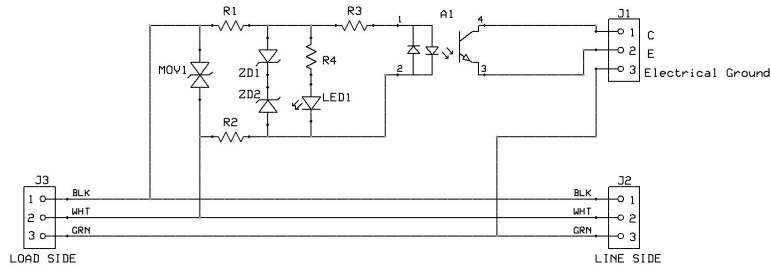


SPECIFICATIONS:

AC input: NEMA 5-15P Plug, standard 120vac with ground.
AC output: NEMA 5-15R Receptacle, standard 120vac with ground.
Output: Open NPN transistor collector. Requires a resistor connected to the supply voltage of the microcontroller.
Output voltage: Positive going sync pulse to supply voltage. 30vdc maximum.
Output current: 50ma sink maximum.
Output polarity: Positive going pulse at zero crossing.
Output to ac circuit isolation: 5000Vrms
Indicator: LED indicates power is energized.
AC pass-thru capacity: 12amps max @ 120vac.
Protection: AC side protected with 150vac MOV.
Mounting: Two #6 screws or free standing



For technical support, please contact us at support@powerswitchtail.com.
For more product information, please visit <http://www.powerswitchtail.com>.

Our liability is limited to the purchase price of this product only. By using this product you agree that PowerSwitchTail.com, LLC can not be held liable for any damages or injuries resulting from use or repairs.

ZeroCross Tail

PN 80175, US version

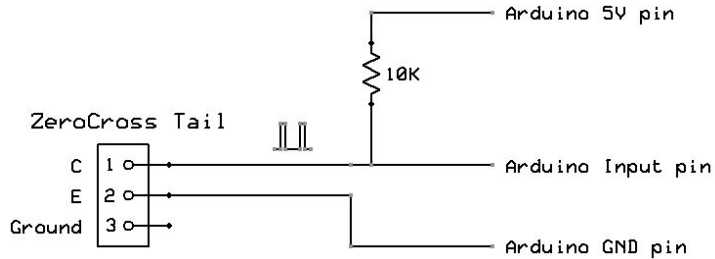
An isolated power cord to obtain the zero voltage crossing sync pulses need for 120vac light dimmers and motor speed control.

- Use with an Arduino or other microcontroller to synchronize phase-controlled power switching of the ac mains.
- Use with one or more PowerSSR Tails or equivalent triac-based switching power switches to make light dimmers and motor speed controllers.
- Open collector output for interface to any microcontroller. Pull up resistor to external power source required for logic level signal.
- Isolation greater than 5000Vrms.
- Pass through power cord handles up to 12 amps.
- No exposed 120vac voltages and no dangerous 120vac wiring required. Can be installed by non-technical users.
- Plugs into standard 120vac 3-prong household outlets, power strips, and extension cords. Easily inserts between power source and corded electrical devices.
- Eliminates the exposure of hazardous voltages in classrooms, in laboratories, and on industrial and DIY development workbenches.
- No special 120vac wiring when deploying new products and custom solutions. Eliminate the need for electrician fees or electrical wiring permits.
- Two-wire output signal connects to screw type terminal block (14-30 AWG).
- LED indicator shows power is energized.
- Output devices may be 3-prong or 2-prong appliances or lights.
- Indoor use only.

Hookup Instructions:

1. The ZeroCross Tail (ZCT) C and E terminals are connected to the collector and emitter pins respectively of an internal phototransistor. (See the schematic on the last page.) An external pull-up resistor and dc power source is *required* to obtain a logic level output signal. If

you are using an Arduino, connect the ZCT to the Arduino as shown. Depending on your program, you can use either a Digital Input or an Analog Input pin on the Arduino. The signal to the Arduino is normally zero volts and momentarily pulses to near the 5v level during the zero crossing.

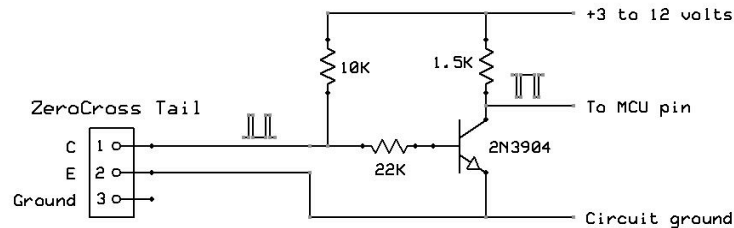


- Output terminal 3 (Ground) is internally connected to the ac line safety ground (green wire) and may be used if required.

Arduino Sample Sketch:

Check the ZeroCross Tail product page on our web site for links to a sample sketch and other helpful information.

- If a pulse with faster rise and fall times is desired, an additional transistor circuit can be added. This circuit will invert the signal so the output to the Arduino or other microcontroller (MCU) will be high (near the supplied positive voltage) most of the time and low (near ground potential) during the zero crossing.



- To connect the signal wires use a small screwdriver to access the screws from the top of the ZCT. If necessary, turn the screws CCW to open the terminal contacts. Strip ¼-inch of insulation from the signal wires and insert them into the terminal block contacts through the holes on the side of the ZCT. Tighten the screws and verify the contacts firmly grip the signal wires. Any size wire #16 AWG or smaller may be used. (Standard CAT3/5 #26 AWG twisted pair wire works well.)
- Connect the other end of the signal wires to your Arduino or other MCU.
- Plug the ZCT into the power outlet and verify the LED indicator lights up. Verify your application is receiving the zero cross signal.
- The 120v receptacle on the ZCT is a simple pass through so you can use it to power your application. Maximum load is 12 amps. The ZCT will provide a zero cross signal whether or not there is a load plugged into the receptacle.