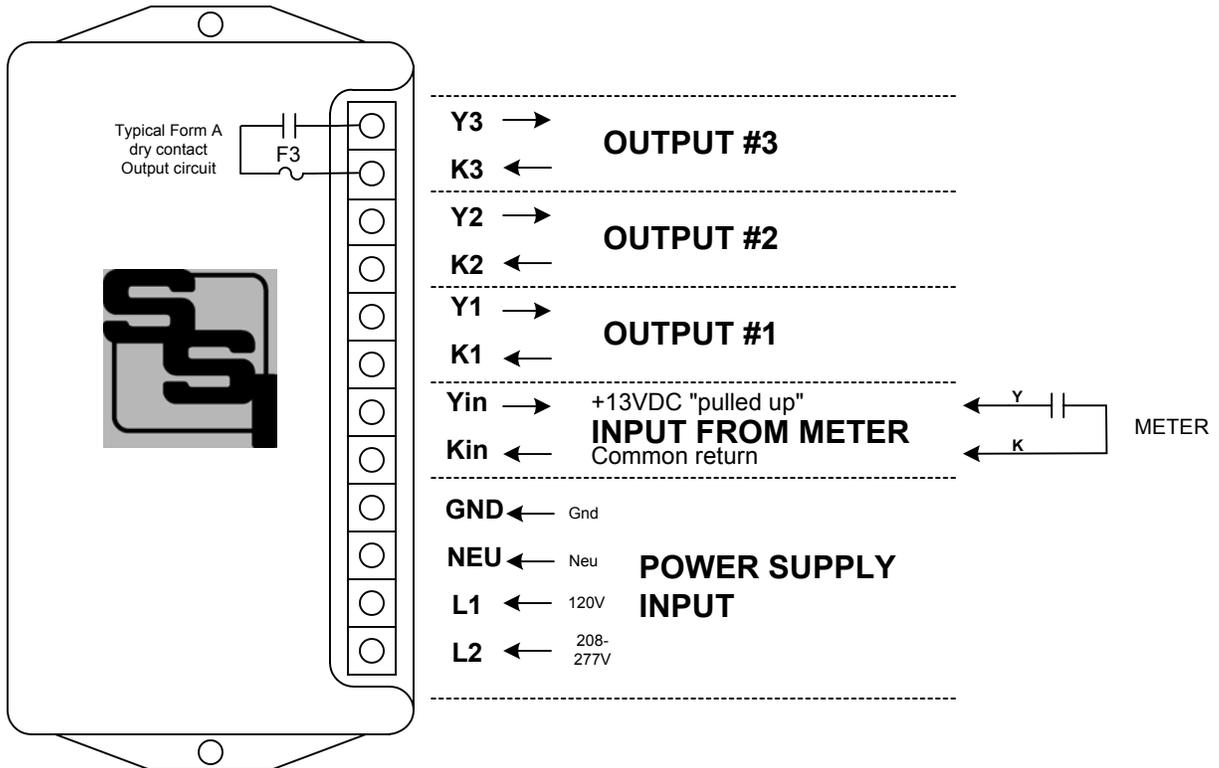


# PIR-3PS

# PULSE ISOLATION RELAY INSTRUCTION SHEET

*Elite Solid State*



**MOUNTING POSITION** - The PIR-3PS may be mounted in any position.

**POWER INPUT** - For a 120VAC power supply, connect the "hot" lead to the **L1** terminal. For a 208 to 277VAC power supply, connect the "hot" lead to the **L2** terminal. Connect the Neutral power supply lead to the **NEU** terminal. Connect the electrical system ground to the **GND** terminal.

**METER CONNECTIONS** - The PIR-3PS's **Kin** and **Yin** input terminals are connected to the meter's K & Y terminals: Kin to K and Yin to Y. The PIR-3PS's **Yin** terminal provides a "pulled up" +13VDC wetting voltage to the meter's Y terminal. The **Kin** terminal is the common return.

**FUSES** - The fuses are type 3AG and may be up to 1/2 Amps in size. A 1/2 Amp fuse is supplied standard with the unit unless otherwise specified.

**OUTPUTS** - Under the PIR-3PS' thermoplastic cover on the left-hand side of the board is a 3-pin header labeled **JP1**. This selects either the Long (LEFT) or the Short (RIGHT) output pulse mode. Use the long (**L**) mode to have the output pulse length match the input pulse length. Read the reverse side of this sheet for additional information on selecting the jumper setting. Arc suppression for the contacts of the solid state relay is provided internally.



