

# Miniature DC Dimmer

## Dims and Switches Incandescent and LED Lighting



Actual Size

### Miniature Size, Incredible Performance

With size only slightly larger than a sugar cube yet power handling ability of as much as 250 watts per square inch, this ZANE Miniature DC Dimmer actually outperforms most toggle switches of equal size. Halogen compatible, and now optimized for LED lighting as well. Unsurpassed for limited space and hand-carried applications!

A long-time favorite of professional markets including fire & rescue for turning night into day. When installed into portable lighting, a product is delivered that can not only be as bright as the high beam of an automobile headlight, but completely totable and capable of long runtime as well. When installed into the base of a lighting fixture (including retrofit of an existing toggle switch), versatility and economy are enormously enhanced.

Efficiency is an incredible 98 percent over the entire dimming range to dramatically minimize waste heat and power drain. Units are configured for either a 6V, 12V, or 24V battery (see table, reverse side). Adjustment range is from zero output at minimum setting, to about 99 percent of source dc voltage at maximum.

As much as 12 amps of continuous current can be delivered in free air siting; and up to 8 amps in confined space. Meanwhile, a tactile off position reduces battery drain to zero when inactive, and soft start/end dramatically extend the life of expensive incandescent bulbs as compared with a toggle switch.

For the controller board, surface mount technology (miniaturized components placed by machine) is used to achieve subminiature dimensions. A heavy rc filter and reverse battery diode both guard against major causes of failure in the field. For the mother board, triple thick "carved" traces maximize conductive copper to further decrease dimensions and weight.

A conformal coating of electronic-grade silicone seal and 105 degree C rated wiring allow the unit to meet harsh environmental challenges.

A resealable clamshell package can be included for counter sales: The transparent front label with supersized text lists key electrical ratings and displays package contents. Accessible control knob lets potential customer evaluate quality feel and smooth rotary action. Rear text panels highlight applications and benefits.

### Features

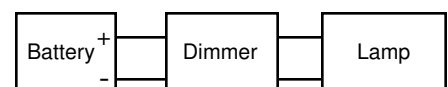
- Powers incandescent and LED lighting, heating elements
- Ultraminiature size for easy installation
- High efficiency minimizes battery drain and waste power
- Output continuously adjustable between zero and 99 percent of source DC voltage
- Tactile on/off. Soft start/end extend bulb life
- Versions for 6, 12, and 24V battery

### Applications

- Lanterns and other hand carried lighting
- Mobile lighting where installation space is limited
- Electrically heated clothing
- Replacement for resistive rheostat

Protected under US Patent 5,237,263  
Pat Pend  
Made in USA  
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#### Wiring Diagram



# Technical Specifications

## Mode of Operation

Continuously variable pulse width modulation

## Supply Voltage

*6V Battery Version:* 4.5 to 12 vdc working, up to 15 vdc momentary.  
*12V Battery Version:* 8 to 15 vdc working, up to 19 vdc momentary.  
*24V Battery Version:* 20 to 27 vdc working, up to 30 vdc momentary.

## Output Voltage Range

From zero vdc to essentially supply voltage.

## Continuous Output Current

Full rated current up to 105 F (40 C) ambient, 75% of rated current up to 115 F (46 C)

## Ambient Temperature Range

- 40 F (- 40 C) to 115 F (46 C) (with restrictions noted)

## DC-DC Conversion Efficiency

About 98% at full rated load

## Load Types

Resistive loads including incandescent lights and heating elements. Also optimized for LED lighting

## Reverse Polarity Protection

Input leads can be reverse connected without damage. User-installed fuse blows if reverse connected across negative leads

## Transient Protection

Resistive/capacitive filtering

## Size

Approximately 1.32" (33 mm) long by 0.9" (22 mm) wide by 1.3" (31 mm) high.

## Weight

About 1.6 oz (45gm)

## Installation

Installs on a panel through a 1/4" drilled hole with included hardware. Star washer prevents unit from rotating (lugs, keys, flats, etc. unneeded)

## Line Regulation

Directly proportional to supply voltage

## Load Regulation

Generally less than 3% from minimum load to maximum load at any setting

## Voltage Drift

Nil with steady input voltage

## Power Dissipation of Drive Circuitry

Less than 0.04W. No-load current draw ("on" but at minimum setting) is about 1mA. Zero power used in tactile click-off position

## Service Life of on/off Switch

About 50,000 cycles

## Heat Sink

Heat sink is electrically isolated from voltage and acts as a protective circuit enclosure. Temperature rise under maximum load is about 40 F (22 C) above ambient

## Accessories Included

Detailed installation instructions, mounting hardware (nut, star washer, "O" ring), tagged leads

## Warranty and Disclaimer:

Although Manufacturer warrants the goods, so far as the same are of its manufacturer, against defects in materials and workmanship under normal use and service for which they were designed for a period of 90 days after invoice date, Manufacturer's obligation under this warranty are limited, at its option, to the replacement of the part or parts determined to be defective or to the refund of the purchase price.

Claims made in this data sheet are based on extensive testing and are believed to be true. Manufacturer shall under no circumstances be liable for any special, indirect, incidental, or consequential damages owing to failure of the goods. Manufacturer makes no warranty of fitness for a particular purpose or merchantability or any other warranty, oral or written, expressed or implied, except as specifically set forth herein. Do not use ZANE products as critical components in life support devices or systems, aircraft, or other hazardous applications. Quotation, order acknowledgment, purchase, etc. does not grant or imply a license under any present or future patents owned by seller except to extent purchases are made from seller.

Any goods returned under warranty must be returned freight prepaid to ZANE International Inc., Minden, NV.

### Miniature DC Dimmer (four-wire) for Panel Installation

Part #	UPC Number	Input Voltage	Maximum Current Free Air/Confined
Space			
AMD-48L-6V	15800	6V	12A/8A
AMD-48L-12V	15900	12V	12A/8A
AMD-48L-24V	16000	24V	12A/8A