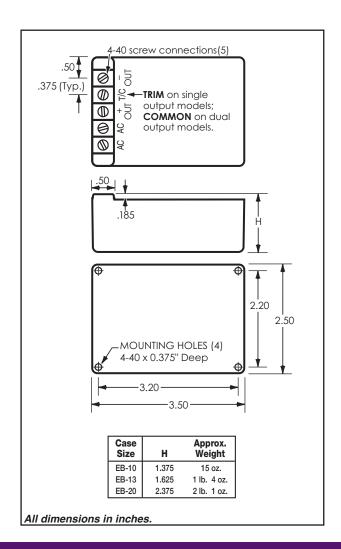
Temperature Coefficient: From 9 to 75 volts, typically 0.015%/°C; 1 to 8 volts, 0.03%/°C.

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 and \$10.00 to price. The "-230" option requires two additional days.



MINI ENCAPSULATED



SINGLE OUTPUT, WITH SCREW TERMINALS

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

						inose sn	
Nominal	Output	Regu	lation	Ripple			
Output Voltage	Current	Load ±%	Line ±%	mV RMS	(\$) Price	Model	Case Size
	Amps.						0.20
1	.500	.4	.05	1	110	1EB50 1.5EB50	EB-10 EB-10
1.5 1.5	.500 1.0	.3 .5	.05 .05	1 1	110 145	1.5EB50 1.5EB100	EB-10 EB-13
1.5	2.5	.6	.05	li	190	1.5EB100	EB-13
2	.400	.25	.05	1	110	2EB40	EB-10
3	.500	.25	.05	1	110	3EB50	EB-10
3.3	.500	.15	.05	1	110	3.3EB50	EB-10
3.3	1.0	.4	.05	1	145	3.3EB100	EB-13
3.3	2.0	.4	.05	1	170	3.3EB200	EB-20
4	.400	.15	.05	1	110	4EB40	EB-10
5	.500	.15	.05	1	110	5EB50	EB-10
5	1.0	.25	.05	1	130	5EB100	EB-13
5	1.5	.25	.05	1	150	5EB150	EB-13
5	2.0	.25	.05	1	170	5EB200	EB-20
5	2.5	.25	.05	1	190	5EB250	EB-20
6	.400	.1	.05	1	110	6EB40	EB-10
6	.550	.25	.05	1 1	130	6EB55	EB-10
6 6	1.0 1.75	.25 .2	.05 .05	1 1	150 175	6EB100 6EB175	EB-13 EB-20
7	.340	.1	.05	1	110	7EB34	EB-20
7	.450	.2	.05	Ιί	130	7EB34	EB-10
7	.900	.25	.05	l i	150	7EB90	EB-13
7	1.15	.2	.05	1	175	7EB115	EB-20
8	.300	.1	.05	1	110	8EB30	EB-10
8	.700	.2	.05	1	150	8EB70	EB-13
8	1.1	.2	.05	1	175	8EB110	EB-20
9	.260	.1	.05	1	110	9EB26	EB-10
9	.450	.15	.05	1	130	9EB45	EB-10
9	.850	.2	.05	1	150	9EB85	EB-13
9	1.5	.2	.05	1	185	9EB150	EB-20
10	.240	.05	.05	1	110	10EB24	EB-10
10	.400	.15	.05	1	130	10EB40	EB-10
10	.750	.2 .15	.05 .05	1 1	150 185	10EB75 10EB120	EB-13 EB-20
10	.220	.05	.05	1	110	11EB22	EB-20
11	.350	.05	.05	li	130	11EB22	EB-10
11	.600	.15	.05	1	150	11EB60	EB-13
11	1.0	.15	.05	Ιi	185	11EB100	EB-20
12	.200	.05	.05	1	110	12EB20	EB-10
12	.400	.1	.05	Ιi	130	12EB40	EB-10
12	.700	.15	.05	1	160	12EB70	EB-13
12	1.2	.2	.05	1	185	12EB120	EB-20
13	.200	.05	.05	1	110	13EB20	EB-10
13	.350	.1	.05	1	130	13EB35	EB-10
13	.600	.1	.05	1	160	13EB60	EB-13
13	1.0	.15	.05	1	185	13EB100	EB-20
14	.200	.05	.05	1	110	14EB20	EB-10
14	.300	.1	.05	1	130	14EB30	EB-10
14	.500	.1	.05	1	150	14EB50	EB-13
14 15	1.0	.15 .05	.05	1	185	14EB100	EB-20
15 15	.200 .400	.05	.05 .05	1	110 130	15EB20 15EB40	EB-10 EB-10
15	.600	1 1	.05	1	150	15EB40 15EB60	EB-10 EB-13
15	1.0	.15	.05	1 1	185	15EB100	EB-13 EB-20
16	.160	.05	.05	1	110	16EB16	EB-20
16	.350	.1	.05	i	140	16EB35	EB-10
16	.500	.1	.05	1	160	16EB50	EB-13
16	.900	.15	.05	1	185	16EB90	EB-20
17	.140	.05	.05	1	110	17EB14	EB-10
17	.325	.1	.05	1	140	17EB33	EB-10
17	.450	.1	.05	1	160	17EB45	EB-13
17	.750	.15	.05	1	185	17EB75	EB-20
18	.120	.05	.05	1	110	18EB12	EB-10
18	.270	.1	.05	1	130	18EB27	EB-10
18	.400	.1	.05	1	150	18EB40	EB-13
18	.550	.1	.05	1	175	18EB55	EB-20

