



# Endicott Research Group, Inc.

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<http://www.ergpower.com>

# K2970

## Specifications and Applications Information

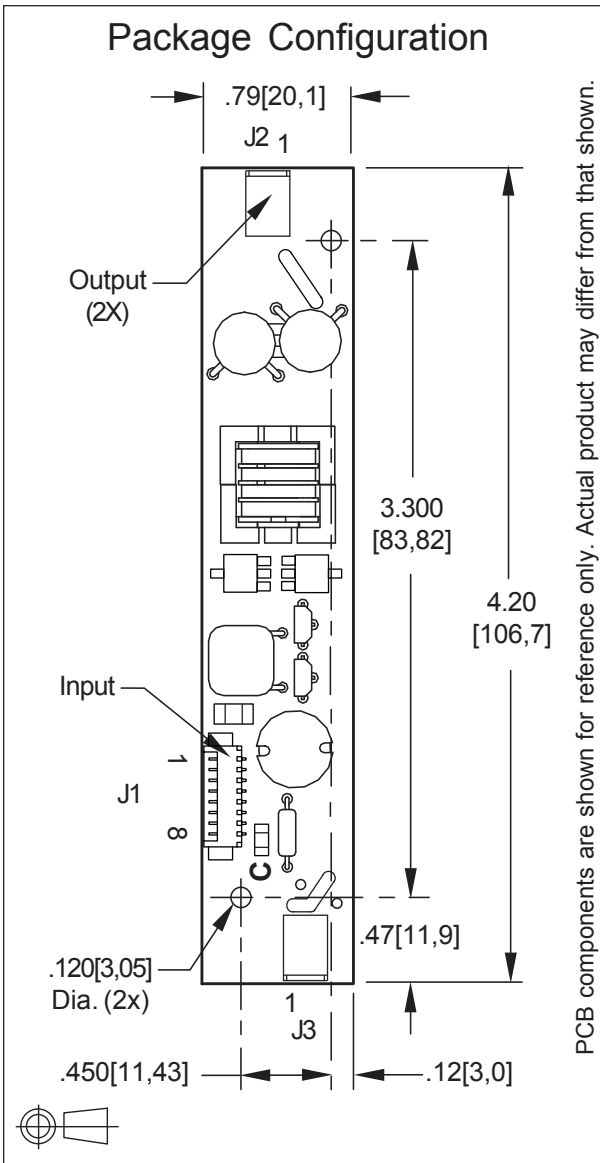
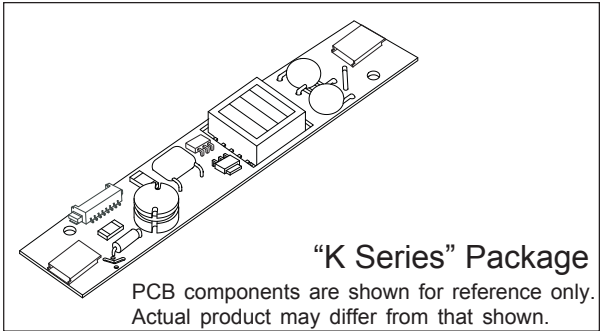
02/09/11

### 8m Class 2 Lamp DC to AC Inverter

The ERG K2970 (8m Class) low profile dc to ac inverter is specifically designed to power the LG Philips LB104V03 LCD display backlight to a moderate brightness level from a +12 volt dc source.

This low profile inverter features:

- ✓ Less Than 8 mm in Height
- ✓ LCD Module Specific
- ✓ Display Compatible Output Connector
- ✓ Firm Specifications
- ✓ Application Information
- ✓ Designed, Manufactured and Supported in the USA
- ✓ Custom Input and Output Voltages
- ✓ Flexible System Interface
- ✓ Notebook Display Head Compatible



Connectors	
Input Connector	Output Connectors
Molex 53261-0871	JST SM02B-BHSS-1-TB
J1-1 +Vin J1-2 +Vin J1-3 GND J1-4 GND J1-5 Enable/PWM * J1-6 N/C J1-7 N/C J1-8 N/C	J2-1 ACout J2-2 ACreturn  J3-1 ACout J3-2 ACreturn
* Valid only with "C" jumper (JP1) removed	

## Absolute Maximum Ratings

Rating	Symbol	Value	Units
Input Voltage Range	$V_{in}$	-0.3 to +13.2	Vdc
Storage Temperature	$T_{stg}$	-40 to +85	°C

## Operating Characteristics

With a load simulating the referenced display and lamp warm-up of 5 minutes.  
Unless otherwise noted  $V_{in} = 12.00$  Volts dc and  $T_a = 25^{\circ}\text{C}$ .

