

## **Surge Protective Devices**

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**TranTrack Series:  
50, 100, 160 and 200**

Installation,  
Operation and  
Maintenance  
Manual

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## INTRODUCTION

Today's sophisticated electronic equipment requires reliable surge protective devices. By selecting Joslyn<sup>®</sup>, Total Protection Solutions<sup>™</sup>, TransTrack<sup>™</sup> devices, you have taken a critical step toward decreasing downtime and ensuring longer product life for your equipment.

TransTrack is designed to protect facilities and sensitive electrical and electronic equipment against the harmful effects of lightning strikes and internally generated electrical transients. These reliable surge protection devices fulfill the single-pulse surge current capacity testing recommendations per NEMA LS-1, 1992, sections 2.2.9 and 3.9.

TransTrack combines easy installation with many special features to deliver more performance than any other device in its class.

TransTrack is conveniently pre-wired with 24-inch, stranded #10 AWG pigtail conductors. To ensure optimum product performance, install your TransTrack system in a location that minimizes wire lengths and wire bends. This positioning maximizes surge suppression and filtering while providing added protection for the connected loads.



**WARNING: HAZARDOUS VOLTAGES PRESENT** Improper installation or misapplication may result in serious personnel injury and/or damage to electrical system. Read the complete installation instructions before proceeding with installation. Remove all power to the electrical panel before installing or servicing the suppressor.

**IMPORTANT SAFETY INSTRUCTIONS** All work must be performed by licensed and qualified personnel. The electrical system must be properly grounded in accordance with the U.S. National Electrical Code, state and local codes or other applicable codes for this suppressor to function properly. Do not connect TransTrack to the line side of the main service breaker or disconnecting means. This device is suitable for installation where the available short circuit current is 100,000 RMS symmetrical amperes at 480VAC or less.

## BEFORE INSTALLATION

### 1. System Configuration Verification:

Confirm that the voltage(s) and service configuration shown on TransTrack product label are consistent with the voltage and service configuration of the facility. A model number is on the bottom side of TransTrack. Each model number corresponds to the configurations printed in the table below:

Example of a suppressor model number: TK-TT200-3Y208-F

MODEL NUMBER	NOMINAL VOLTAGE	L-N VOLTAGE RANGE	L-L VOLTAGE RANGE	CONFIGURATION
TK-TTxxx-1P240	240	204-264	N/A	Single-Phase, 2-wire+ground
TK-TTxxx-1S240	120/240	102-132	204-264	Split-Phase, 3-wire+ground
TK-TTxxx-3Y208	120/208	102-132	177-229	Three-Phase WYE 4-wire+ground
TK-TTxxx-3Y380	220/380	187-264	323-460	Three-Phase WYE 4-wire+ground
TK-TTxxx-3Y415	240/415	204-264	353-457	Three-Phase WYE 4-wire+ground
TK-TTxxx-3Y480	277/480	236-305	408-528	Three-Phase WYE 4-wire+ground
TK-TTxxx-3D240	120/240	102-132 (A & C PHASES) 177-229 (B PHASE)	204-264	Three-Phase high-leg DELTA 4-wire+ground
TK-TTxxx-240NN	240	N/A	204-264	Three-Phase DELTA 3-wire+ground
TK-TTxxx-380NN	380	N/A	323-460	Three-Phase DELTA 3-wire+ground
TK-TTxxx-480NN	480	N/A	408-528	Three-Phase DELTA 3-wire+ground

-F suffix denotes enhanced transient filter (ETF) option.

The ETF option is not recommended for applications employing a Ground Fault Current Interrupting (GFCI) breaker.

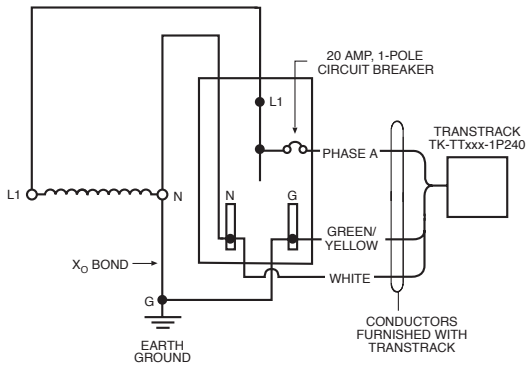


**WARNING:** Check to ensure that a proper bond is installed between neutral and ground at the transformer upstream from all 3-phase WYE, 3-phase high-leg DELTA, split-phase or single-phase TransTrack device (see NEC article 250). If the transformer is not accessible, check the main service disconnect/panel for the N-G bond. Lack of a proper bond will damage TransTrack and void the warranty.

