

The ZeroDT 24-1 is a DIN rail mounted 24 Volt DC lightning/surge protector that can be connected to your DC distribution buss to defend all of your sensitive devices against over voltages. The protection of the **ZeroDT DC-24 utilizes state of the art semiconductor devices**, Silicon Avalanche Suppression Diodes (SASDs) to effective protection against electrical transient surges that are generated both by lightning events and switching events. It supports long-term system reliability by safely shunting high amounts of transient energy while maintaining a very low clamping voltage. Unlike many competitive devices, the ZeroDT DC-24's SASD protection **does not degrade with repeated usage**.

With the flexibility to be used as parallel-connected, or shunt, protector and the ability to handle very large surge current magnitudes in each of its 3 protection modes, the unit provides the assurance that all of the equipment connected to your DC distribution bus is well protected. However, the protector can be used as series-connected protector for loads up to 15 Amps.



## **ELECTRICAL SPECIFICATIONS**

- **Response Time:** <5 nanoseconds.
- **Configuration:** Can be either connected in Parallel/Shunt or Series (maximum 15 Amps).
- **Surge Protection Modes:** DC + to DC -, DC + to Ground, DC - to Ground.
- **Nominal Operating Voltage:** 24 VDC or 24 VAC.
- **Maximum Continuous Operating Voltage (MCOV):** 39 VDC or 27.5 VAC.
- **Maximum Surge Current,  $I_{peak}$  (each mode):**
  - **8/20  $\mu$ s (IEEE/ANSI C62.41 Combination Wave), Line-to-Ground:** >5 kA, (typically >8 kA).
  - **10/1000  $\mu$ s (IEEE/ANSI C62.41 Long Wave), Line-to-Ground:** >350 Amps.
- **Internal Fuse:** supplied with 15 Amp (1/4" x 1-1/4" cylindrical) fuse, can be changed by user to other values, 15 Amp Max.

## **MECHANICAL SPECIFICATIONS**

- **Input / Output Connections:** Wago Spring Cage Clamp.
- **Conductor Size:** #24 to #8 AWG
- **Module Dimensions:** 2.25" H x 2.25" W x 3.63" D (57 mm H x 57 mm W x 92 mm D).
- **Grounding/Earthing:** 1/4" x 20 stud on bottom, ring terminal provided.
- **DIN Rail Mount:** easily attached or removed from 35 mm DIN rail.

## **ENVIRONMENTAL SPECIFICATIONS**

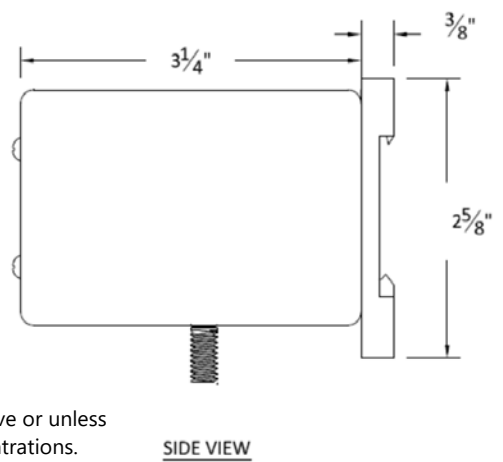
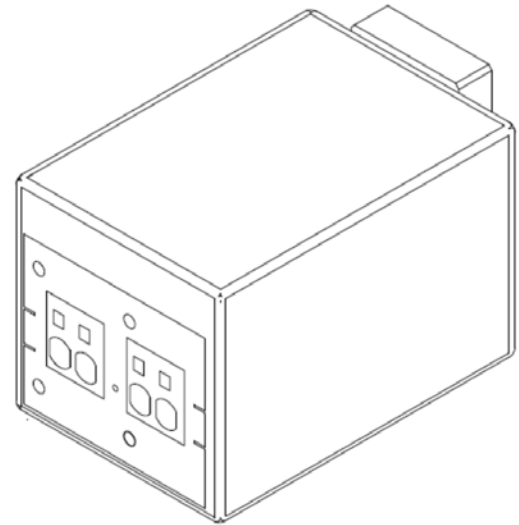
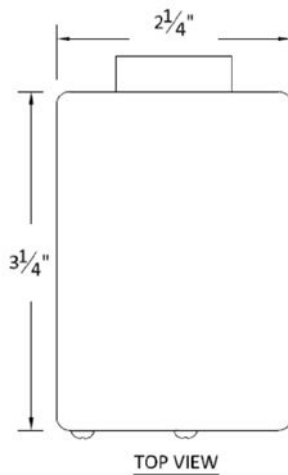
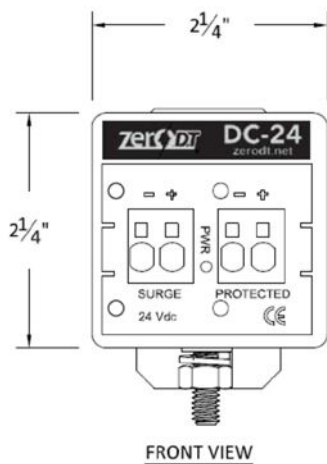
- **Operating / Storage Temperature:** -40°C to +65°C.
- **Humidity:** 0 to 95% non-condensing.

## **CERTIFICATIONS**

- **Module mounted in the enclosure meets the requirements of:**
  - Hazardous Locations -- Class I, Division 2, Groups A, B, C, D T6
  - IEC 60950
  - ETL 60950-1



## DIMENSIONAL DRAWINGS



**⚠ 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

**Suppressor must be Grounded for proper operation !**

1. For maximum overvoltage protection, mount the ZeroDT DC-24 as close as possible to the equipment to be protected.
2. The ZeroDT DC-24 unit is to be installed in accordance with the applicable requirements of the National Electric Code and the local authorities having jurisdiction.
3. The unit **MUST BE PROPERLY BONDED TO A LOW RESISTANCE EARTH/GROUND FOR PROPER OVERVOLTAGE PROTECTION.**  
Install the Earth/Ground connection using the ring terminal provide (or similar) on the 1/4" x 20 stud on the bottom of the unit with the supplied fasteners.
4. To use the ZeroDT DC-24 as a Parallel/Shunt protector connect ZeroDT DC-24 to DC power distribution buss (Supply & Return) to the 'Surge' cage-clamp connector using #24 - #8 AWG conductors (stripped 1/2").
5. To use the ZeroDT DC-24 as a Series protector for loads up to 15 Amps:
  - a. For loads of <15 Amps, replace the internal 15A fuse (1/4" x 1 1/4") with a suitable value for the load and conductors.
  - b. Using appropriately sized wire for the load (stripped 1/2"), connect both supply and return from the 'Protected' cage-clamp connector to the device being protected.
  - c. Using appropriately sized wire for the load (stripped 1/2"), connect both supply and return from the surge source to the 'Surge' cage-clamp connector.
6. Verify proper operation with illumination of the PWR LED on the front panel.

**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.**