



DC-DC Converters

- with touch safe terminal blocks

REGULATED single output

- One Year Warranty



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DC-DC Converters

Mini Encapsulated - **with touch safe terminal blocks**
REGULATED
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RoHS
COMPLIANT

These wide-input DC-DC Converters have the versatility to be used in a broad range of applications. DC inputs are set at 9-18 VDC, with output voltages ranging from 3.3 VDC to 48 VDC and up to 7A. 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. Touch safe terminal blocks provide easy connection without the need for 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. Optional output indicator (DC ON LED) and voltage adjust potentiometer are available for these units as well. Short circuit and thermal protection, and rugged encapsulated construction, assure years of reliable service.

STANDARD FEATURES

- Outputs may be used in series
- Input/Output isolation
- OVP internal protection
- Short circuit protected
- Small, lightweight

SPECIFICATIONS

Input Voltage: 9-18 Vdc.

Output Ripple (@25 MHz bandwidth): <1% or 50 mV p-p.

Output Voltage Setting: Outputs are factory preset to within $\pm 1\%$ of the nominal output voltage.

T/C Terminal: 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: The output may be connected in either polarity.

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: 500 Vdc.

Switching Frequency: 200 kHz minimum.

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

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

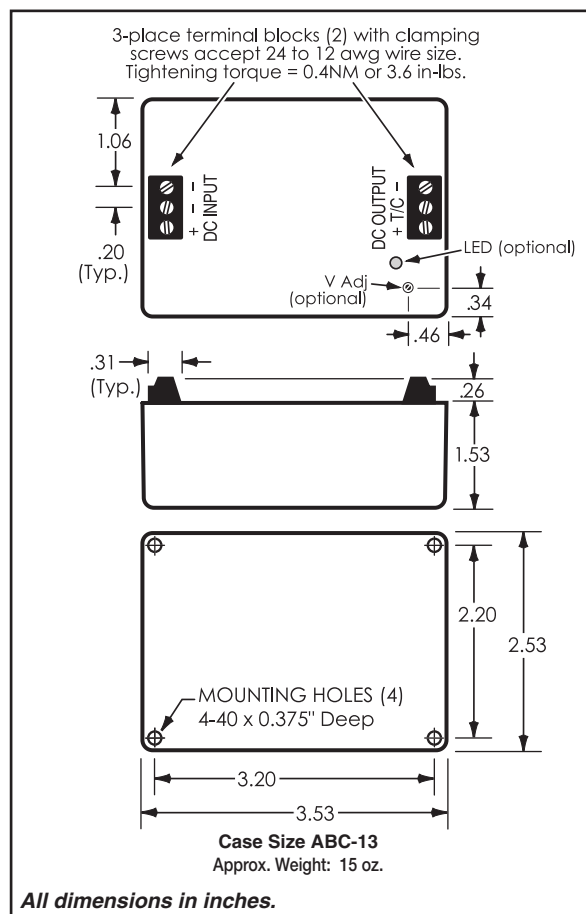
Storage Temperature: -40 to +85°C.

Humidity: 10% to 95% $\leq 40^\circ\text{C}$ R.H. (non-condensing).

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

Voltage Adjust Potentiometer: Allows for adjustment range $\pm 2\%$ of nominal output. To order, add suffix "C1" to the model number.



Output Indicator (DC on): Green LED. To order, add suffix "G3" to the model number.

