



REGISTERS/TOTALIZERS

NPR-1 Net Metering Register Relay

DESCRIPTION

The NPR-1 Net Pulse Register is a simplified pulse totalizer designed to provide a totalized net pulse count from up to four 2-Wire (Form A) input pulse sources. It is designed to work with an End-of-Interval (EOI) pulse input that coordinates and synchronizes the operation of the NPR-1. To simplify the operation of the NPR-1 all pulse values (weights) must be equal to each other, and are assigned a positive or negative pulse weight.



FUNCTIONAL SUMMARY

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TYPE

FORM

IN	OUT
4	1
2 Wire	2 Wire
A	A

NPR-1

Once an EOI pulse is received, the NPR-1 begins a new interval and counts positive and negative pulses in a count register. A positive pulse increments the count register by 1 while a negative pulse decrements the count register by 1. At the end of the demand interval, the EOI input line is activated and the existing net count is transferred to an output register. Once the new interval is started, the normal count pulse counting operation resumes. While this is occurring, the output register begins outputting the number of pulses equal to the net count at a rate of 5 pulses per second. These are generally fed into an electric meter pulse input, recorder, SCADA system or other telemetry device. If at the end of a demand interval the net count is zero or negative, no pulses are outputted to the external device.

Two Form A (K&Y) solid state isolated, dry-contact outputs are provided. Typical applications include interfaces between utility metering devices, demand recorder applications, and supervisory control systems (SCADA) interfaces. The NPR-1 provides a sense voltage of +13 VDC to the four K-Y pulse sending source contacts, normally four meters, as well as to the EOI pulse input.

Installation and setup are amazingly simple since the only programmable parameters are to set the pulse weight as positive or negative. Non-volatile EEPROM memory "remembers" all register values in the event of power loss. Upon power-up all register values are restored, so there is no loss of pulse counts or register values.

The "K" lead of the NPR-1's outputs are fused to prevent damage to the relay under almost any condition a user might cause such as excessive current, incorrect wiring, etc. The NPR-1 utilizes SSI's standard built-in transient protection for the solid state relay contacts that eliminates the need for external or off-the-board transient suppressors. All component parts of the NPR-1, which have power applied to them with the exception of the input/output terminal strip, are enclosed in a polycarbonate cover for maximum protection. The mounting base plate is also made of polycarbonate and offers excellent electrical insulation.



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SPECIFICATIONS

ELECTRICAL

Power Input:	120, 208-277 VAC. Burden: 4 mA at 120 VAC
Pulse Input:	Four 2-Wire Form A inputs. The "K" input terminal is the common return for all meters. The "Y" terminal is "pulled-up" to +13 VDC making it compatible with open-collector transistors, open-drain FETs or virtually any kind of KYZ switch (i.e. mechanical, electro-mechanical or solid state).
Pulse Output:	Two dry Form A contacts (K & Y). Factory fused at 1/10 Amp with 3AG fuses. Solid state contacts have a maximum output rating of 250VAC/VDC at 1/10 Amp. The maximum power rating of the contacts is 800 MW, without exceeding the maximum voltage and current ratings of the solid state switch.
Contact On-State Resistance:	25 ohms maximum, 18 ohms typical
Input to Output Isolation Voltage:	2500Vrms
Operate and Release Time:	3 milliseconds max. operate (turn-on) 1 milliseconds max. release (turn off)

MECHANICAL

Mounting:	Any position
Size:	3.50" wide, 7.20" high, 1.50" deep
Weight:	1 pound

TEMPERATURE

Temperature Range:	-38° C to +70° C, -36.4° F to +158° F
Humidity:	0 to 98% non-condensing

OPTIONS

Input Voltages:	Contact factory for input voltages.
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NPR-1