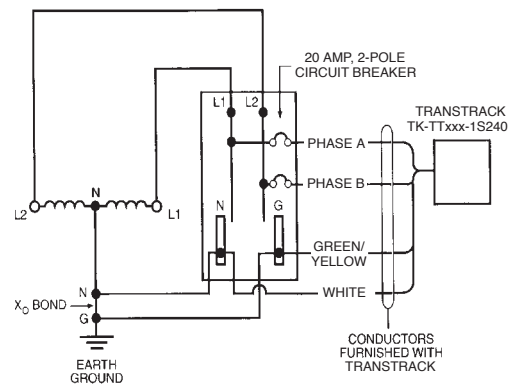
## 2. Wiring Connection Diagrams

Figures 1-5 show the electrical relationship between TransTrack and these five basic service configurations: Single-phase, 2-wire, Split-phase, 3-wire; Three-phase, 4-wire WYE, Three-phase, 3-wire DELTA and Three-phase, 4-wire high-leg DELTA.

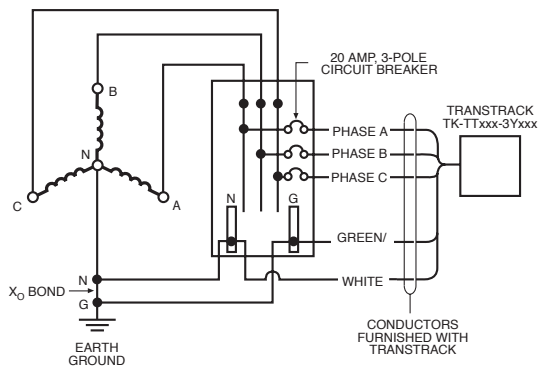
**Fig. 1: 1-Phase, 2-Wire**



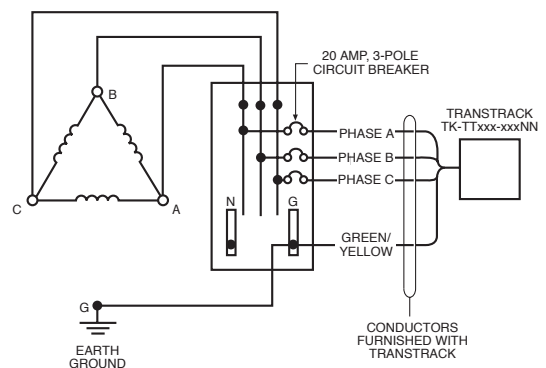
**Fig. 2: Split Phase, 3-Wire**



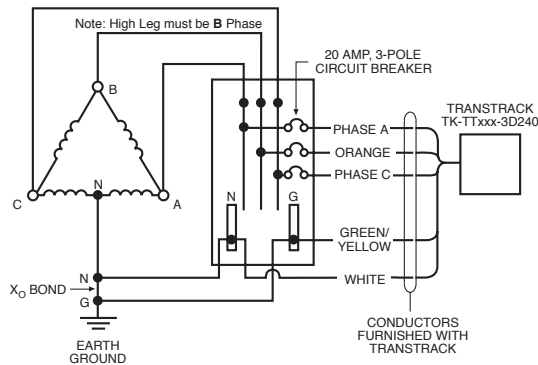
**Fig. 3: 3-Phase, 4-Wire WYE**



**Fig. 4: 3-Phase, 3-Wire DELTA**



**Fig. 4: 3-Phase, 4-Wire DELTA**



Connections to the SPD are clearly identified. Connections are made via pigtail leads supplied with the unit. For 3 phase units phases A, B and C are black wires, which are marked "PHASE A", "PHASE B" and "PHASE C" respectively. For split phase units, the phase connections are marked "PHASE A" and "PHASE B". For single phase units, the phase connection is marked "PHASE A". The neutral is a white wire and the ground is a green/yellow wire.