Characteristic	Symbol	Min	Typ	Max	Units
Input Voltage	$V_{in}$	+10.8	+12.0	+12.6	Vdc
Component Surface Temperature <sup>(note 1)</sup>	$T_s$	-20	-	+80	°C
Input Current <sup>(note 2)</sup>	$I_{in}$	-	0.58	0.67	Adc
Operating Frequency	$F_o$	53	58	63	kHz
Minimum Output Voltage <sup>(note 3)</sup>	$V_{out} \text{ (min)}$	940	-	-	Vrms
Efficiency	$\eta$	-	84	-	%
Output Current (per lamp)	$I_{out}$	-	6.0	-	mArms
Output Voltage	$V_{out}$	-	485	-	Vrms
Enable Pin Input Current Requirement <sup>(notes 4,5,6)</sup>	$I_{Enable}$	-	4.0	-	mAdc

Specifications subject to change without notice.

(Note 1) Surface temperature must not exceed 80 degrees C; thermal management actions may be required.

(Note 2) Input current in excess of maximum may indicate a load/inverter mismatch condition, which can result in reduced reliability. Please contact ERG technical support.

(Note 3) Provided data is not tested but guaranteed by design.

(Note 4) Required User Enable/Disable Interface Circuit is shown on page 3.

(Note 5) Valid only with "C" jumper (JP1) removed.

(Note 6) With the inverter powered and JP1 is in place, a ground applied to the enable pin J1-5 will open the inverter fuse.

### Application Notes:

- 1) The minimum distance from high voltage areas of the inverter to any conductive material should be .12 inches per kilovolt of starting voltage.
- 2) Mounting hardware to be non-conductive.
- 3) Open framed inverters should not be used in applications at altitudes over 10,000 feet.
- 4) ACreturn should be left floating, not grounded.
- 5) Contact ERG for possible exceptions.



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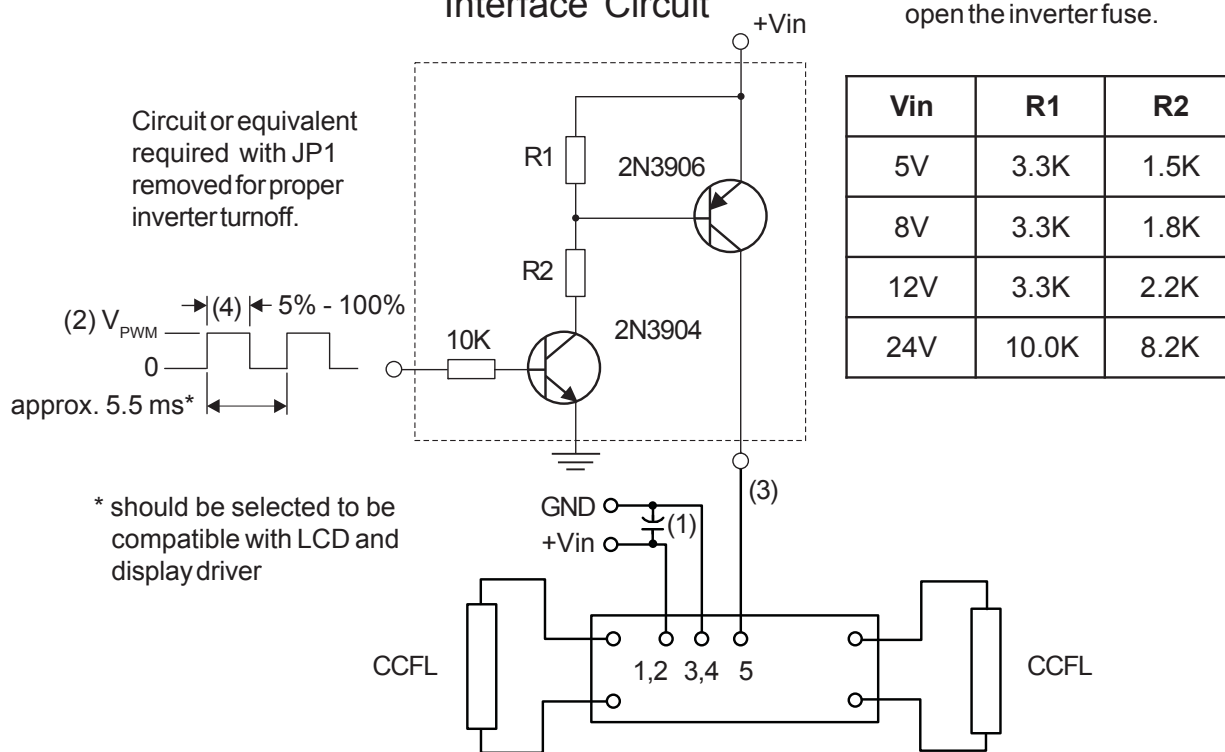
Made in USA

## PWM Dimming

(Valid only with JP1 removed)

### Required User Enable/Disable Interface Circuit

With JP1 in place, a ground applied to the enable pin J1-5 will open the inverter fuse.



- (1) Low ESR type input by-pass capacitor (22 uF - 100 uF) may be required to reduce reflected ripple.
- (2)  $V_{PWM}$  from 2.4V to less than or equal to +Vin.
- (3) Full brightness without PWM control requires that pin 5 be tied to +Vin. Pin 5 must be at 0V to turn off.
- (4) Duty Cycle 5% - 100%.