



## PULSE LINKS

# PTR-1 PULSE TRANSMITTING RELAY

## DESCRIPTION

The PTR-1 pulse transmitting relay is designed to transmit KYZ pulses over long distances up to approximately 4 miles. It provides a 2-wire current loop output and must be connected to a CLR-1, CLR-2 or CLR-3 to receive the pulses. These units are a functional replacement for the GE DC-1 Power Supply and S-4 Relay, or other older devices used for long distance pulse transmission.



### FUNCTIONAL SUMMARY

	IN	OUT
#	1	1
TYPE	3 Wire	CL
FORM	C	CL

The PTR-1 contains a 3-Wire Form C input (K, Y, & Z). A +9VDC sense voltage is sent from the K input terminal to the pulse-sending device, typically an electric meter, and returns to the PTR-1 from the Y and Z outputs of the meter. Each time the input changes state, the polarity of the current loop is reversed causing the CLR receiving relay at the remote end of the cable to switch to the opposite state. Wire size in the current loop is not critical but longer distances may be obtained with larger gauge wire.

The PTR-1 has a built-in low voltage transformer isolated powered power supply and may be used with meters having mechanical output contacts (relays), or high or low voltage semiconductor outputs.

Typical applications include interfaces between utility metering devices and customer-owned energy control systems, demand recorder applications, and supervisory control systems (SCADA) interfaces. The PTR-1 relay contains circuitry designed to prevent false outputs from occurring. An incorrect sequence of input pulses is detected and only the first valid pulse will result in an output.

Bright red and green LED lamps indicate the system's status at all times thus allowing a rapid check of the system's performance without requiring any additional test equipment. The PTR-1's input and output circuit's terminal strip is a "EURO" type connector. When the stripped wire has been correctly installed in the terminals "slot" no conductive parts are exposed on the surface of the terminal strip. Due to the inherent current-limited nature of the design, no fusing is necessary on the output. No damage will result if the current loop is shorted.

The PTR-1 has built-in MOV transient protection for the solid-state relay contacts as well as for the current loop, eliminating the need for external surge suppression. All component parts that 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 between the circuit and the mounting surface. The PTR-1 is designed to mount in a suitable electrical enclosure for the application.

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## SPECIFICATIONS

### ELECTRICAL

Power Input:	90 to 300 VAC. Burden: 10 mA at 120 VAC
Output:	Current loop output for CLR Series relays. Factory fused at 1/2 amp. (3AG)
Contact On-State Resistance:	5 ohms maximum, 3.4 Ohms typical
Operate and Release Time:	Turn-On: 5 milliseconds maximum Turn-Off: 3 milliseconds maximum
Input/Output Isolation Voltage:	2500Vrms

### MECHANICAL

Mounting:	Any position
Size:	3.5" wide, 7.2" high, 1.5" deep
Weight:	17 ounces

### TEMPERATURE

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

### OPTIONS

Input Voltages:	125 VDC input using the DSC-1 Power Supply. Contact factory for other input voltages.
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