

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 over-voltages. 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 over-voltage has passed. The unit is designed to limit the energy of these over-voltage surges on 120 volt data communication lines or surge protection for low power 120 Volt AC 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 protection



⚡ 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 V dc (120 V_{rms} ac)
- **Maximum Continuous Operating Voltage (MCOV) Line-to-Ground:** 195 V dc (138 V_{rms} ac)
- **Nominal Surge Current, I_{Nom} (able to withstand repeated applications):**
 - 8/20 μs (IEEE/ANSI C62.41 Combination Wave), Line-to-Ground: >600 Amps
 - 10/1000 μs (IEEE/ANSI C62.41 Long Wave), Line-to-Ground: >65 Amps

⚙️ MECHANICAL SPECIFICATIONS

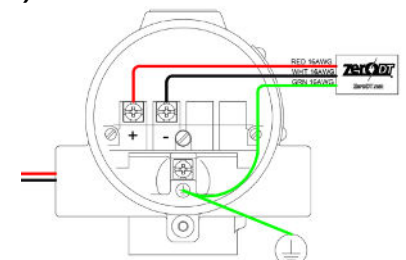
- **Module Dimensions:** 1" H x 1.25" W x 0.5" D (25.4 mm H x 32 mm W x 12.7 mm D)
- **Wire Leads:** #16 AWG stranded copper, 12 inches (allows cutting to length)
 - Qty. 1 Red -- Positive or Negative
 - Qty. 1 White -- Positive or Negative
 - Qty. 1 Green -- Ground / Earth

🔑 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)**
 - **Class I, Division 2, Groups A, B, C and D Hazardous Locations,**
T6 - T_{amb} = -40°C to 80°C
- **RoHS Compliant**



Single Loop or 2-Wire Devices
ZeroDT 24-1, 12-1, 48-1 & 120-1
1 Red Wire (Voltage + or -)
1 White Wire (Voltage + or -)
1 Green Wire (GND)



ZeroDT 120-1

Field Protection – 120 Volt AC (1 Loop / 2 wires)

Single Pair Instrument Surge Protection

Model: ZeroDT 120-1

Nominal Voltage: 120 Vac, 170 Vdc

MCOV: 138 V_{rms} ac, 195 Vdc



Isolated Loop Protector
E499683

Isolated Loop Circuit Protector
For Use in Hazardous Locations
E502612

Protects 2 Wires or 1 Loop including:

Analog 4-20 mA (2-wire)

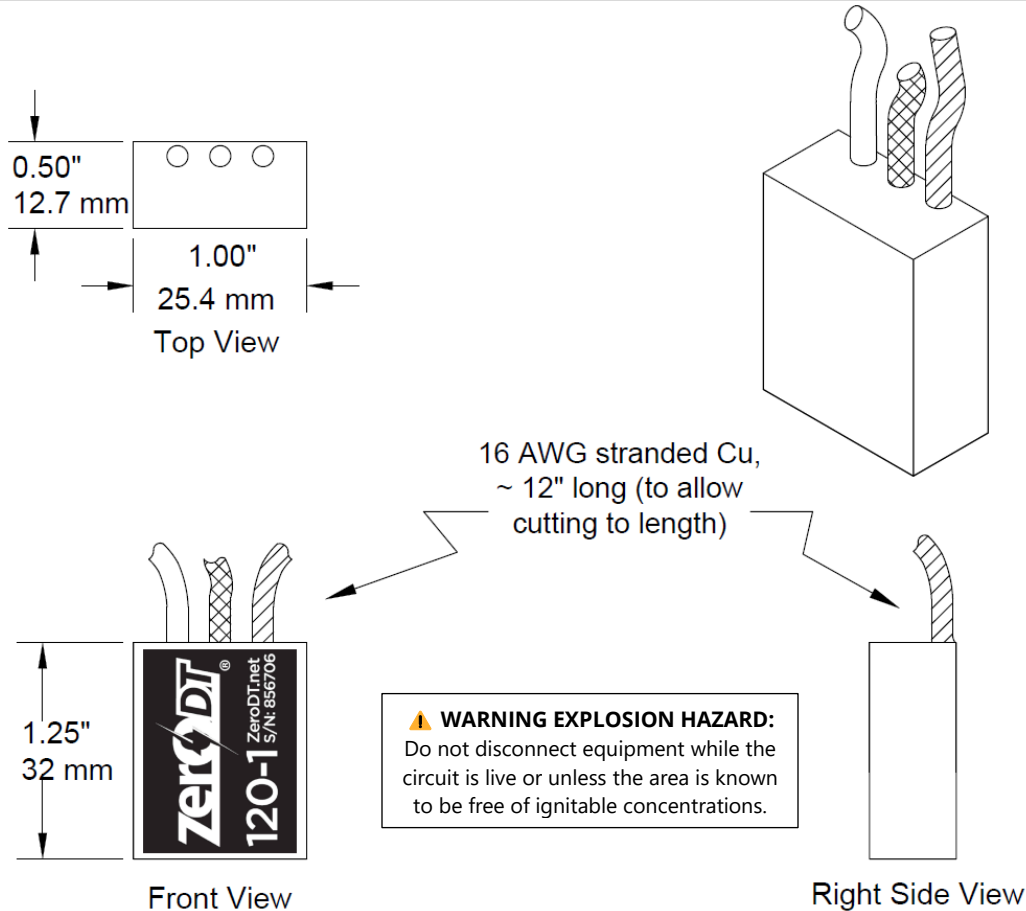
RS232 (2-wire)

DC or AC power protection (2-wire)

RS485 (2-wire)



DIMENSIONAL DRAWINGS



INSTALLATION PROCEDURE

- 1 For maximum overvoltage protection, mount the ZeroDT 120-1 as close as possible to the device/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 the positive or negative power or data communication lines. **THE GREEN LEAD MUST BE PROPERLY BONDED TO A LOW RESISTANCE EARTH GROUND FOR PROPER OPERATION AND OVERVOLTAGE PROTECTION.** The leads wire leads should be trimmed and cut to fit, keeping them as straight and short as possible for the best protection.
- 4 In the unlikely event that the ZeroDT self-sacrifices, power and communications 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.