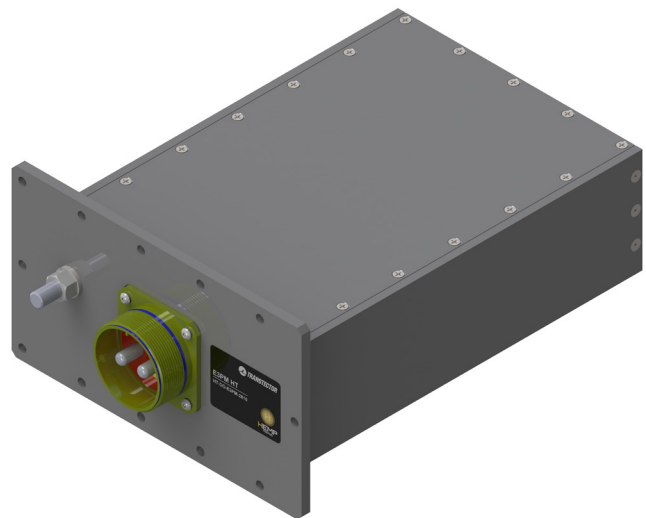


E3PM HT

DC EMP SURGE PROTECTION

PRODUCT SPECIFICATIONS



For Part Numbers
HT-DO-E3PM-283, HT-DO-E3PM-2810

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1. General Model Description

The E3PM HT 28Vdc Surge Protectors are designed to provide EMP protection for equipment and facilities per Department of Homeland Security (DHS) and the Alliance for Telecommunications Industry Solutions (ATIS) guidelines, and have been tested for survivability to the peak threat levels of the harsh Early Time (E1) and Intermediate Time (E2) High-Altitude (HEMP) environments as defined in MIL-STD-188-125.

These military grade protectors utilize Transtector's patented rigid/flex construction to provide protection for vehicle-based 28Vdc power circuits.

Multi-stage surge protection is incorporated to achieve extremely low residuals even at high surge currents.

The units are housed in an EMI sealed machined aluminum enclosure, with an integral electromagnetic barrier to maintain the characteristics of the master shield where they are installed.

2. Features

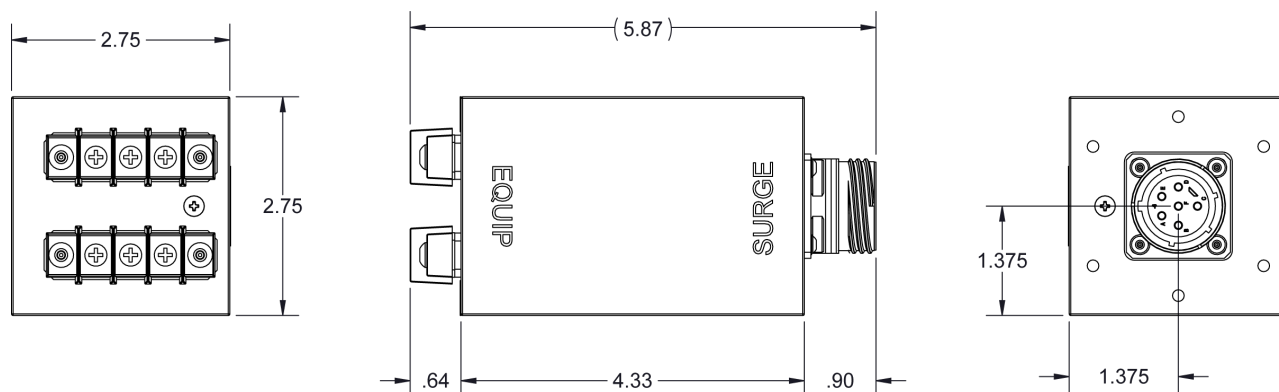
- Tested to MIL-STD-188-125 Early Time (E1) and Intermediate Time (E2) HEMP environments
- Military-grade construction and connectivity
- Fast response, non-degrading Silicon Avalanche Suppression Diode surge protection technology
- Integral EMI filtering and EM clean/dirty barrier
- Patented rigid/flex EMP Technology
- May be bonded to master shield structure to support system SE requirements
- Bulkhead mount to minimize product footprint
- Outdoor Rated