Nominal Output Regulation Ripple							
Output	Output Current	Load	Line	mV	(\$)		Case
Voltage	Amps.	±%	±%	RMS	Price	Model	Size
19	.120	.05	.05	1	110	19EB12	EB-10
19	.250	.1	.05	1	130	19EB25	EB-10
19	.400	.1	.05	1	150	19EB40	EB-13
19 20	.700 .120	.1 .05	.05	1	185 110	19EB70 20EB12	EB-20 EB-10
20	.200	.1	.05	1 1	130	20EB20	EB-10
20	.400	.1	.05	1	150	20EB40	EB-13
20	.700	.1	.05	1	185	20EB70	EB-20
21	.120	.05	.05	1	110	21EB12	EB-10
21	.175	.1	.05	1	130	21EB18	EB-10
21	.375	.1	.05	1	150	21EB38	EB-13
21	.600	.1 .05	.05	1	175 110	21EB60 22EB10	EB-20 EB-10
22	.150	.05	.05	1 1	130	22EB10 22EB15	EB-10
22	.300	.1	.05	i	150	22EB30	EB-13
22	.500	.1	.05	1	175	22EB50	EB-20
23	.100	.05	.05	1	110	23EB10	EB-10
23	.200	.1	.05	1	130	23EB20	EB-10
23	.300	.1	.05	1	150	23EB30	EB-13
23	.600	.1 .05	.05	1	185 110	23EB60 24EB10	EB-20 EB-10
24	.200	.05	.05	1	130	24EB10 24EB20	EB-10 EB-10
24	.350	.1 .1	.05	li	160	24EB35	EB-13
24	.600	.1	.05	1	185	24EB60	EB-20
25	.100	.05	.05	1	110	25EB10	EB-10
25	.190	.1	.05	1	130	25EB19	EB-10
25	.325	.1	.05	1	160	25EB33	EB-13
25	.550	.1	.05	1	185	25EB55	EB-20
26 26	.080 .170	.05 .1	.05 .05	1	110 130	26EB08 26EB17	EB-10 EB-10
26	.300	.1 .1	.05	li	150	26EB30	EB-10
26	.450	.1	.05	1	175	26EB45	EB-20
27	.080	.05	.05	1	110	27EB08	EB-10
27	.160	.1	.05	1	130	27EB16	EB-10
27	.300	.1	.05	1	150	27EB30	EB-13
27	.500	.1	.05	1	185	27EB50	EB-20
28 28	.080 .150	.05 .1	.05 .05	1	110 130	28EB08 28EB15	EB-10 EB-10
28	.300	.1	.05	1 1	160	28EB30	EB-10
28	.500	.1 .1	.05	1	185	28EB50	EB-20
30	.080	.02	.02	1	120	30EB08	EB-13
32	.070	.02	.02	1	120	32EB07	EB-13
34	.060	.02	.02	1	120	34EB06	EB-13
35	.050	.02	.02	1	120	35EB05	EB-13
36	.050	.02	.02	1	120	36EB05	EB-13
38 40	.040	.02	.02	1	120 120	38EB04 40EB03	EB-13 EB-13
40	.060	.02	.02	li	145	40EB03 40EB06	EB-13
42	.030	.02	.02	1	120	42EB03	EB-13
44	.030	.02	.02	1	120	44EB03	EB-13
45	.030	.02	.02	1	120	45EB03	EB-13
48	.030	.02	.02	1	120	48EB03	EB-13
48	.050	.02	.02	1	145	48EB05	EB-13
50 50	.030	.02 .02	.02 .02	1	120 145	50EB03	EB-13 EB-13
55	.050	.02	.02	1	145	50EB05 55EB04	EB-13
60	.050	.02	.02	1	145	60EB05	EB-13
65	.050	.02	.02	1	145	65EB05	EB-13
70	.040	.02	.02	1	145	70EB04	EB-13
75	.030	.02	.02	1	145	75EB03	EB-13
185	.025		julated	2V	80	NX-25B	EB-10
185	.050	Unreg	julated	3.5V	105	NX-50B	EB-13

