ZeroDT I/O-24

DIN Rail Mount – 2 Loops, 24 Volt DC Surge Protection

Datasheet
March 2026

The **ZeroDT I/O-24** utilizes the latest generation, non-degrading Silicon Avalanche Suppression Diodes (SASDs) to protect electronic equipment and systems from transient over-voltages. The unit is designed to limit the energy of these surges on 4-20 mA current loops, discrete digital inputs/signals, pulsed inputs/outputs, RS-485/422/232 communication lines, digital buses as DeviceNet, FOUNDATION™ Fieldbus and PROFIBUS PA, without causing any communication degradation, as well as low voltage DC power lines. The unit easily mounts on a standard DIN rail and houses the 8 connection lugs (4 In and 4 Out) and the SASD suppression circuitry. 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 with usage) once the over-voltage has passed.

▶ ELECTRICAL SPECIFICATIONS

- **Response Time:** <5 nanoseconds.
- **Configuration:** Series connected or pass-thru, protects 2 pairs or 4 wires.
- **Nominal Operating Voltage:** 24 VDC.
- **Maximum Pass-thru Current (each line):** 8 Amps.
- **Maximum Continuous Operating Voltage (MCOV) Line-to-Ground:** 36 VDC.
- **Nominal Surge Current, I_{Nom} (able to withstand repeated applications on each line):**
  - **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.
- **Voltage Protection Level (VPL):**
  - **1200 Amps, 8/20 µs, Line-to-Ground:** ≤ 65 V_{peak}.
  - **130 Amps, 10/1000, Line-to-Ground:** ≤ 55 V_{peak}.

▶ MECHANICAL SPECIFICATIONS

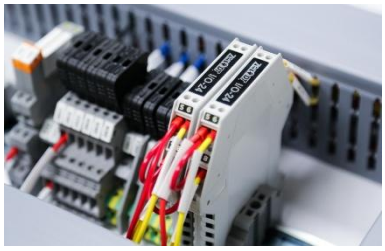
- **Input / Output Connection:** Compression lug, #26 to #14 AWG.
- **Module Dimensions:** 4.37" H x 3.90" D x 0.5" W (111 mm H x 99 mm D x 12.7 mm W).
- **DIN Rail Mount:** easily attached or removed from 35 mm DIN rail.

▶ ENVIRONMENTAL SPECIFICATIONS

- **Operating / Storage Temperature:** -40°C to +65°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°C to +65°C)



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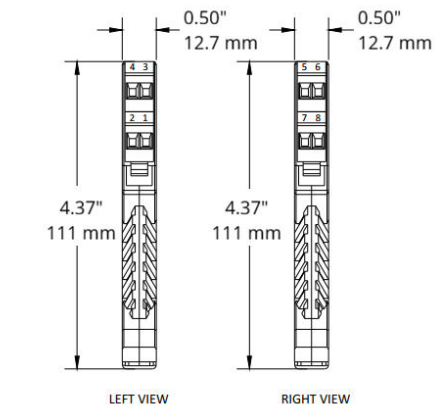
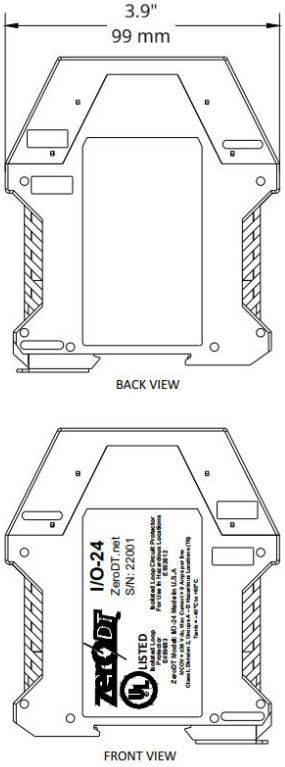
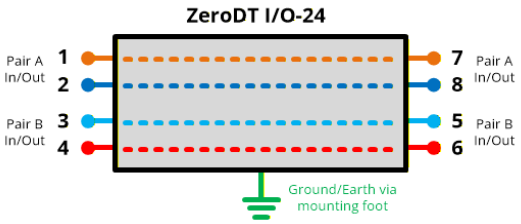
▶ DIMENSIONAL DRAWINGS / WIRING





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



WARNING - EXPLOSION HAZARD:
Do not disconnect equipment while the circuit is live or unless the area is known to be free of ignitable concentrations.

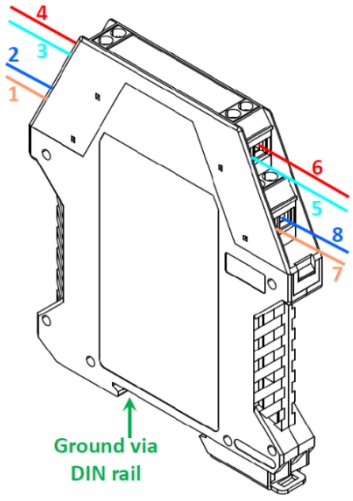
▶ INSTALLATION PROCEDURE

1. For maximum overvoltage protection, mount the ZeroDT IO-24 as close as possible to the equipment to be protected.
2. The ZeroDT I/O-24 uses a self-grounding mounting foot designed to fit standard 35 mm DIN rail.

   DIN RAIL MUST BE PROPERLY BONDED TO A LOW RESISTANCE EARTH GROUND FOR PROPER OPERATION AND OVERVOLTAGE PROTECTION.
3. The ZeroDT I/O-24 unit is to be installed in accordance with the applicable requirements of the National Electric Code and the local authorities having jurisdiction.
4. Wiring installation: Terminate either DC power or data/signal loop conductors to the screw terminals provided on the module according to the legend.

   Note: Screw terminals are compatible with #14 - #26 AWG, stripping length 5/16" (8 mm), and tighten to 4.5-to-5.5 inch pounds (0.5 to 0.6 Nm).

   The ZeroDT I/O-24 allows either side of the module to be the Input or the Output (module orientation does not matter).
5. When wiring a shielded cable, use feed thru terminal blocks to secure the shield for each loop.
6. In the unlikely event that the ZeroDT I/O-24 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.