

Section 13000 Instrumentation & Controls

Transient Voltage Surge Suppression (TVSS)

PART 1 - GENERAL

DESCRIPTION

This document defines minimum (TVSS) performance requirements to protect Instrumentation and Control Equipment.

Part 2 - Operational Characteristics of the TVSS

During normal suppression operation, the TVSS shall not short-circuit or “crowbar” the circuit resulting in power or signal disruptions to protected equipment.

TVSS performance parameters **shall not degrade** from published specifications as long as system performance parameters are not exceeded.

AC suppression paths shall not be to ground circuits. Common Mode – Line (Phase) to Ground (L-G) or Neutral to Ground (N-G) suppression paths are unacceptable. Only Normal Mode – Line (Phase) to Neutral (L-N)

The TVSS shall accomplish Bi-polar and Bi-directional transient suppression

The TVSS response time shall be 5 nanoseconds or less.

Only Silicon Avalanche Suppressor Diodes (SASDs) shall be used as the sole suppression component.

Off the shelf diodes with axial leads **shall not** be used. Only surface-mount diodes or diodes with full-surface diode leads; which minimize lead length and reaction time, while maximizing surface area and heat-sink capability may be used.

Metal Oxide Varistors (MOVs) **shall not** be used as a suppression component.

Part 3 – Testing & Installation

TVSS shall be tested to all performance criteria using the 8/20 microsecond waveform pulse as well as the 10/1000 microsecond waveform pulse, both as recommended per IEEE C62.41-1991.

The installation shall comply with the manufacturers' printed instructions. Materials and installation shall be consistent throughout all locations.

Upon completion of installation, the TVSS shall not require testing of any kind.

Individual application protection shall be supplied by **Transtector Systems, Inc. 1-800-882-9110** or **approved equal** to be installed on the applications described below:

A. 120VAC Control Circuit Application:

For each 120VAC power feed to control points and power supplies provide and install the following suppression:

- a) Inside enclosures with available spacing - Install **ACP Series, or I2R-Series**

B. Analog / Digital Signal Application:

For each analog/digital twisted pair as well as on each RS-232, 422, and 485 signal line, provide and install the following suppression:

- a) Where DIN-Rail mounting is available – Install **DRDC Series**
- b) Where no DIN-Rail mounting is available – Install **FSP Series**
- c) Where 9, 15, or 25 pin interface is available (on RS-232) – Install **DLP Series**

C. Data / Phone / Ethernet Line Application:

For each phone line/dial-up modem, Ethernet provide and install the following suppression:

- a) **TSJ Series**

D. Field Transmitter Application:

For each field transmitter provide and install the following suppression:

- a) **PDS Series**

END OF SECTION