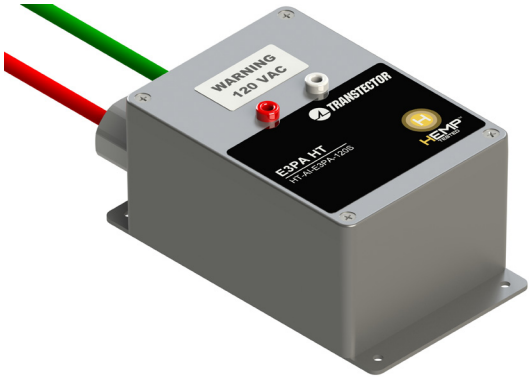
E3PA HT

AC EMP SURGE PROTECTION

PRODUCT SPECIFICATIONS





For Part Numbers
HT-AI-E3PA-120S, HT-AI-E3PA-120Y

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1. General Model Description

The E3PA HT AC 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.

The E3PA 120V suppression cabinet is also designed to provide protection against nominal transients such as lightning activity and grid switching transients, as well as high energy transient events such as SREMP and AC power faults for a typical 120/208V 3-Phase 350A(Max) service.

The E3PA HT Series utilizes high-power, solid-state Silicon Avalanche Suppression Diodes (SASDs) to provide robust, non-degrading protection against nominal transients.

The E3PA suppression cabinet also utilizes robust, custom Metal Oxide Varistor (MOV) assemblies to provide common mode (line to ground) shunting of high energy transient events. In the event of a high energy transient, the MOVs are designed to fail short to provide a low impedance path to ground for subsequent events.

2. Features

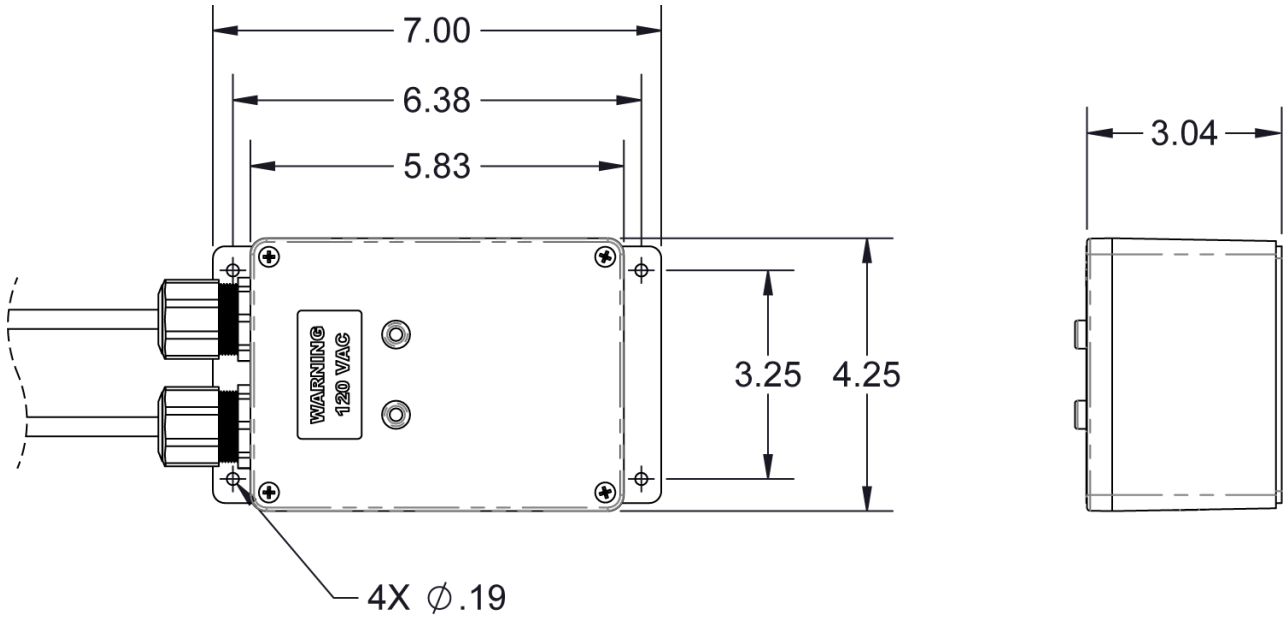
- Tested to MIL-STD-188-125 Early Time (E1) and Intermediate Time (E2) HEMP environments
- Fast response, non-degrading SASD coordinated with robust MOV surge protection technology
- Continuous protection to downstream equipment (E3PA cabinet only)
- Wall mount