## SOLID STATE INSTRUMENTS

a division of Brayden Automation Corp.

6230 Aviation Circle, Loveland Colorado 80538

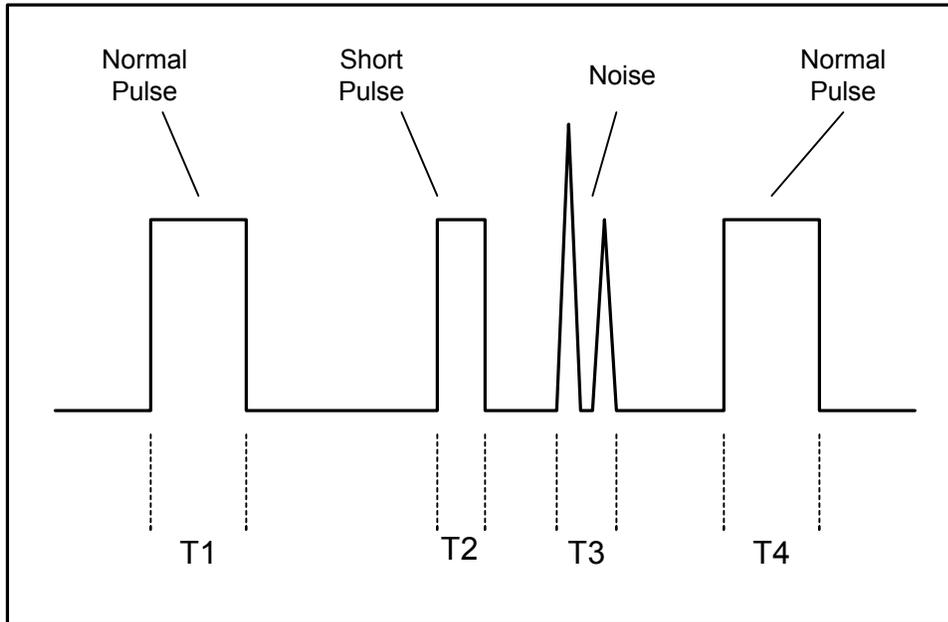
Phone: (970)461-9600 Fax: (970)461-9605

E-mail: support@solidstateinstruments.c

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# WORKING WITH THE PIR-3PS RELAY

**BLOCKING NOISE:** The PIR-3PS has a built-in circuit which is designed to reject noise while allowing the detection of valid pulses from a sending source. The circuit accomplishes

