ZeroDT S-4

Transient/Surge Protection for 4-wires (2 pair)

The ZeroDT S-4 is a solution for providing overvoltage transient (surge) protection for the power input and output signals for sensors/devices such as transmitters and ultrasonic flow meters. It consists of a Type 4X cast 413 aluminum enclosure designed for use in hazardous locations with a ZeroDT I/O-24 module mounted inside. The ZeroDT I/O-24 module utilizes state-of-the-art advanced semiconductor (SASD) technology to provide fast, non-degrading protection against surges and lightning induced transients. The module provides transient overvoltage protection for 2 pairs, or 4-wires with 1,200 Amps of 8/20 µs surge current protection for each line (each line is independently protected — it (each line) has its own surge protector).

The ZeroDT S-4 can be used as a 'conduit junction box' next to the sensor/device to be protected, and this 'conduit junction box' will provide the needed surge protection to ensure your equipment's survivability.

⚡ ELECTRICAL SPECIFICATIONS

- **Response Time:** <5 nanoseconds.
- **Configuration:** Series connected, or pass-thru -- protects 2 pair 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:** >1,200 Amps.
  - **10/1000 µs (IEEE/ANSI C62.41 Long Wave), Line-to-Ground:** >130 Amps.

⚙ MECHANICAL SPECIFICATIONS

- **Power & Signal Input / Output Connections:** Screw compression lug,
- **Conductor Size:** #26 to #14 AWG
- **Enclosure Manufacturer/Catalog Number:** Killark HKBX box and HKX2D dome cover
- **Grounding/Earthing:** Grounding terminal on exterior of enclosure.
- **Enclosure Openings:** Qty 3, ¾" NPT

🌡 ENVIRONMENTAL SPECIFICATIONS

- **Operating / Storage Temperature:** -40ºC to +65ºC.
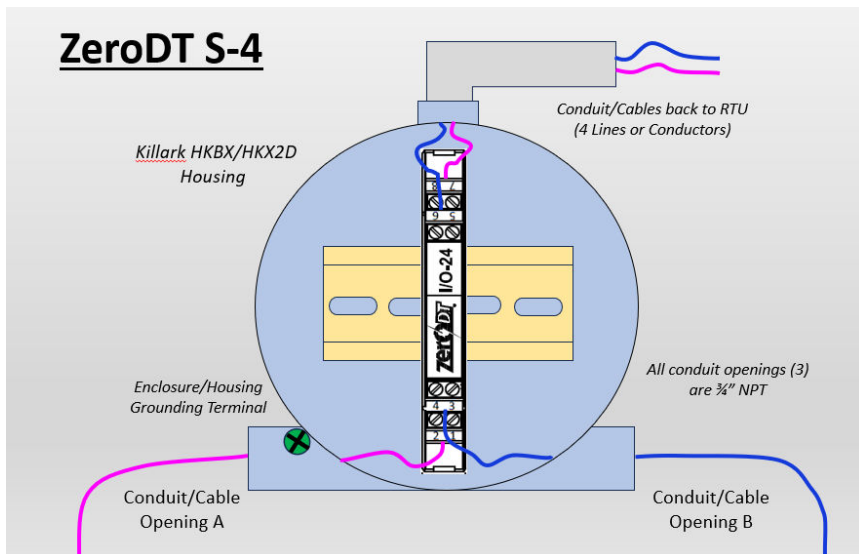- **Humidity:** 0 to 95% non-condensing.

✔ CERTIFICATIONS

- **ZERODT I/O-24 Module mounted in the enclosure meets the requirements of:**
  - Hazardous Locations -- Class I, Division 2, Groups A, B, C, D T6
  - Ordinary Locations – UL 497B
- **Enclosure meets the requirements of:**
  - Hazardous Locations -- Class I, Groups A, B, C, D;
    Class I, Zone 1, AEx db IIC;
    Classs II, Groups E, F, G
    Class III
    (See manufacture spec. sheet for additional information)

ZeroDT S-4

Killark HKBX/HKX2D Housing

Conduit/Cables back to RTU
(4 Lines or Conductors)

Enclosure/Housing
Grounding Terminal

All conduit openings (3)
are ¾" NPT

Conduit/Cable
Opening A

Conduit/Cable
Opening B

**ZeroDT I/O-24
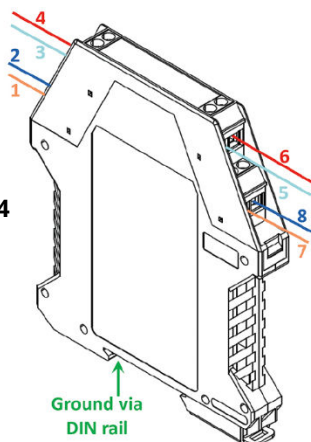connections**

Ground via
DIN rail

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

A ZeroDT S-4 surge protection junction box providing protection for equipment.

INSTALLATION PROCEDURE

ENCLOSURE / HOUSING MUST BE PROPERLY BONDED TO A LOW RESISTANCE EARTH/GROUND FOR PROPER OPERATION AND OVERVOLTAGE PROTECTION !

1. For maximum overvoltage protection, mount the ZeroDT S-4 <u>as close as possible</u> to the device/equipment to be protected.

2. The ZeroDT S-4 unit is to be installed in accordance with the applicable requirements of the National Electric Code and the local authorities having jurisdiction.

3. Install the Earth/Ground connection using the Green Grounding Screw on the flange of the enclosure/housing.
The unit MUST BE PROPERLY BONDED TO A LOW RESISTANCE EARTH/GROUND FOR PROPER OVERVOLTAGE PROTECTION

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). Also, any path through the ZeroDT I/O-24 module can be used for DC power, pulse output signals, analog / 4-20 mA signals, or digital communications.

5. Repeat Step 4 for all the other conductors/lines passing through the ZeroDT S-4.

6. Fit the enclosure/housing cover and tighten securely.