3. Specifications

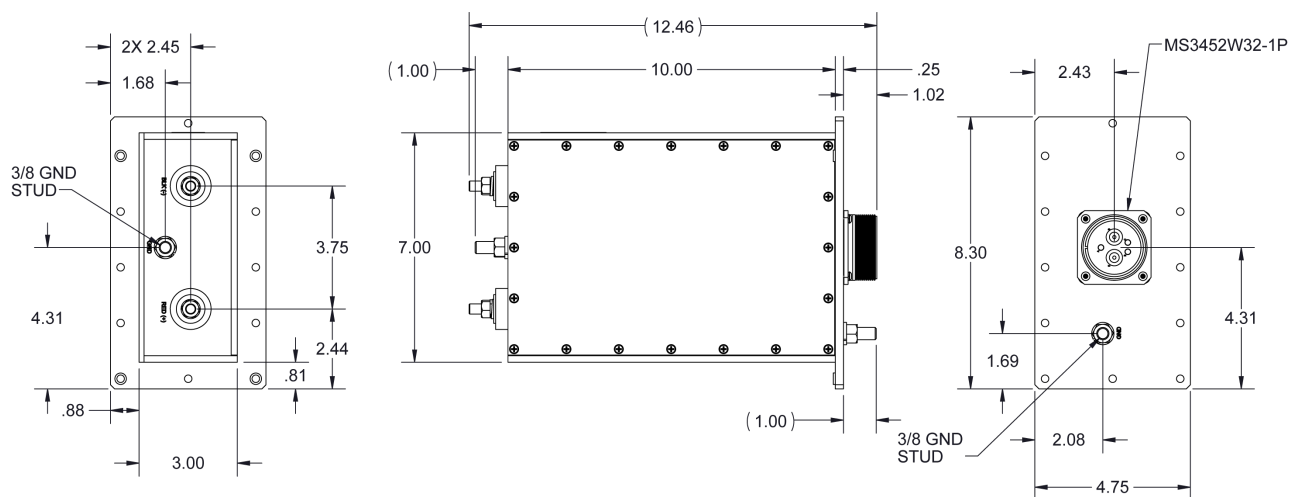
E3PM 28 Vdc HT		
Part Number	HT-DO-E3PM-283	HT-DO-E3PM-2810
Product Name	E3PM HT S30	E3PM HT S100
Product Type	DC EMP Surge Protection	
Technology	Silicon Avalanche Suppression Diode	
Application	12, 24, 28 Vdc	
Electrical		
Nominal Operating Voltage	28 Vdc	
Nominal Current Rating	13 A/30 A	100 A
Wire Configuration (Pair QTY)	6 Wire (3 DC pair)/(combined 1 DC Pair)	2 Wire (1 DC Pair)
Surge		
Early Time HEMP (E1) 20/500ns per MIL-STD-188-125	5 kA	
Intermediate Time HEMP (E2) 1.5/3-5000µs per MIL-STD-188-125	250 A	
Maximum Discharge Current - I _{max} (8/20µs)	5 kA	
Standards		
HEMPTested™	per MIL-STD-188-125	
EMP Protection Level	1, 2, 3	
Environmental		
Operating Temperature	-55°C to +85°C	-46°C to +85°C
Mean-Time Between Failure (MTBF)	965,014 hrs (GF 25°C per MIL-STD-217F2)	1,491,837 hrs (GF 25°C per MIL-STD-217F2)
Mechanical		
Enclosure Material	6061-T6 Machined Aluminum with MIL-DTL-5541 Type II Class 3 chem coating	
Mounting Configuration	Bulkhead mount	
Dimensions (H x W x D) inches	2.75 x 2.75 x 5.87	4.75 x 8.30 x 12.46
Dimensions (H x W x D) cm	6.99 x 6.99 x 14.91	12.07 x 21.08 x 31.65
Weight lbs (kg)	< 2 lbs (.45 kg)	< 12 lbs (5.44 kg)
Surge Side Connector	D38999-20WE6SN	MS3452W32-1P
Protected Side Connector	Terminal Block	5/16" plated brass studs
Warranty	15 Years	

4. Mechanical Outline

HT-DO-E3PM-283:



HT-DO-E3PM-2810:



Appendix A: Dept. of Homeland Security EMP Protection Levels

Level 1: Low \$s	Level 2: Hours	Level 3: Minutes	Level 4: Seconds
Use procedures & “low cost” best practices to mitigate EMP effects. Unplug power & data lines into spare/backup equipment. Turn off equipment that cannot be unplugged & that is not immediately needed for mission support. Store one week of food, water, & critical supplies for personnel. Wrap spare electronics with aluminum foil or put in Faraday containers. Have backup power that is not connected to the grid (generators, solar panels, etc.) with 1 week of on-site fuel (like propane/diesel). Use GETS, WPS, & TSP services; join SHARES if applicable (see Appendix C for more information).	In addition to Level 1, use EMP rated surge protection devices (SPDs) on power cords, antenna, & data cables & have EMP protected backup power. Use SPDs (1 nanosecond or better response time) to protect critical equipment. Use true online/double-conversion uninterruptible power supplies (UPS). Use fiber optic cables (with no metal); otherwise use shielded cables and ferrites/SPDs. Shielded racks/rooms &/or facilities may be more cost-effective than hardening numerous cables. Use EMP protected HF radio voice/email if need long haul nets. Suppress EMP fires.	In addition to Level 2, use civil EMP protection standards (like IEC SC 77C). Use EMP shielded racks/rooms and/or facilities to protect critical computers, data centers, phone switches, industrial & substation controls & other electronics. Shielding should be 30-80 dB of protection thru 10 GHz. Use SPDs to protect equipment outside of shielded areas. Can use single-door EMP-safe entry ways. Use ITU & IEC EMP standards for design guidance and testing. Have 30 days of backup power with on-site fuel (or via assured service agreement with EMP resilient refuelers). Use EMP protected HF radio & satellite voice/data nets if need long-range links to support missions.	Use Military EMP Standards (MIL-STD-188-125-1 & MIL-HDBK-423), and 80+ dB hardening thru 10 GHz. Use EMP/RFW shielding in rooms, racks, and/or buildings to protect critical equipment. Use EMP SPDs to protect equipment outside of shielded areas. Use EMP protected double door entry ways. Have 30+ days of supplies & EMP protected backup power (to include on-site fuel) for critical systems. Don't rely on commercial internet, telephone, satellite, or radio nets that are not EMP protected for communications. Use EMP protected fiber, satellite, & radio links & Appendix B services.

Four EMP Protection Levels for Equipment, Facilities and Data Center

Source: DHS Electromagnetic Pulse (EMP) Protection and Restoration Guidelines for Equipment and Facilities, Version 1.0, December 22nd, 2016