

The design of the **ZeroDT 120-1** utilizes the latest generation, non-degrading Silicon Avalanche Suppression Diode (SASD) stack array encapsulated in urethane, to protect transmitters, gas detection sensors & systems, level equipment, flow measurement devices as well as other field instrumentation transient overvoltages.

This SASD technology provides continuous, bi-directional (eliminating installation issues), and bi-polar (both positive and negative) protection that returns to its original state (no loss or degradation of protection) once the overvoltage has passed.

The unit is designed to limit the energy of these over-voltage surges on 120 V data communication lines or surge protection for low power 120 VAC applications.

The module is small enough to allow it to be mounted directly into a measurement device's explosion-proof housing or other small electrical housings, eliminating the need for additional enclosures and getting the protection as close as possible to the device to allow for the best possible.



### ▶ ELECTRICAL SPECIFICATIONS

- **Response Time:** <5 nanoseconds.
- **Configuration:** Parallel connected, protects 1 pair or 2 wires (each wire independently protected to Ground).
- **Nominal Operating Voltage:** 170 VDC (120 Vrms AC).
- **Maximum Continuous Operating Voltage (MCOV) Line-to-Ground:** 195 VDC (138 Vrms AC).
- **Nominal Surge Current,  $I_{Nom}$  (able to withstand repeated applications on each line):**
  - **8/20  $\mu$ s (IEEE/ANSI C62.41 Combination Wave), Line-to-Ground:** >600 Amps.
  - **10/1000  $\mu$ s (IEEE/ANSI C62.41 Long Wave), Line-to-Ground:** >65 Amps.

### ▶ MECHANICAL SPECIFICATIONS

- **Module Dimensions:** 1" H x 1.25" W x 0.5" D (25.4 mm H x 32 mm W x 12.7 mm D).
- **Wire leads:** #16 AWG stranded copper, 12 inches (allows cutting to length):
  - Qty. 1 Red – Positive or Negative.
  - Qty. 1 White – Positive or Negative.
  - Qty. 1 Green – Ground/Earth.

### ▶ ENVIRONMENTAL SPECIFICATIONS

- **Operating / Storage Temperature:** -40°C to +80°C.
- **Humidity:** 0 to 95% non-condensing.

### ▶ CERTIFICATIONS

- **UL Listed - Isolated Loop Circuit Protector (E499683)**
- **UL Listed - Isolated Loop Circuit Protector for use in Hazardous Locations (E502612)**
  - Hazardous Locations: Class I, Division 2, Groups A, B, C and D T6 ( $T_{amb} = 40^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$ )
- **RoHS compliant**



## Single Pair Instrument Surge Protection

- **Model:** ZeroDT 120-1.
- **Nominal Voltage:** 120 VAC / 170 VDC.
- **MCOV:** 195 VDC (138 Vrms AC).

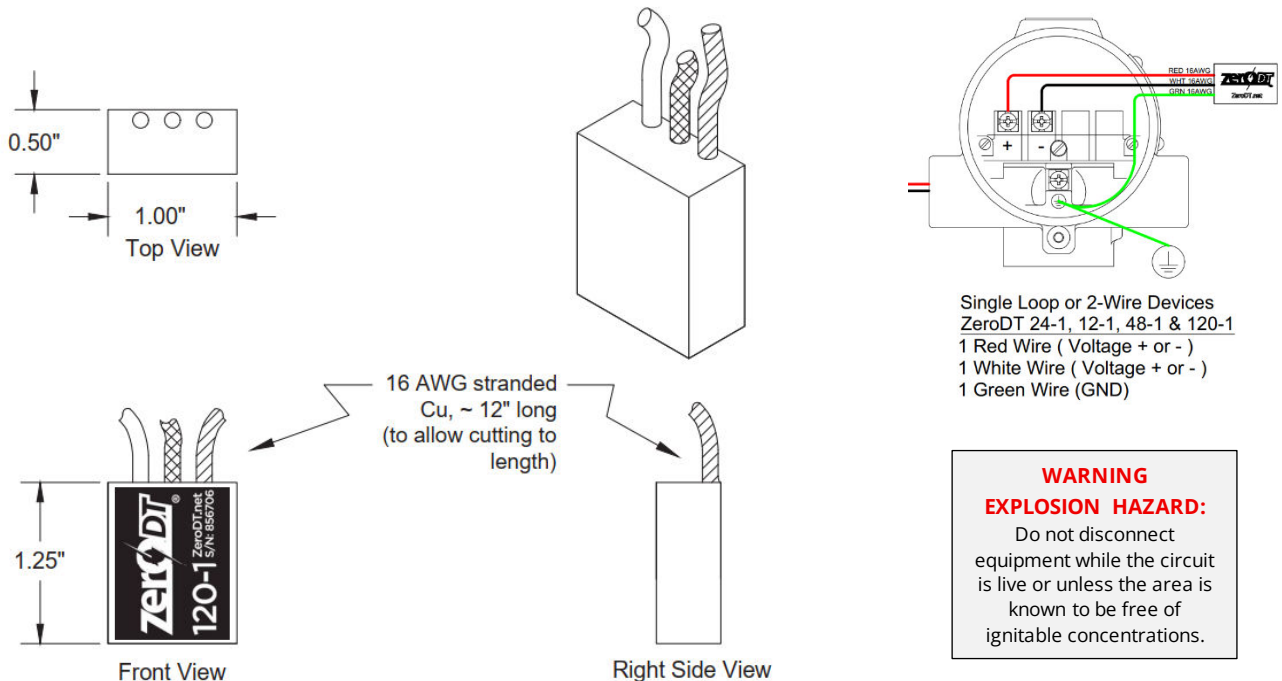


Isolated Loop Protector  
E499683  
Isolated Loop Circuit Protector  
For Use In Hazardous Locations  
E502612

## Protects 2 Wires or 1 Loop, including:

- Analog 4-20mA, DC or AC power protection, RS232 (2 wires), RS485 (2 wires).

## ► DIMENSIONAL DRAWINGS / WIRING



## ► INSTALLATION PROCEDURE

1. For maximum overvoltage protection, mount the ZeroDT 120-1 as close as possible to the equipment to be protected.
2. The ZeroDT 120-1 unit is to be installed in accordance with the applicable requirements of the National Electric Code and the local authorities having jurisdiction.
3. Wiring installation: Terminate the red and white leads on either positive or negative power or communication lines. **THE GREEN LEAD MUST BE PROPERLY BONDED TO A LOW RESISTANCE EARTH/GROUND FOR PROPER OVERVOLTAGE PROTECTION.**  
The wire leads should be trimmed and cut to fit keeping them as straight and short as possible for best protection.
4. In the unlikely event that the ZeroDT 120-1 self-sacrifices, DC power and communication will be interrupted (unit is designed to fail with lines shorted to ground).

**This equipment is suitable for use in Class I, Div. 2, Gr. A, B, C, or D (T6) as well as in non-hazardous locations.**