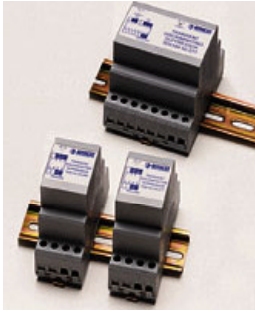


INSTALLATION INSTRUCTIONS



MODEL NUMBER
TDS50-120V
TDS50-240V
TDS50-120/240V

1. PREPARATION



DANGER: *Electrical shock or burn hazard. Installation of this Transient Voltage Surge Suppressor should only be made by qualified personnel. Failure to lockout electrical power during installation or maintenance can result in fatal electrocution or severe burns. Before making any connections to this electrical panel be sure that power has been removed from all associated wiring, electrical panels, and other electrical equipment.*



CAUTION NOTES:

1. *The installation of this Surge Protector should follow all applicable electrical codes, such as the National Electrical Code, or the Canadian Electrical Code.*
2. *Check to make sure line voltage does not exceed Surge Protector voltage requirement.*
3. *Prior to installation ensure that the TDS is of the correct voltage, current, and frequency rating for your application.*
4. *The earth terminal must be connected to a low impedance earth (< 10 ohms) for correct operation.*
5. *Do not perform a "Flash Test" or use a Mega-Ohm Meter (Megger) to test circuits that are protected with TDS modules. Damage may occur to the TDS modules.*
6. *Follow all instructions to ensure correct and safe operation. All installations should observe the requirements of the National Electrical Code, Canadian Electric Code and/or applicable local codes*
7. *Do not attempt to open or tamper with the TDS units in any way as this may compromise performance and will void warranty.*

2. INTRODUCTION

Transient Discriminating Suppressors (TDS) can be selected for use on single phase distribution systems of nominal RMS voltages 120V, 240V (2W+G) or 120/240V (3W+G). Multiple units can be used to protect other power distribution systems. The 120Vac unit also operates on nominal 125Vdc supplies.

3. QUICK INSTALLATION OVERVIEW

Install in the following manner:

1. Ensure that power is removed from the area and the circuits that will be connected.
2. Snap lock the TDS module to the DIN rail.
3. Install overcurrent protection if appropriate.
4. Connect wiring to the indicated L, N & E and (if used) alarm terminals.
5. Apply power and observe correct operation of the Status Indication, and alarm connections.

4. MOUNTING

TDSs are designed to clip to 35mm (top hat) DIN rails (standard EN50022). Unless otherwise mechanically restrained, use horizontal DIN rails with the TDS module spring clips to the bottom and the label text the correct way up.

NOTE: TDS modules must be installed in an enclosure or panel that:

- *prevents the TDS unit temperature from exceeding 122°F (50°C)*
- *provides adequate electrical and safety protection*
- *prevents the ingress of moisture and water*
- *allows TDS status indicators to be inspected*

5. ELECTRICAL CONNECTION

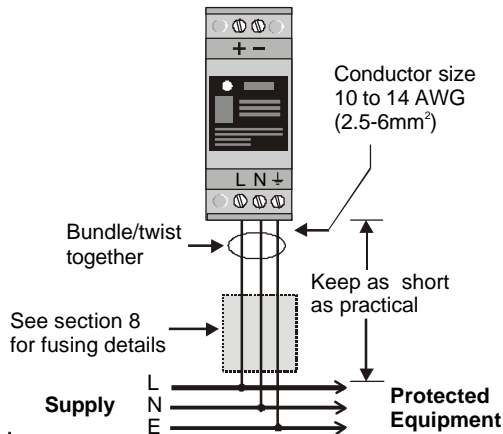
The interconnecting wiring should:

- be of size #10 to #14 AWG (2.5mm² to 6mm²) solid or stranded conductor. The wire insulation should be stripped back 5/16" (8mm). NOTE: Do not use greater than 9inlbs (1Nm) of torque when tightening the terminals. For UL compliance where two wires may need to be terminated into one terminal, the permissible wire size is 18AWG each
- be as short as possible (preferably not exceeding 12 inches (300mm))
- avoid sharp bends (ideally 4 inch (100mm) radius recommended)
- have the conductors twisted together where possible

INSTALLATION INSTRUCTIONS

Failure to follow this practice may result in the Suppressed Voltage Ratings for the unit not being achieved.