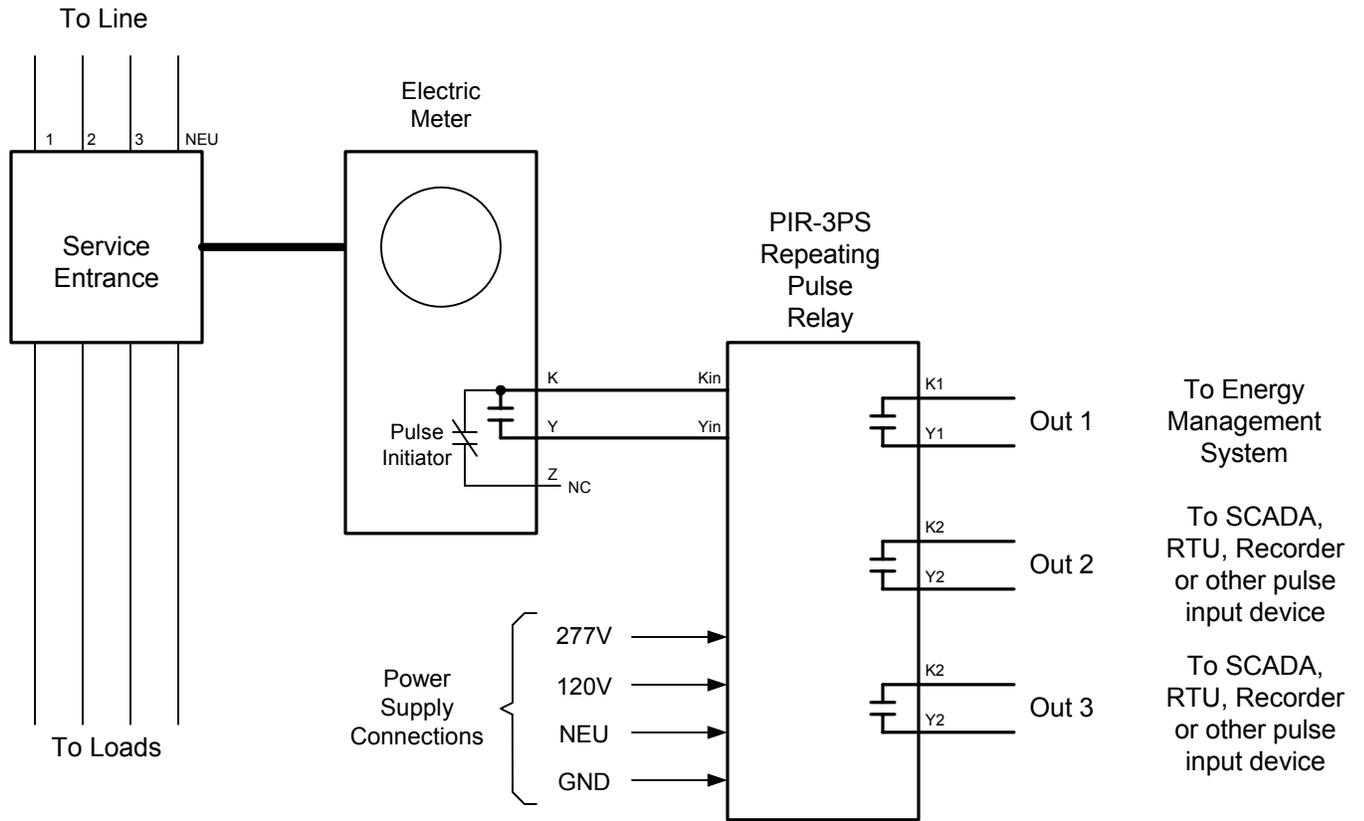


this by measuring the time an input voltage is present. If the input voltage is present for less than 20 to 25 milliseconds, it is assumed to be noise. An input of longer duration is classified as a valid input and an output will occur. In the illustration to the left, the normal pulses with time durations of T1 and T4 will cause an output. The short pulse of time duration

T2 and the noise with duration T3 will be rejected because the time (pulse width) is not enough, even though the voltage is of sufficient magnitude. The time T4 could be many or thousands of times as long as T1 and it would still be a valid time pulse since it has met the minimum time requirement of 20 to 25 milliseconds. The time duration of 20 to 25 milliseconds has been chosen as the factory-set value since one cycle of the 60 hertz AC line frequency represents 16.77 milliseconds. Most induced noise and arcing discharges do not last longer than this, while most contact closures are a great deal longer. The time duration of the noise rejection circuit may be modified by changing either a resistor and/or a capacitor. In a very dirty (noise-wise) environment, it might be desirable to set the delay up to as much as 250 milliseconds. If you need a longer input validation period, check with the factory for correct values and procedures.

**OUTPUT PULSE DURATION:** The PIR-3PS can output two types of pulses - Long or Short - depending upon the position of the small jumper selection header located on the left side of the board just above the power transformer. In the "S" position, the PIR-3PS outputs a "short" pulse of about 100 milliseconds in duration occurring 20 to 25 milliseconds after the leading edge of a valid input pulse. The length of the output pulse may be modified by changing the value of a resistor and/or a capacitor to allow much longer or shorter output periods. If the switch is in the "S" position and the incoming pulse is of sufficient time duration to be a valid pulse, but is less than 100 milliseconds, the output time period will still be 100 milliseconds. Thus, the PIR-3PS can be used as a pulse stretcher. In the "L" position, the PIR-3PS outputs a "long" pulse which is the same duration as the valid input pulse plus 100 milliseconds, occurring 20-25 milliseconds after the input of the leading edge of a valid input pulse.

# PIR-3PS Wiring Diagram



PIR-3PS Repeating Pulse Relay Wiring Diagram		REVISIONS	
		NO.	DATE
DATE ORIGINAL <b>02/14/09</b>		SCALE <b>N/A</b>	
LATEST REVISION		DRAWN <b>WHB</b>	

**Brayden Automation Corp./**  
**Solid State Instruments div.**  
 6230 Aviation Circle  
 Loveland, CO 80538  
 (970)461-9600  
 (970)461-9205 fax  
[www.solidstateinstruments.com](http://www.solidstateinstruments.com)