- DUAL TRACKING OUTPUTS -

Nominal	Amps. per Output	Regulation		Ripple			
Output Voltages		Load ±%	Line ±%	mV RMS	(\$) Price	Model	Case Size
±5	.150	.1	.05	1.5	120	DB5-15	EB-10
±5	.250	.1	.05	1.5	145	DB5-25	EB-10
±5	.500	.1	.05	1.5	195	DB5-50	EB-20
±10	.200	.05	.05	1	130	DB10-20	EB-10
±10	.300	.05	.05	1	170	DB10-30	EB-13
±10	.400	.1	.05	1	195	DB10-40	EB-20
±12	.100	.05	.05	1	105	DB12-10	EB-10
±12	.150	.05	.05	1	120	DB12-15	EB-10
±12	.200	.05	.05	1	130	DB12-20	EB-10

١	Nominal Amps. Regulat		lation	Ripple				
	Output Voltages	per Output	Load ±%	Line ±%	mV RMS	(\$) Price	Model	Case Size
ı	±12	.300	.05	.05	1	160	DB12-30	EB-13
١	±12	.350	.05	.05	1	170	DB12-35	EB-13
ı	±12	.500	.1	.05	1	195	DB12-50	EB-20
ı	±15	.100	.05	.05	1	105	DB15-10	EB-10
١	±15	.150	.05	.05	1	120	DB15-15	EB-10
ı	±15	.200	.05	.05	1	130	DB15-20	EB-10
ı	±15	.300	.05	.05	1	160	DB15-30	EB-13
١	±15	.350	.05	.05	1	170	DB15-35	EB-13
ı	±15	.500	.1	.05	1	195	DB15-50	EB-20

MOUNTING KITS & SOCKETS Acopien

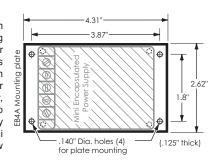


Mounting Kits for 'Mini Encapsulated - with screw terminals' power supplies:

WALL MOUNTING

Model EB4A \$10

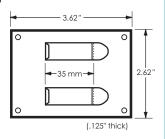
Use Mounting Kit EB4A to mount from the power supply side of the mounting surface, necessary when the other side of the mounting surface is inaccessible. This kit consists of an aluminum plate and four screws for attaching it to the power supply, effectively adding mounting flanges to any Mini Encapsulated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



DIN RAIL MOUNTING

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

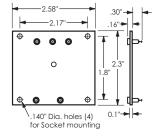
Mounting Kit EB35DIN consists of an aluminum plate, with two DIN clips attached to it, and four screws for attaching the plate to the bottom of any Mini Encapsulated power supply with screw terminals or any Mini DC-DC Converter with screw terminals. The power supply can then be snapped onto a 35mm 'top hat' type of DIN rail.



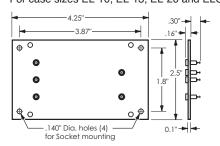
Sockets for 'Mini Encapsulated - PC Board mounting' power supplies:

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.

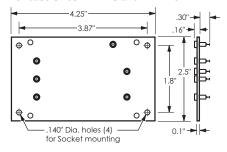
Model ES-1 \$35 For case sizes ES-10 and ESC-10



Model EL-1 \$35 For case sizes EL-10, EL-13, EL-20 and ELC-10



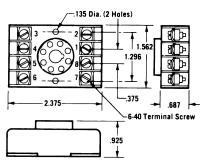
Model ELW-1 \$35 For case sizes ELW-13 and ELW-20



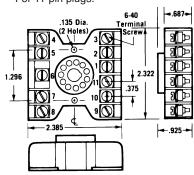
Sockets for 'Plug-In' power supplies:

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.



ORDERING INFO & TERMS and CONDITIONS Acopian



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. ('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, or by Parcel Post; larger shipments, by insured motor freight collect. Shipments can be made by air upon request. Risk of loss shall be F.O.B. Our Factory, even in cases where freight may be prepaid or allowed to destination by Acopian. If equipment is received in damaged condition, it is the customer's responsibility to contact the carrier and file a claim for damages.

