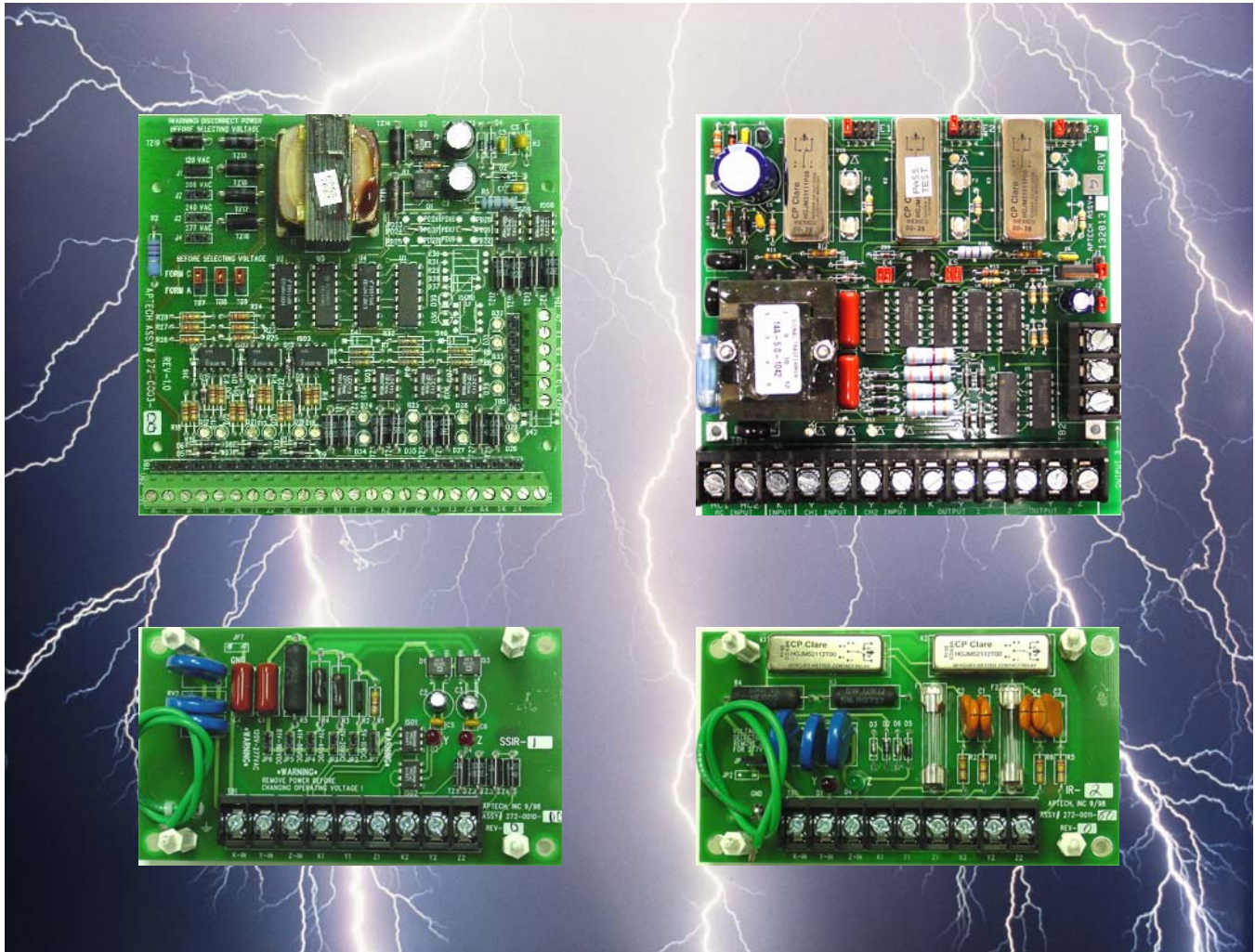


Metering Isolation Relays

Surge Protection for Substation, Generation and Smart-Grid Revenue Metering Installations



Protects Energy Meters, Recorders, SCADA and Telemetry Equipment from Surge Damage by Electrically Isolating the Meters Pulse Input/Output Wiring Path



