ZeroDT P120-20

DIN Rail Mount – Primary 120 Volt AC Surge Protection

Datasheet
March 2026

The **ZeroDT P120-20** is a DIN rail mounted 120 Volt AC surge protector that provides effective protection against electrical transient surges that are generated by external lightning discharges, switching events and other over voltages.

No other technology is quicker to respond than its Silicon Avalanche Suppression Diodes (SASD). This allows the ZeroDT P120-20 to handle 8/20 µs surge currents of ≥20 kA to ensure long-term system reliability and enhance equipment survivability, safely shunting high amounts of transient energy while maintaining its low clamping voltage. Unlike many competitive devices that use MOV's, the ZeroDT P120-20's SASD protection **does not degrade with repeated usage**. While the ZeroDT P120-20 was originally developed to meet the needs of protecting power supplies in industrial control panels, including the requirements of UL 1449 5th edition Type 2CA SPDs, as well as being certified for use in Class 1, Div 2 hazardous locations, its small form factor and outstanding performance/price ration makes it a useful component for any 120 VAC application.

ELECTRICAL SPECIFICATIONS

- **Response Time:** <5 nanoseconds.
- **Configuration:** Connected as Parallel/Shunt Protector.
- **Surge Protection Modes:** Line to Neutral/Ground.
- **Nominal Operating Voltage:** 120 VAC.
- **Maximum Continuous Operating Voltage (MCOV):** 150 VAC.
- **Nominal Surge Current, I_n:** >10 kA, 8/20 µs (IEEE/ANSI C62.41 Combination Wave), Line-to-Neutral/Ground.
- **VPR (6 kV / 3 kA / 8x20µs per UL 1449) L-N:** ≤500 V.
- **SCCR (Short Circuit Current Rating):** 22 kAIC.
- **Maximum Surge Current, I_{Max} :**
  - **8/20 µs (IEEE/ANSI C62.41 Combination Wave), Line-to-Ground:** >20 kA.
  - **10/1000 µs (IEEE/ANSI C62.41 Long Wave), Line-to-Ground:** >750 Amps.
- **Leakage Current:** <20 µA.

MECHANICAL SPECIFICATIONS

- **Input / Output Connections:** Screw compression terminals.
- **Conductor Size:** #4 to #10 AWG.
- **Module Dimensions:** 2.64" H x 0.71" W x 3.54" L (67 mm H x 18 mm W x 90 mm L).
- **DIN Rail Mount:** easily attached or removed from 35 mm DIN rail.

ENVIRONMENTAL SPECIFICATIONS

- **Operating / Storage Temperature:** -40°C to +70°C.
- **Humidity:** 0 to 95% non-condensing.

CERTIFICATIONS

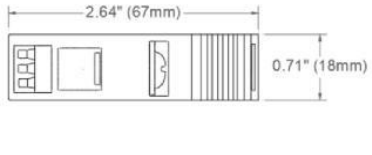
- **UL 1449 5th Edition Listed (VZCA2.E549004) – Type 2CA**
- **UL 121201 Listed (VZCH2.E549005) - Class I, Div. 2, Groups A, B, C and D Hazardous Locations,**
- **RoHS Compliant**

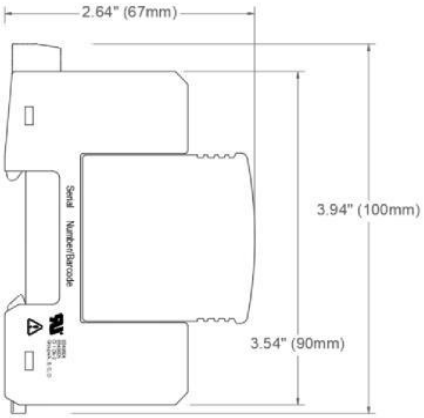
ZeroDT P120-20

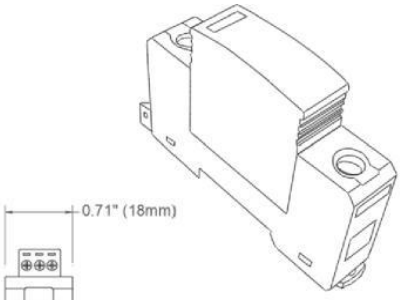
DIN Rail Mount – Primary 120 Volt AC Surge Protection

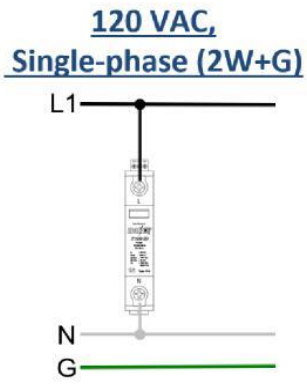
Datasheet
March 2026

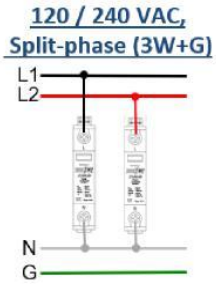
▶ DIMENSIONAL DRAWINGS / WIRING EXAMPLES

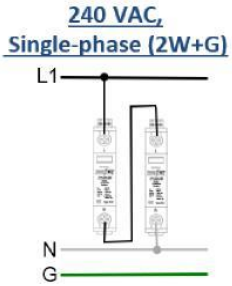


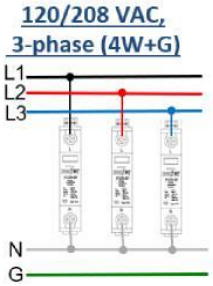












▶ INSTALLATION PROCEDURE

1. The ZeroDT P120-20 unit is to be installed in accordance with the applicable requirements of the National Electric Code and the local authorities having jurisdiction.
2. **Mounting:** Position the SPD as close to the equipment being protected as possible in order to minimize the conductor length. The SPD should be attached to a securely mounted 35mm DIN rail. The SPD shall be mounted by positioning the terminal block end on the top edge of the DIN rail and pressing downward until a 'click' is heard.
3. **Wiring:** The SPD shall be installed in parallel with the load or electrical system wiring using #6 AWG stranded (#4 AWG solid) wire. The torque to be applied to the terminal screws is 3.3 lb-ft (4.5 Nm). Interconnecting wire should be no longer than 20" (500 mm) in total length with a maximum bend radius of 4" (100 mm). Strip the wire insulation 5/16" (10 mm). Do not loop or twist the interconnecting wire.
4. **Remote Status Indication:** Electrically isolated Form C dry contacts (NO/NC/COM) are provided. Contacts change state upon loss of transient/surge suppression functionality.
5. **Visual Status Indication:** Verify proper operation via the visual indicator on the module, RED – unit needs replaced.

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.