TIME FOR DELIVERY: The time for delivery quoted by Acopian is the time required to ship from our plants. We will not be liable for delays in delivery caused by any reason beyond our control, including but not limited to acts of God, casualty, civil disturbance, labor disputes, transportation or supply difficulties, or any interruption of our facilities, and the quoted time for delivery shall be extended during the continuance of such conditions and for a reasonable time thereafter. In no event will Acopian be liable for any premium transportation, reprocurement, or similar costs incurred by the Customer as a result of conditions beyond Acopian's control resulting in Acopian's inability to deliver product in accordance with customer's requested delivery schedules.

QUANTITY DISCOUNTS: Discounts are available to quantity buyers and are dependent upon the order quantity and the manufacturing scheduling anticipated by the order, and apply only to the quantity and delivery ordered. Partial shipments are considered as separate orders for discounting purposes.

EXPORT ORDERS: A minimum export documentation charge of \$60.00 applies. (A minimum charge of \$25.00 applies on orders to certain U.S. territories requiring customs forms.)

MOISTURE/FUNGUS PROOFING: Power supplies can be furnished with a moisture and fungus resistant varnish applied to interior surfaces. To order, add the suffix letter F to the model number. This option requires two additional days and is not available on High Voltage, Mini Encapsulated, Rack Mounting, and Gold Box Switching models.

TAGGING: Add \$10.00 to price.

TEST DATA: Cost, \$35.00 or 2% of order, whichever is greater.

SPECIAL MODELS/MODIFICATIONS: Cataloged models can be altered at the factory to meet special requirements. Contact the Applications Engineering Department to discuss your needs.

PARTS: The designs used in Acopian power supplies utilize standard components to the greatest practical extent. When replacements are required, the types originally used, or their equivalents, can usually be obtained most quickly from a local electronic components distributor.

Special components, such as transformers, are stocked at the factory warehouses. Contact the Applications Engineering Department for information on the parts required, referencing the model number of the power supply, the circuit designation of the component, and a description.

PURCHASE ORDER ACCEPTANCE: Orders are accepted subject to Acopian's Terms and Conditions. Any Terms and Conditions of any Purchaser's order, agreement, or understanding which are in addition to or inconsistent with Acopian's shall not be binding upon Acopian unless made in writing and accepted over the signature of an authorized officer of Acopian. Orders shall not be considered accepted until entered into production at our plant. Acopian reserves the right to refuse any order. All typographical and clerical errors are subject to correction by Acopian.

RETURNED GOODS: Acopian products are built on a per-order basis, and ordinarily no credit can be extended for their return. No goods will be accepted for return unless authorized in writing by Acopian.

CHANGES: The customer may, by a written notice, request changes within the general scope of the order, in the drawings, designs or specifications; method of shipment; and place of delivery. If any such change causes an increase or decrease in the cost, or the time required for the processing of any part of the order, an equitable adjustment shall be made in the price or delivery schedule, or both, and the order shall be modified in writing accordingly.

CANCELLATION: Suspension or cancellation of orders may be made only upon our written approval and on terms that will indemnify us against all loss.

OVERTIME: It is anticipated that any order will be processed during regular working hours on regular working days. If for any reason the Purchaser requests Acopian to process the order, or any portion of it, outside of such regular working hours, any overtime or other additional expense occasioned thereby shall be billed to and paid by the Purchaser as an extra cost. Acopian reserves the right to decline to process the order outside regular working hours.

CUSTOMER DELAY OF WORK: If the performance of all or any part of the work is delayed or interrupted by Customer's failure to act within the time specified (or within a reasonable time if no time is specified) and such act is not expressed or implied by the order, an adjustment shall be made in the cost of performance of the order caused by such delay or interruption and the order modified in writing accordingly. Adjustment will also be made in the delivery or performance dates and any other contractual provisions affected by such delay or interruption.

GOVERNMENT SPECIFICATIONS: Pricing is based upon industrial-grade construction, marking, packing, and packaging. Exception is taken to any MIL specifications, and to any requirements for the use of special forms, documentation other than quoted, and Government Source Inspection. Acopian must decline to quote on any other basis.

APPLICATIONS ASSISTANCE: Questions regarding the specifications, features, and use of any Acopian product should be directed to the Applications Engineering Department. A staff of power supply specialists will be pleased to assist you.