Manufactured and Tested in the United States of America

IB6 Series - Solid State Isolation Relay

All Solid-State Design



Measurement Canada Approval # E-281

Description

The TransData IB6 Series Solid-State Isolation Relay is advanced, all solid-state design providing one, two, or three input channels with two or three output channels. Uniquely designed to ensure maximum flexibility and reliability, the IB6 models, five in all, provide multiple independent and isolated pulse input and output channels. The IB6 series can be used with Form-A, Form-C, or open collector pulse initiators. All five models are available in one of three transformer isolated power input ranges; 120/208, 120/240 or 120/277 volts.

The IB6 provides a pulse distribution point to various devices in remote locations. The IB6 Series Isolation Relay is designed to isolate and protect network components for safety and security. It can be used for both pulse replication and pulse isolation applications, where a utility needs to isolate their billing meter's pulsed output from a customer's energy management system, RTU, Load Profile Recorder, or some other pulse collecting device. The IB6 can also replicate two or three pulsed inputs, providing the same pulse to several different devices.

The IB6 is a solid-state isolation relay with up to three Form-A or Form-C pulse inputs and up to six Form-A or Form-C solid-state pulsed outputs. This device is available in five different model configurations to fit most any utility metering application.

With an all solid-state design and no moving parts, the IB6 Series Isolation Buffer is environmentally friendly and can be mounted in any position. All inputs and outputs terminations are clearly marked and feature visible LED's provided on both the Y and Z of each input and output to demonstrate the receipt and transmission of pulses.

IB6 Series - Solid State Isolation Relay

Applications

The IB6 can be utilized in the following applications:

- Isolation for substation pulse inputs/outputs
- Meter pulse isolation and pulse replication
- DC pilot wire signaling for long distances
- Pulse bounce filtering

Features

The IB6 provides the following features:

- Up to three Form-A or Form-C inputs accepting contact closures or open collector inputs
- Power supply accepting 120 - 277 VAC, selectable using PCB header shunts
- Input and Output color-coded LED indicators
- Maximum 10 pulses per second throughput
- Pulse de-bouncing in Form-A or Form-C mode

Ordering Information

<u>Model#</u>	<u>Configuration</u>
IB6-12	1 Input, 2 Outputs
IB6-13	1 Input, 3 Outputs
IB6-24	2 Inputs, 4 Outputs
IB6-26	2 Inputs, 6 Outputs
IB6-36	3 Inputs, 6 Outputs

Specifications

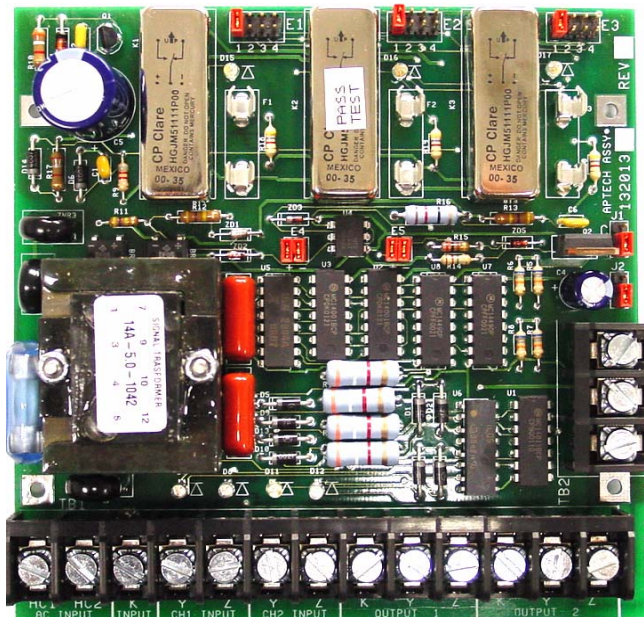
Power Requirements	
Voltage	120/240 (Optional-120/208, 120/277) VAC +/- 20%
Frequency	60 Hz
Burden	Less than 4.8 VA @ 120 VAC
AC Input Surge Suppression	1.5 Joules / 26 Amps