DC-DC Converters

Mini Encapsulated - **with touch safe terminal blocks**

SINGLE OUTPUT, WITH TERMINAL BLOCKS

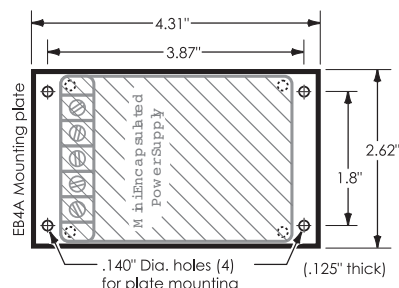
Input Voltage Range	Nominal Output Voltage	Output Current Amps. at				Regulation		Model
		25°C	40°C	55°C	71°C	Load	Line	
9-18	3.3	8.00	7.00	6.00	3.50	50mV	15mV	9-18AB3.3A800
9-18	5	8.00	7.00	6.00	3.50	50mV	15mV	9-18AB5A800
9-18	6.5	8.00	7.00	6.00	3.50	50mV	15mV	9-18AB6.5A800
9-18	9	6.67	5.33	4.33	2.67	50mV	15mV	9-18AB9A667
9-18	12	5.00	4.00	3.25	2.00	50mV	15mV	9-18AB12A500
9-18	15	4.00	3.20	2.60	1.60	50mV	15mV	9-18AB15A400
9-18	18	3.33	2.66	2.16	1.33	50mV	15mV	9-18AB18A333
9-18	24	2.50	2.00	1.63	1.00	50mV	15mV	9-18AB24A250
9-18	36	1.66	1.30	1.08	0.66	50mV	15mV	9-18AB36A166
9-18	48	1.15	1.00	0.86	0.44	50mV	15mV	9-18AB48A115

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

WALL MOUNTING

Model EB4A

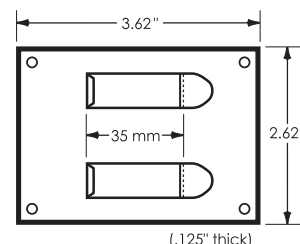
Use Mounting Kit EB4A to mount from the power supply side of the mounting surface, necessary when the other side of the mounting surface is inaccessible. This kit consists of an aluminum plate and four screws for attaching it to the power supply, effectively adding mounting flanges to any Mini Encapsulated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

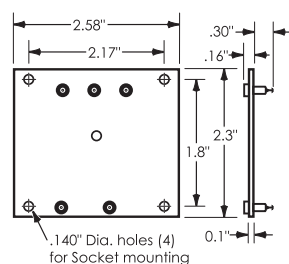


Sockets for 'Mini Encapsulated - PC Board mounting' power supplies:

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.

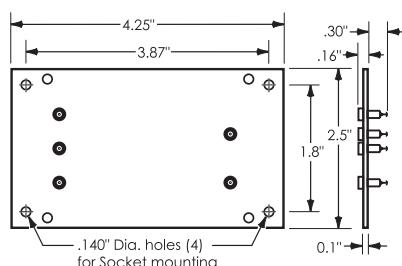
Model ES-1

For case sizes ES-10 and ESC-10



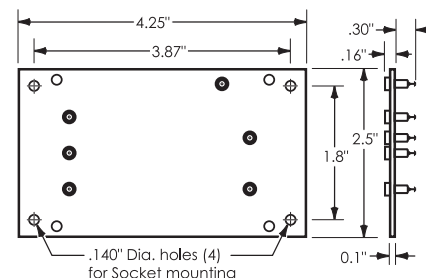
Model EL-1

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



Model ELW-1

For case sizes ELW-13 and ELW-20

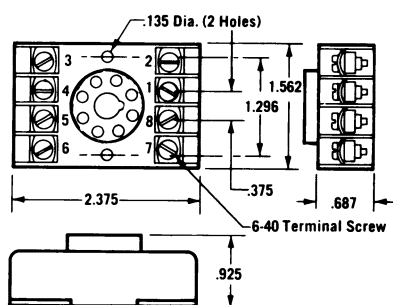


Sockets for 'Plug-In' power supplies:

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

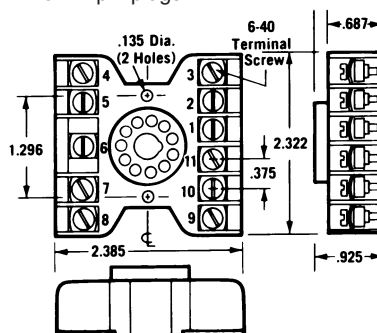
For 8-pin plugs.



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