The wiring diagram following shows one method of connecting the TDS unit. It is generally wired in parallel with the circuit to be protected, and may be fed from a breaker (see section 8).



7. GROUND FAULT CIRCUIT INTERRUPTION (GFCI)

Where GFCI protectors (RCDs/ELCBs) are used, it is preferable that the TDS modules be installed prior to these devices (i.e. upstream). If this is not done, nuisance tripping of the GFCIs may occur during transient activity.

8. FUSING AND ISOLATION

Overcurrent protection must be installed in the upstream circuit of every TDS to provide protection to the unit itself, the load and the wiring in case of fault situations. Where the "protected circuit" upstream fuse/circuit breaker rating exceeds 100A, then HRC overcurrent protection rated at 100A or less should be fitted at the line end of the "T" tap.

NOTE: Operation of the tap overcurrent protection under excessive surge conditions may occur removing protection from the circuit. Status Alarms should be monitored for this occurrence.

9. STATUS INDICATION

TDS modules have Status Indicator(s) on the front panel. When power is applied and full surge capacity is available, the Status Indicator(s) will be illuminated. Should power be applied and an indicator fail to illuminate, the TDS should be replaced, as optimum protection is no longer provided.

10. MAINTENANCE & TESTING

Before removing a TDS module from service, ensure that the power has been removed from the module. Replacement of a TDS module should only be undertaken by qualified personnel.

NOTE: TDS units should be inspected periodically, and also following any periods of lightning or transient voltage activity. Check the Status Indicator and replace

the module if it is not illuminated as detailed in Section 9 STATUS INDICATION.

11. DINLINE ALARM RELAY (DAR)

The TDS status monitoring circuit which provides the visual Status Indicator, also provides a low voltage opto-coupler alarm output circuit. Should voltage free alarm contacts be required, the ERICO Inc, DINLINE ALARM RELAY (DAR-275V) should be used.

Ensure that the voltage rating of the alarm wiring is rated in accordance with the other voltages present in the equipment. This would normally be the same voltage rating as that used for the TDS module input wiring.

The DAR module provides a fully isolated dry contact alarm output. One DAR can be used per TDS, or up to 16 TDS50-120Vs or TDS50-240Vs can be connected in series to one DAR to provide a common dry contact alarm output. When using the TDS50-120/240V up to 8 units can be series connected.

It is recommended that the DAR unit be powered from the output/load side of the TDS being monitored, however the DAR can be powered from other circuits. This allows for example, one DAR unit to be connected to separate TDS modules which are protecting a three phase circuit.

NOTE: Depending upon the usage of the DAR output contacts, failure of power to the DAR may be interpreted as a failure of one or more TDSs. Visual inspection of the DAR and TDS Status Indicator is required to clarify this situation.

12. USE OF OTHER INTERFACES

ERICO, Inc. DAR-275Vs are recommended for the interfacing of equipment to the TDS opto-coupler alarm output circuit. The direct connection of other equipment to the TDS opto-coupler alarm output circuit may not provide sufficient isolation or exceed the opto-coupler specifications. This may damage the TDS and/or the connected equipment. Warranty may be voided under such circumstances. However, the specifications for TDS alarm output has been provided for those who desire to use the TDS opto-coupler output directly.

The TDS alarm opto-coupler output is available on terminals 3 and 5. Terminal 3 is the positive and 5 is the negative side. This output is an open collector transistor output of the opto-coupler. When the opto-coupler is driven on, it should be arranged to have 2mA flowing through it. For use with 24Vdc circuits, a 12kΩ current limiting burden resistor is required. For use with 12Vdc circuits, a 5.6kΩ current limit resistor is required. For use with 5Vdc circuits, a 2.2kΩ current limit resistor is required. Refer to instructions supplied with the DAR.

NOTE: In connecting to the TDS opto-coupler alarm output, do not reverse the +/- connections or exceed the maximum permissible ratings (30Vdc) as damage may occur.