Inputs	
Number of Inputs	Up to 3 Form C (3 wire) or Form A (2 wire)
Voltage (Open Circuit)	9.5 VDC
Current (Short Circuit)	6.0 mA

Outputs	
Number	Up to 6 Form C (3 Wire) or Form A (2 Wire)
Voltage	200 Volts DC or Peak AC
Current	100 mA
Capacity	20 VA DC or 14 VA AC RMS
Pulse Rate	10 pulses / sec maximum

Environmental & Mechanical	
Temperature	-40 to +85° Celsius
Humidity	5 to 95% non-condensing
Dimensions	6.35" W X 5.10" H X 2.1" D
Mounting Plate	Fastened to an aluminum plate by four stand-offs. Seal-able cover is optional

UIR Series - Universal Isolation Relay



Measurement Canada Approval #E-244

The TransData UIR Series Universal Isolation Relay is designed to isolate and protect network components for safety and security while also providing a pulse distribution point to various devices in remote locations.

Applications

The UIR Series Universal Isolation Relay can be utilized in the following applications:

- Isolation for substation pulse inputs/outputs
- Meter pulse isolation and pulse replication
- DC pilot wire signaling for long distances
- Pulse bounce filtering

Features

The UIR Series Universal Isolation Relay provides the following features:

- 2 Form-A or Form-C inputs accepting contact closures, open collector inputs, or AC or DC voltage signals
- Power supply accepting 120 - 277 VAC without hardware configuration changes
- Input/Output mapping allowing inputs to be routed to any combination of the three outputs using field configurable PCB header shunts
- 1 Amp Fast Acting 5x20mm fuse input over-current protection
- Input and Output LED indicators
- Fused outputs
- Maximum 10 pulse per second throughput
- Pulse de-bouncing in Form-A or Form-C mode
- Bi-stable or Mono-stable configurable operation, depending on model
- Two or three Form-C mercury wetted relay outputs, depending on model

UIR Series - Universal Isolation Relay

Through the use of an innovative, highly reliable, power supply design, the UIR supports 120, 240, and 277 VAC power inputs without hardware configuration changes. At rates up to 10 pulses/second, the UIR accepts the following inputs:

- Form-A or Form-C dry contact closures
- Form-A or Form-C open collector inputs
- Form-A or Form-C AC or DC voltage streams

Allowing the UIR to accept two (2) independent streams of input pulses, TransData's unique I/O Routing process permits routing the inputs, both bi-stable and mono-stable, to any combination of outputs.

Ordering Information

Model#	Configuration
UIR-1	2 Inputs/2 Outputs, Bi-stable operation
UIR-5	2 Inputs/3 Outputs, Bi-stable operation
UIR-3	2 Inputs/3 Outputs, Bi-stable & Mono-stable operation

Specifications

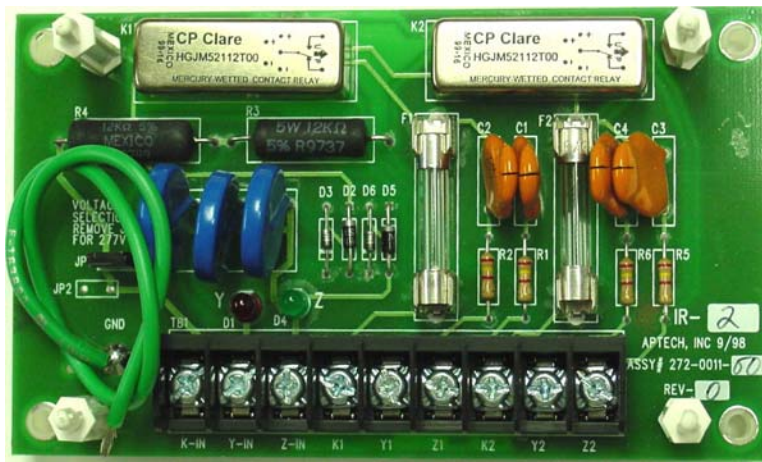
Power Requirements	
Voltage	120/208/240/277 VAC +/- 20% @ 50/60 Hz
Burden	Less than 1.7 VA
Surge Suppression	22 Joules/2000 Amps

