

The ZeroDT FM-4 is a solution for providing external overvoltage transient (surge) protection for 2 pairs of conductors such as the power input pair and output signal pair of a flow meter, or the 2 pairs to a multi-variable transmitter, or up to 4 lines to/from other types of measurement devices. The ZeroDT FM-4 consists of a Type 4X, cast aluminum enclosure designed for use in hazardous locations that has two (2) of the ZeroDT 24-2 units mounted inside of the housing, along with a 4-position terminal block. The ZeroDT 24-2 units utilize state-of-the-art advanced semiconductor SASD technology to provide fast, non-degrading protection against surges and lightning induced transients. By connecting the ZeroDT 24-2 protectors in parallel or "doubled-up", the FM-4 provides each of the 4 lines (conductors) with 1,200 Amps of 8/20  $\mu$ s surge current protection.

The FM-4 can be utilized as a 'conduit junction box' next to the device to be protected, and this 'conduit junction box' will provide the needed surge protection to enhance your equipment's survivability.



## ELECTRICAL SPECIFICATIONS

- **Response Time:** <5 nanoseconds.
- **Configuration:** Series or pass-thru connected with the surge protectors connected in parallel, -- protects 2 pair or 4 wires.
- **Nominal Operating Voltage:** 24 VDC.
- **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  $\mu$ s (IEEE/ANSI C62.41 Combination Wave), Line-to-Ground:** >1,200 Amps.
  - **10/1000  $\mu$ s (IEEE/ANSI C62.41 Long Wave), Line-to-Ground:** >130 Amps.

## MECHANICAL SPECIFICATIONS

- **Power & Signal Input / Output Connections:** Screw compression lug,
- **Conductor Size:** #24 to #10 AWG
- **Grounding/Earthing:** Grounding terminal on exterior of enclosure.
- **Enclosure Manufacturer/Catalog Number:** Killark / GEBC-2
- **Enclosure Conduit Openings:** Qty 2, 3/4" NPT
- **Enclosure Dimensions:**
  - Distance between conduit openings: 6-1/2"
  - Overall Height: 4.31"
  - Distance between Mounting Holes: 4-13/16"

## ENVIRONMENTAL SPECIFICATIONS

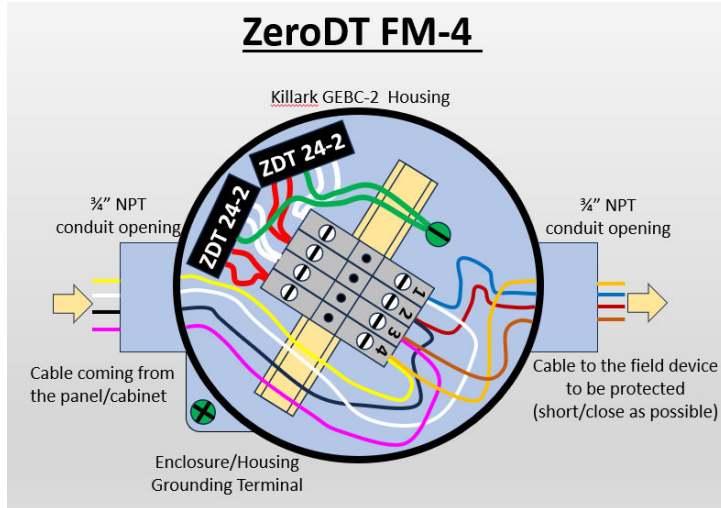
- **Operating / Storage Temperature:** -40°C to +65°C.
- **Humidity:** 0 to 95% non-condensing.

## CERTIFICATIONS

- **ZERODT 24-2 Units 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:**
  - Class I, Div. 1 & 2, Groups B, C, D;
  - Class I, Zone I, Groups IIC, IIB, IIA;
  - Class II, Div. 1 & 2, Groups E, F, G;
  - Class III;
  - Type 4X



## DRAWINGS



**FM-4 "conduit junction box" providing the needed surge protection to ensure equipment survivability**

**⚠ 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

**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 FM-4 as close as possible to the device/equipment to be protected.
2. The ZeroDT FM-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. Remove a portion of the jacket/sheath of the field cable coming into the housing from the cabinet/panel to expose the conductors and insulation. Also remove a portion of the jacket/sheath of the instrument cable leaving the housing and going to the device/equipment to be protected. Strip back the insulation on all 8 wires to expose the inner conductors approximately  $\frac{3}{8}$ " (9 mm).
5. Match up the appropriate wire coming from the cabinet/panel with its mate that is going to the device/equipment and twist the conductors together, or join together using an appropriate ferrule.
6. Insert the joined conductors into terminal block #1 and tighten the compression screw to 5.5 to 7 inch pounds (0.6 to 0.8 N M). (Note: the polarity of the wires/conductors does not matter as all terminal blocks have independent bi-polar protection.)
7. Repeat Step 6 for the other joined pairs, using terminal blocks #2 - #4.
8. Fit the enclosure/housing cover and tighten securely.