### 3. Upstream Over-Current Protection Device

TransTrack must be connected in parallel with the electrical system. It must be connected to an overcurrent protection device (circuit breaker or fused switch) rated 20A maximum. The advantage of using a dedicated overcurrent protection device for the suppressor is that it allows the suppressor to be de-energized during service without disturbing the electrical service to the rest of the facility.

### 4. Raceway

To route TransTrack conductors to the panel being protected, choose from any of these materials: (1) non-metallic flexible conduit, (2) metallic flexible conduit, (3) rigid conduit or (4) a nipple. The TransTrack enclosure is provided standard with a 3/4-inch hub which will accept rigid or IMC conduit. A plastic flexible conduit with fitting and a 3-inch nipple are available as options.

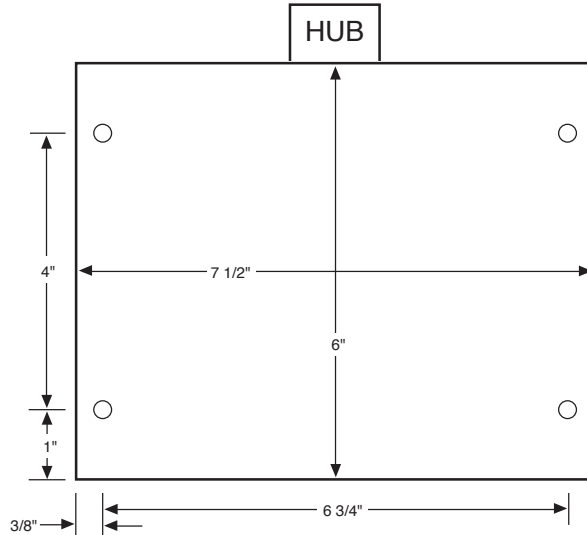
### 5. Wire Length and Conductor Routing

Use the supplied 24-inch, #10 AWG leads. Trim leads to suit the application but do NOT splice to add length to the leads. Refer to Figures 1 through 4 for the color code of the TransTrack leads. Terminate the leads as shown. TransTrack's performance will be severely limited if the conductors are (a) too long, (b) are of too small a wire gauge, (c) have too many bends or (d) have sharp bends. The factors listed above should be addressed during the design of an installation to reserve a suitable place for TransTrack next to its point of connection to the electrical system. The selected mounting location should allow for the shortest possible conductor runs and a direct route with a minimum of bends. If bends are required, they should be *sweeping* bends. Do not make sharp 90° bends for appearance purposes because they will severely decrease the effectiveness of TransTrack. Binding or twisting conductors together using tie-wraps or electrical tape increases the protection performance of the device.

### 6. Mounting

Four 5/16-inch holes are provided for mounting the TransTrack.

**FIG. 6**  
**Mounting Hole Detail**



## CONNECTION AND WIRING INSTRUCTIONS

### 1. Phase, Neutral, and Ground Connections

**Phase, Neutral\* and Ground:** Following all applicable National Electrical Code standards as well as state and local codes, connect the phase, neutral\* and ground conductors from upstream overcurrent protection device to TransTrack. Ensure that the conductor lengths are kept as short and straight as possible. On all high-leg delta systems, the Phase B conductor of the suppressor (color-coded orange according to NEC) must be connected to the high-leg.

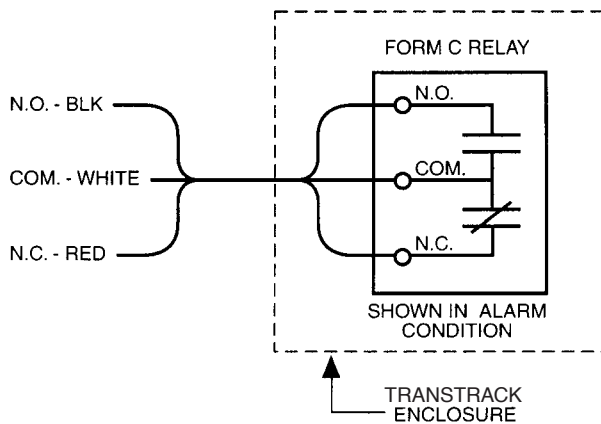
*\*DELTA-connected TransTrack does not have a neutral conductor.*

