Zippy Piezo Inverter

The ultimate solution for LCD backlight

Zippy Piezo Inverter Technical Advantages

Features	Zippy Piezo Inverter	Traditional Wired Inverters	Zippy Piezo Inverter Advantages
EMI (Electro-Magnetic Interference)	No[1]	High (intrinsic feature)	-12 to -18db below industrial spec without shielding
High Efficiency	Yes[2]	No	1-2 lamps over 90% efficiency
Wide Range Universal Flicker Free Dimming	Yes[3]	No	Patented built-in wide range dimming without extra circuitry
Wide Working Temperature (-40 to +85°C)	Yes[4]	No	Zippy Piezo inverter will automatically achieve optimum lamp thermal balance.
Independent Open Lamp Arc-Protection	Yes[5]	No	Any single lamp failure will not affect other lamps. Great feature for mission critical application.
Independent Output Short-Circuit Protection	Yes[6]	No	UL approval file number: E304655 Any output short-circuit will affect that lamp only.
Mercury Migration	No[7]	Yes	Balance Sine wave output with no harmonic contents
Extend Lamp Life Span	Yes[8]	No	Balance sine wave, patented dimming method and lamp impedance matching greatly increase lamp life.
MTBF	High[9]	Low	No high voltage ballast capacitor or wired based transformer.
One Size Fits All	Yes[10]	No	CCFL, EEFL, Neon, FFL, UV lamp, HCFL, Negative Ion and etc
Brightness Uniformity	Yes[11]	No	Balanced sine wave and patented dimming method achieve great brightness uniformity result
Lower Lamp Temperature	Yes[12]	No	Balanced sine wave with no harmonic contents and automatically lamp impedance matching will achieve lower lamp (and panel) temperature.

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1. Piezo transducer is ***ceramic material*** that uses mechanical vibration and coupling to convert electrical energy. The Piezo transducer has no EMI (because it's ceramic!)by definition. The overall EMI signature of a complete Zippy Piezo inverter (*without metal shielding*) is -12 to -18db below industrial EMI spec.

2. Ceramic transducer use tightly coupled mechanical vibration to convert energy and achieve very low loss. In contrast, wired transformer use electro-magnetic conversion to convert energy, the inherent iron core loss and air leakage greatly reduced the conversion efficiency.

3. Zippy Piezo inverter use patented wide range flicker free dimming method. This is a built-in feature with universal dimming input. We accept either Analog (voltage level) or Digital (PWM) dimming on same input pin.

4. Zippy Piezo inverter will automatically raise or lower output voltage to compensate for impedance changes caused by ambient temperature. This is crucial in low temperature kick off as well as high working temperature environment. Zippy Piezo inverter will automatically achieve ***optimum*** lamp thermal balance.

5. Independent open lamp arc protection circuitry will shut down and latch single open lamp incident without affecting other lamps. This ***redundancy feature*** is crucial to mission critical application for military, medical, industrial control, aviation, marine and etc.

6. All Zippy generic Piezo inverters are UL Approved. Please note that there is subtle difference between **UL approved products** and "UL listed" (for their company, not the actual product) or "use UL approved components".

7. Mercury migration is a known phenomenon caused by traditional inverter for its unbalanced output waveform and harmonic contents. Zippy Piezo inverter output is balanced sine wave which is the preferred waveform for ALL CCFL lamp manufacturers.

8. Traditional inverter use ON-OFF duty cycle regulation method to achieve dimming function. CCFL lamp was turning ON-OFF at EVERY dimming cycle, i.e. CCFL lamp voltage was raised to high kick-off level in every dimming cycle. Zippy Piezo inverter use patented current amplitude regulation method to achieve wide range dimming without kick-off lamp again after initial kick-off. This will greatly reduced lamp electrode consumption. In addition, balance sine wave and lamp impedance automatically matching will greatly increase lamp life span.

9. There is no high voltage ballast capacitor or wired based transformer in Zippy Piezo inverter. The calculated MTBF spec is extremely high. Its 3.1 million hours for 1 lamp and 2.6million for 2 lamps Piezo inverter.

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10. The automatic lamp impedance matching feature of Piezo inverter facilitates its universal acceptance for all kinds of high voltage discharge applications. We have successfully apply this great feature to support CCFL, HCFL, EEFL, FFL, UV lamp, Negative Ion generator (for air purifier), Neon and special gas tube (for classified military application).

11. Balanced sine wave output and our patented current amplitude dimming method achieve an unprecedented level of brightness uniformity without special circuitry or adjustment.

12. Harmonic contents and unbalanced zigzag waveform generated by wired inverter contributed to lamp temperature built up which in turn is ***cooking the panel***. Balanced sine wave of Piezo inverter has no harmonic contents and the automatically lamp impedance matching feature will reduce lamp working voltage when lamp temperature is higher which in turn will reduce the lamp temperature. This will achieve a optimum thermal balance state with lower lamp temperature.