Inputs	
UIR-1	2 Form-C (3 wire) or Form-A (2 wire), Bi-stable only
UIR-5	2 Form-C (3 wire) or Form-A (2 wire), Bi-stable only
UIR-3	2 Form-C (3 wire) or Form-A (2 wire), Bi-stable or Mono-stable operation
DC Input	Input Voltage from +/- 7 to +/- 65 Volts
Voltage (Open Circuit)	9.5 VDC
Current (Short Circuit)	5mA Current (Max)

Outputs	
UIR-1	2 Form C (3 wire) Mercury Wetted Relays
UIR-5	3 Form C (3 wire) Mercury Wetted Relays
UIR-3	3 Form C (3 wire) Mercury Wetted Relays
Voltage/Current	500 Volts DC or peak AC /100 VA (Max)
Pulse Rate	10 Pulses/Sec (Max)
Input/Output Routing	Either of the 2 inputs can be routed to any of the outputs on E1, E2 and/or E3 depending on the model

Environmental & Mechanical	
Temperature	-40 to +85° Celsius
Humidity	0 to 95% non-condensing
Dimensions	6.35" W X 5.10"H X 2.1" D
Mounting Plate	Fastened on aluminum plate by standoffs with dust cover. Sealable cover is optional

LIR Series - Latching Isolation Relay



Description

TransData LIR Series Latching Isolation Relay Modules are designed to provide isolation for K, Y, & Z Form-C contacts. The LIR-1 module provides one set of input terminals and one set of isolated output terminals. The LIR-2 module provides one set of input terminals and two (2) sets of isolated output terminals. The module is typically used to isolate the interface between utility and customer metering installations. The module has input Light Emitting Diode (LED) indicators, "Y" and "Z", to display the status of the incoming signal and fused outputs to prevent damage to customer and utility equipment. The input circuit is also equipped with MOV's to provide transient protection for the input circuit.

Wiring Connections

Terminations to the module are made via a 30 Amp, 300 Volt rated single row terminal block that is UL rated for a 4100 VRMS breakdown voltage. The terminal block utilizes a #6-32 zinc plated phillslot screw termination that will accommodate #12 to #22 AWG copper wire. A #16 AWG ground wire is provided and should be connected to a suitable grounding point. A typical utility customer interface is shown in the FIGURE 1: Wiring Diagram.

Electrical

The Latching Isolation Relay modules are designed utilizing mercury-wetted relays to provide the required equipment isolation. The K, Y, & Z inputs are connected through LED's, which provide an indication of connectivity and proper circuit operation. Each input is protected with MOV surge protection and the device is provided with a ground wire for connecting the module to a suitable ground.

The module outputs are provided with switching noise and surge protection by resistor-capacitor networks that are connected across the mercury wetted relay contacts. Latching relays are employed to ensure retention of the last valid pulse upon power failure. A 1A 250V Fast Acting fuse is provided for each K output to provide protection, prevent damage to the relays, and prevent damage to customer equipment. The modules can be shipped with customer specified fuses at time of purchase.

Mechanical

The Latching Isolation Relay Module circuitry is contained on a 3.26 by 5.72 inches printed circuit board. The module is provided with two mounting stand-offs for ease of installation. A snap on clear cover prevents contact with circuit components, but does permit access to the input/output termination strip.

LIR Series - Latching Isolation Relay

Ordering Information

Model#	Configuration
LIR-1	1 Form-C Input, 1 Form-A or 1 Form-C Output
LIR-2	1 Form-C Input, 2 Form-A or 2 Form-C Outputs

Specifications

Power Requirements	
Voltage	120-277 VAC ±20%
Frequency	60 Hz
AC Input Surge Suppression	1500 Watts Peak Pulse Power with a 10/1000 μsecond Waveform

Inputs	
Number of Inputs	1 Form-A (2 Wire) or 1 Form-C (3 Wire)
Burden	10 mA @ 120 VAC

Outputs	
Model LIR-1	1 Form-A (2 Wire) or 1 Form-C (3 Wire)
Model LIR-2	2 Form-A (2 Wire) or 2 Form-C (3 Wire)
Output Relays	500 VDC and 100 VA maximum
Contact Resistance	50 milliohms maximum
Pulse Rate	10 pulses / sec maximum

Environmental & Mechanical	
Temperature	-40 to +85° Celsius
Humidity	0 to 95% non-condensing
Dimensions	3.26" W x 5.72" H x 2.00" D
Mounting	Within 30° of Vertical
Mounting Plate	Fastened to an aluminum plate by four stand-offs.