## 2. Connecting Form C Dry Contacts

TransTrack units come standard with Form “C” dry contacts. The relay contacts are rated 110V DC/125V AC with maximum switching power of 30W DC/62.5VA AC. Use butt splices within the panelboard to connect the Form “C” leads to the user’s monitoring circuits. Alternatively, install a junction box between the TransTrack and the panelboard to connect Form “C” leads to user’s monitoring circuits. If the Form “C” contacts are not used, user has the option of either cutting off the leads or coiling up the leads and saving them for potential future use. Consult applicable local codes to ensure proper installation.

**FIG. 7**

**Detail of Form “C” contacts**



## 3. Verification and Power Up

Apply power to TransTrack by closing the circuit breaker or molded-case switch feeding the suppressor. Verify that all “Phase Protection Status” indicating lights are illuminated.

### TROUBLESHOOTING

Call Joslyn Technical Support if you experience either of these conditions:

- Circuit breaker trips and cannot be reset
- One or more lights on TransTrack are not illuminated

*\* No user-serviceable parts inside.*

### TECHNICAL ASSISTANCE

Our staff is ready to support you and answer any questions.

**Monday through Friday, 8:00 a.m. to 5:00 p.m. (EST) 800-647-1911.**

### RETURNS AND WARRANTY PROCEDURES

TransTrack products are warranted for a period of 25 years from date of purchase. In the event that any module or subassembly within the suppressor fails to perform as specified during the warranty period, call our Technical Support at 800-647-1911 to obtain a Return Material Authorization number. We will immediately ship a replacement for the defective parts free of charge (installation labor and site preparations excluded). Return the defective parts to Joslyn within 30 days of receiving the replacement. Failure to return the defective parts will result in billing for the replacement parts. To help expedite the return procedures, please have the following information at hand when you contact Joslyn:

INFORMATION	EXAMPLE
Model Number	TK-TT200-3Y208-F
Serial Number	23115-4103-001
Date of Purchase	October 17, 2003 (41st week)
Sales Order Number	23115
Description of Failure	Phase A light is off
Desired Action from Joslyn	Replace

## WARRANTY STATEMENT

During the applicable warranty period, any Total Protection Solutions™ surge protector device which fails due to defect in materials, workmanship, or any electrical anomaly, including lightning, shall be repaired or replaced at Joslyn's discretion.

Prior to shipment of any suspect or known defective product to Joslyn a Return Material Authorization (RMA) number must be obtained. An official Joslyn RMA number and shipping instructions can be obtained from the distributor where the product was originally purchased. Distributors can obtain the official Joslyn RMA number by contacting the Joslyn Customer Service Department at 800-647-1911. Products arriving at Joslyn without an official RMA number will not be accepted and will be returned freight collect to the original point of shipment.

Products being returned with an official Joslyn RMA number should be shipped by prepaid freight to the nominated point of return as shown on the RMA documentation.

The Company shall have no liability under this warranty for problems or defects directly or indirectly caused by misuse of the Product, alteration of the Product (including removal of any warning labels), accidents, improper installation, application, operation or improper repair of the Product.

THIS WARRANTY REPRESENTS THE ENTIRE WARRANTY OF THE COMPANY. ALL OTHER WARRANTIES EXPRESS OR IMPLIED, ORAL OR WRITTEN, INCLUDING, BUT NOT LIMITED TO, THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED.

THE LIABILITY OF THE COMPANY, AT ITS SOLE OPTION, UNDER THIS WARRANTY IS EXPRESSLY LIMITED TO THE REPLACEMENT OR REPAIR OF THE DEFECTIVE PART THEREOF. IN NO EVENT SHALL THE COMPANY BE LIABLE OR RESPONSIBLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY KIND OR CHARACTER, NOR SHALL ITS LIABILITY EVER EXCEED THE PURCHASE PRICE PAID TO JOSLYN FOR SUCH DEFECTIVE PRODUCT.

This warranty is not transferable and may only be enforced by the original purchaser. Claims under this warranty must be submitted to Joslyn within thirty (30) days of discovery of any suspected product defect.

### Warranty Period

TransTrack™ 25 Years from original date of purchase



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