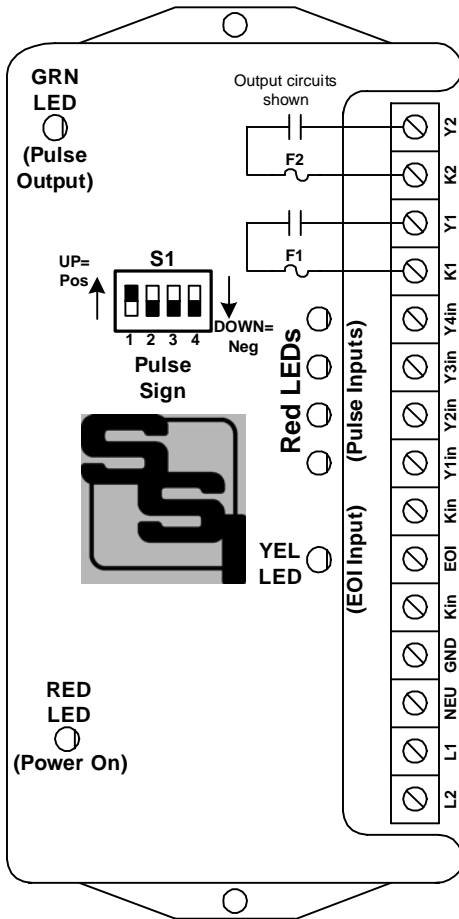


# NPR-1

Standard Solid State

# NET PULSE VALUE REGISTER INSTRUCTION SHEET



Y2 → OUTPUT #2  
K2 ←

Y1 → OUTPUT #1  
K1 ←

Y4in → INPUT #4

Y3in → INPUT #3

Y2in → INPUT #2

Y1in → INPUT #1

Kin ← Common Return for all Meters

EOI → End of Interval Input

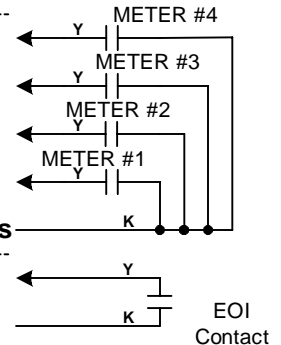
Kin ← Common Return for EOI

GND ← Electrical System Ground

NEU ← Neutral

L1 ← 120V (hot)

L2 ← 208-277V (hot)



**POWER SUPPLY  
INPUT**

**MOUNTING POSITION** - The NPR-1 may be mounted in any position.

**POWER INPUT** - To power the NPR-1 with a 120VAC power supply, use the **NEU** and the **L1** power supply input terminals. For 208, 240 or 277 VAC operation, use the **NEU** and **L2** power supply input terminals. Connect the **GND** terminal to the electrical system ground.

**METER CONNECTIONS** - The NPR-1's **Kin** terminal provides the common return for all of the meters' K terminals. The NPR-1 utilizes only 2-Wire inputs. Connect each meter's Y terminal to the **Y(x)in** terminal of the desired input channel "x" of the NPR-1. Each **Y** input provides its own wetting (sense) voltage to the meter's Y terminal. Meter's pulse output can be dry-contact, solid state or mechanical. Connect the End-of-Interval contact closure to the EOI input terminal and the Kin Common Return. This input also provides its own wetting (sense) voltage to the meter's EOI terminal.

**PULSE SIGN SWITCH** - Set each of the four switches on dip switch S1 to the correct sign for its respective input, either positive(+) or negative(-). Switch S1.1 sets the sign for Input #1; S1.2 sets the sign for input #2, etc. The sign determines whether the pulse on the respective input will be added or subtracted.

**OUTPUTS** - Two 2-wire (Form A) isolated outputs are provided on the NPR-1. Arc suppression for the contacts of the solid-state relays is provided internally. The output loads should be limited to 1/10th Amp by fuse F1. Two 1/10 Amp fuses are supplied standard. Fuses are 3AG (AGC) fast blow type.



## 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.com

**OPERATION**- The NPR-1 is intended to collect pulses from up to 4 meters over a demand interval and keep a running net total of the positive and negative pulses. Each time a positive pulse is received by the NPR-1, the count register is incremented by one. Each time a negative pulse is received by the NPR-1, the count register is decremented by one. The maximum count in the register is 16 bits or 65,536. At the end of the interval, upon the EOI input being closed for 1 second, the count register is tested to see if the result is positive. If the count is positive, the contents of the count register are outputted at the rate of one pulse per 200mS (five pulses per second) and continues until the register is empty. In this manner, an interval recorder will be able to record the positive energy delivered over the previous interval. If the result of the register test is negative, the register is zeroed out and returned to normal operation.

**CLEARING THE REGISTER** - Prior to the start of counting, the count register should be zeroed. This can be accomplished in two ways. Either you can power up the NPR-1, making sure that no input pulses will occur, close the EOI input momentarily (connect EOI to Kin) and wait until the green LED stops flashing. Secondly, turn off power, set all four of the input sign switches DOWN and reset the power. Turn off power again. Set the switches to their desired position and then restore power for normal operation. This procedure clears all the registers and upon power-up normal operation will begin.

**LEDs** - Four Red LED's are provided, one for each input. Each time the pulse input is active, the LED will light. In this manner, the inputs from the meters may be monitored. A Yellow LED is provided to monitor the status of the End-Of-Interval signal. Each time the controlling meter sends an EOI switch closure, the Yellow LED will light. A Green LED is provided for the output. Following the end of an interval after the EOI input is closed, you will observe the Green LED flashing at a rate of 5 times per second until the register is empty. These visual indicators will allow you to troubleshoot the application, if necessary.

**MAXIMUM POWER DISSIPATION OF OUTPUTS** - Output devices are rated at a maximum of 800mW. Care should be taken to insure that the wetting voltage used across the output device times the current (or burden) of the input of the downstream device, does not exceed the maximum power output dissipation of 800mW. Normally this is not a problem since most downstream instrumentation devices are high impedance and present a very low burden, usually less than 10mA.



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