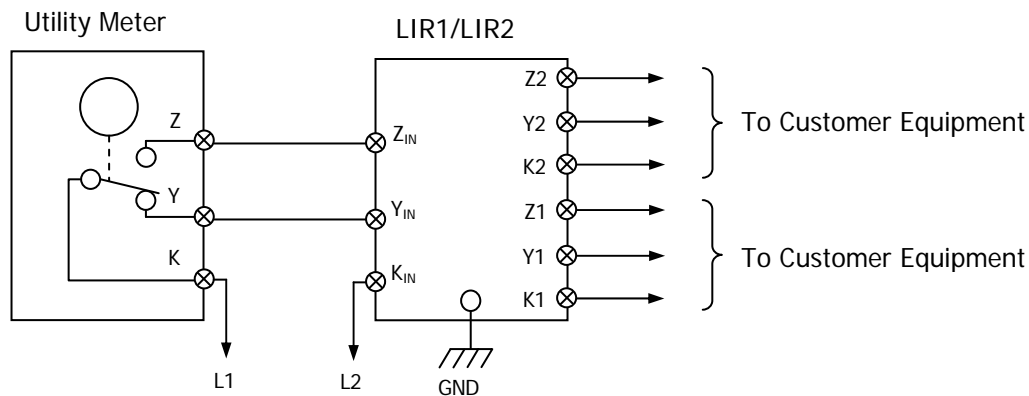


FIGURE 1: Wiring Diagram

SSIR Series - Solid State Isolation Relay

All Solid-State Design



Introduction

The TransData SSIR Series Solid-State Isolation Relay is a line-powered device designed to provide isolation for KYZ relay (1 Form-C or 2 Form-A) contacts. The SSIR module provides one set of input terminals and two (2) sets of isolated output terminals. The module is typically used to isolate the interface between utility and customer metering installations. The module has input Light Emitting Diode (LED) indicators, "Y" and "Z", to display the status of the incoming signal and MOV's across the outputs to prevent damage to customer and utility equipment. The input circuit is also equipped with MOV's to provide transient protection for the input circuit.

Wiring Connections

Terminations to the module are made via a 30 Amp, 300 Volt rated single row terminal block that is UL rated for a 4000 VRMS breakdown voltage. The terminal block utilizes a #6-32 zinc plated phillslot screw termination that will accommodate #12 to #22 AWG copper wire. A #16 AWG ground wire is provided and should be connected to a suitable grounding point.

Electrical

The SSIR Series Solid-State Isolation Relay is designed utilizing solid-state relays to provide the required equipment isolation. The KYZ inputs are connected through LED's, which provide an indication of connectivity and proper circuit operation. Each input is protected with MOV surge protection and the device is provided with a ground wire for connecting the module to a suitable ground. The SSIR module outputs are protected with TVS diodes for transient protection.

Mechanical

The Solid State Isolation Relay module circuitry is contained on a 3.26" by 5.72" inches printed circuit board. The module is provided with two mounting stand-offs for ease of installation. A snap on clear cover prevents contact with circuit components, but does permit access to the input/output termination strip.

