Electrolab Transient Protector with Heartbeat - Model 2301

Preferred Application

The 2301 is an "in-line" protection device to cover the power supply and RS-485 communication wiring between a remote sensor and a terminal data processing unit. It has a 3-level suppression circuit which prevents any transients appearing on an interconnecting line from damaging costly electronic interface devices. It also provides on-board LEDs which indicate the status of the RS-485 communications lines.

Functional Description

Each communication line signal is limited to 12 volts by individual 1500 watt Transzorbs, and the 12 volt battery lines are limited by individual 18 volt 1500 watt Transzorbs to cover light and medium transients. All six lines are additionally protected against highly powerful transients by high current "crowbar" devices responding within nanoseconds to levels above 25 volts by a full bypass to ground. This bypass will stop as the transient fades out and the minimum holding current is no longer supported. A third level of protection is provided by six self-resetting solid state fuses designed to open circuit the "bypass" after the transient subsides, preventing a bypass overload to the power supply.

Transient Protection Details

- First Level – TransZorbs
  - 4 communication lines: From 12 Volts +
  - 2 power supply lines: From 18 Volts +
- Second Level – SIDACtors (Crowbars)
  - All six lines: From 25 Volts +
  - Inrush dV/dt: 500 A/uS
  - Response Time: Within nanoseconds
  - Holding Current: 150 mA
  - Designed to Meet: UL 1459 & 1950 – FCC Part 68, IEC 950
- Third Level – Resettable Fuses
  - All six lines: ¾ A pass, 1½ A cut-off
  - Designed to carry transient pulses
  - Cutoff "latching current" after 2 seconds maximum