3. Specifications

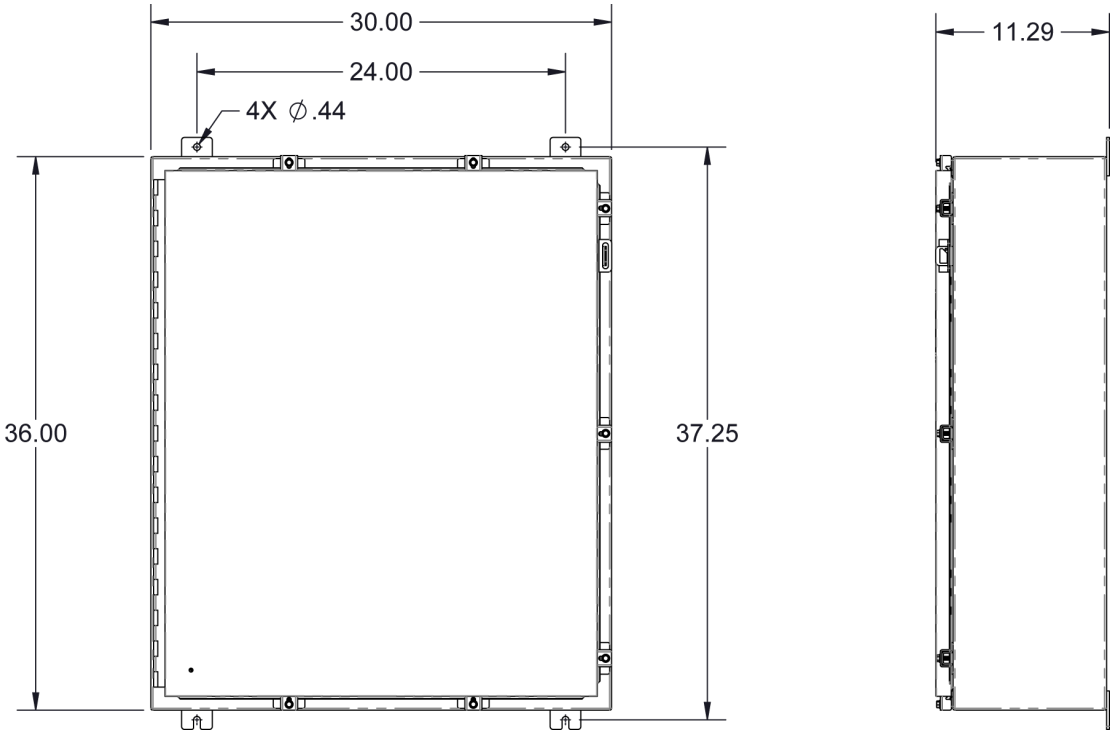
E3PA HT		
Part Number	HT-AI-E3PA-120S	HT-AI-E3PA-120Y
Product Name	E3PA HT 120S	E3PA HT 120Y
Product Type	AC EMP Surge Protection	
Technology	Silicon Avalanche Suppression Diode	Silicon Avalanche Suppression Diode + Metal Oxide Varistor
Application	120 Vac	
Electrical		
Nominal Operating Voltage	120 Vac	120/208 Vac
Frequency Range	50/60 Hz	
Protection Configuration	Single Phase	Wye
Fault Current Rating	N/A	up to 42 kAIC
Protection modes / Protected pairs	L-N or L-G	L-L, L-N, L-G
Maximum Continuous Operating Voltage (MCOV)	150 Vac	
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	N/A
Voltage Protection Level - Up or VPL (8/20µs)	< 620 V @ In	
Maximum Discharge Current - Imax (8/20µs)	50 kA	
Nominal Discharge Current - In (8/20µs)	35 kA	
Standards		
HEMPTested™	per MIL-STD-188-125	
EMP Protection Level	1, 2, 3	
Environmental		
Enclosure	Metal Indoor Enclosure	
Humidity	95% non-condensing up to 49°C	
Operating Temperature	-40°C to +85°C	
Mean-Time Between Failure (MTBF)	25,590,335 hrs (GF 25°C Bellcore)	2,228,657 hrs (GF 25°C Bellcore)
Mechanical		
Enclosure Material	Aluminum	Steel
Mounting Configuration	Wall mount	Wall mount
Dimensions (H x W x D) inches	7 x 4.25 x 3.04	36 x 30 x 11.29
Dimensions (H x W x D) cm	17.78 x 10.80 x 7.72	91.44 x 76.20 x 25.4
Weight lbs (kg)	<4 lbs (1.8 kg)	160 lbs (73 kg)
Surge Side Wire/Lug	#2 AWG Wire	Compression Lug, 350MCM Max
Protected Side Wire/Lug	#2 AWG Wire	Compression Lug, 350MCM Max
Maximum Wire Size	Supplied	#2 AWG
Warranty	15 Years	

4. Mechanical Outline

HT-AI-E3PA-120S:



HT-AI-E3PA-120Y:



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