SSIR Series - Solid State Isolation Relay

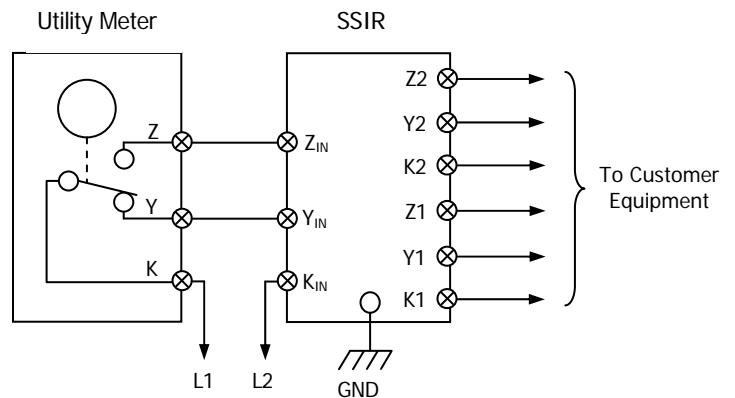
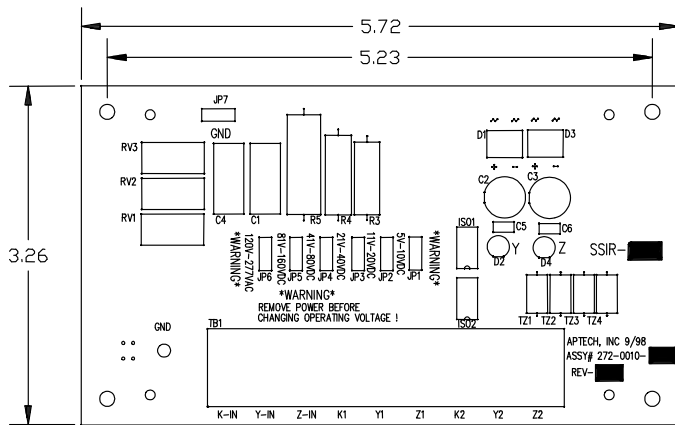
Specifications

Power Requirements	
AC Voltage Range	120-277 VAC ±20%
DC Voltage Range	5-160 VDC ±20%

Inputs	
Number of Inputs	2 Form-A (2 Wire) or 1 Form-C (3 Wire)
Burden	10 mA @ 120 VAC
AC Input Surge Suppression	1500 Watts Peak Pulse Power with a 10/1000 μsecond Waveform
Input to Output Isolation	3750 VRMS

Outputs	
Number of Outputs	2 Form-A (2 Wire) or 2 Form-C (3 Wire)
Surge Suppression	1.5 Joules/26 Amps
Voltage	270 VDC or Peak AC
Pulse Rate	10 pulses/Second maximum

Environmental & Mechanical	
Temperature	-40 to +85° Celsius
Humidity	0 to 95% non-condensing
Dimensions	3.26" W x 5.72" H x 2.00" D
Mounting Plate	Fastened to an aluminum plate by four stand-offs.



Isolation Relay Selection Guide

Model	IB6 Series	SSIR Series	UIR Series	LIR Series
Product Description	Solid-State Isolation Relay	Solid-State Isolation Relay	Universal Isolation Relay	Latching Isolation Relay
Operating Voltage	120-277 VAC	120-277 VAC 5-160 VDC	120-277 VAC	120-277 VAC
Over Current Protection	Rated to 120mA	10mA, Nominal	Fused Outputs	Fused Outputs
Surge Suppression	1500 Watts ⁽¹⁾ All terminations	1500 Watts ⁽¹⁾ All terminations	40 Joules ⁽¹⁾ Power Supply Inputs	1500 Watts ⁽¹⁾ Inputs
Inputs	1-3 Form A or C	2 Form A or C	2 Form A or C	1 Form C or A
Outputs	Up to 6 Form A or C	4 Form A or 2 Form C	2-3 Form A or C	1-2 Form C or A
Optically Isolated	YES	YES	YES	NO
Input/Output Mapping	NO	NO	YES	NO
Monostable/Bi-stable Operation	NO	NO	YES	NO
Full Input De-bounce	YES	NO	YES	NO
Mounting	Unrestricted	Unrestricted	30° of vertical	30° of vertical
Power Source	Isolated Power Supply Transformer	Line Voltage	Isolated Power Supply Transformer	Line Voltage
Contact Material	Solid-State	Solid-State	Mercury	Mercury

Note:

(1) Peak pulse power with a 10/1000-microsecond waveform.



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