ALPU HT

NETWORK/SIGNAL EMP SURGE PROTECTION

PRODUCT SPECIFICATIONS

For Part Number
HT-NO-ALPU-GBEP

an INFINITE company

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1. General Model Description

The ALPU HT GBEPOE Ethernet Surge Protector is 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 ALPU HT GBEPOE Ethernet Surge Protector is ideal for protecting high speed 10/1000BT communications networks. The protection circuits utilize silicon avalanche diode technology, and provide full-mode protection for all pins on the shielded RJ-45.

The protection circuit board is housed in an aluminum enclosure. The enclosure is an outdoor qualified NEMA 3R type with versatile mounting flanges. The unit is intended to be wall mounted with an optional bracket available to allow a wide range of pole mount configurations. A dedicated ground point on the housing must be bonded to the nearest grounding system (or Master Ground bar) for proper surge protection functionality.

The system wiring is installed with RJ-45 type connectors that can install directly into the chassis without having to cut or splice or route through awkward strain relief holes. The enclosure includes a built in cable retention feature for improved cable management using screw down clamps.

In the unlikely event of self sacrifice, the protection elements will fail short to disrupt communication.

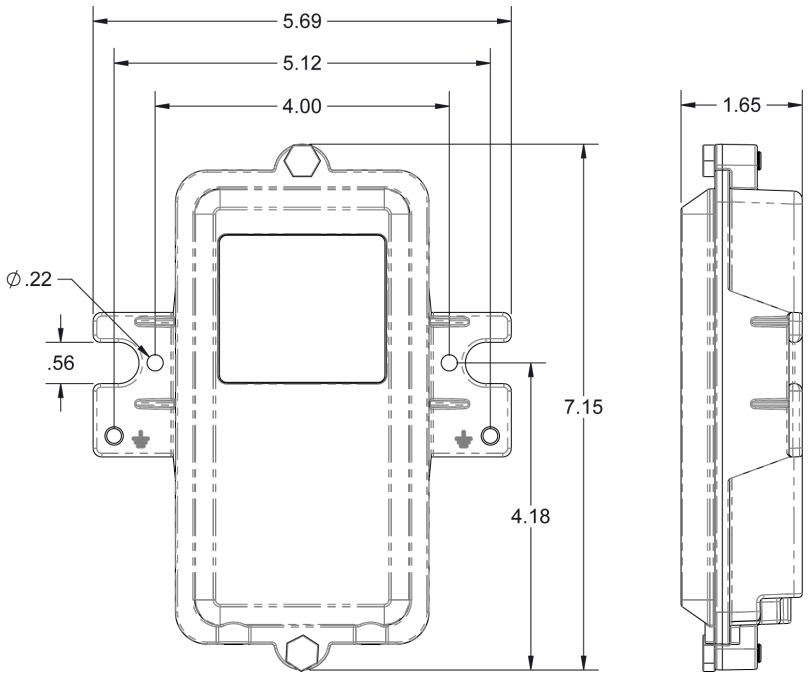
2. Features

- Tested to MIL-STD-188-125 Early Time (E1) and Intermediate Time (E2) HEMP environments
- Listed to UL 497B
- Future-proofed for evolving Power over Ethernet Technology
- Fast response, non-degrading Silicon Avalanche Suppression Diode surge protection technology
- Continuous protection to downstream equipment
- Outdoor Rated
- Wall or pole mounting

3. Specifications

ALPU HT	
Part Number	HT-NO-ALPU-GBEP
Product Name	ALPU HT GBEPOE
Product Type	Network/Signal EMP Surge Protection
Technology	Silicon Avalanche Suppression Diode
Application	GbE, GbE PoE, GbE PoE+, GbE PoE++
Electrical	
Nominal Operating Voltage	90 Vdc
Nominal Current Rating	1 A
Maximum DC Power Rating	92 W
Nominal DC Power Rating	90 W
Wire Configuration (Pair QTY)	8 wire (4 pair)
Protection modes / Protected pairs	(1,2) (3,6) (4,5) & (7,8)
Maximum Continuous Operating Voltage (MCOV)	92 Vdc
Impedance	100 ohm
Capacitance	< 15 pF
Data Rate	1000 Mb/s
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	50 A
Maximum Surge Current (10/1000µs)	100 A
Maximum Let Thru Voltage (10/1000µs)	134 V
Standards	
HEMPTested™	per MIL-STD-188-125
EMP Protection Level	1, 2
UL Compliance	UL 497B
CE Compliance	IEEE 802.3/af/at/bt
RoHS	Compliant
Environmental	
Enclosure Rating	NEMA 3R
Humidity	95% (non-condensing)
Operating Temperature	-40°C to +75°C
Mean-Time Between Failure (MTBF)	3,964,942 hrs (GF 75°C Bellcore)
Mechanical	
Enclosure Material	Die-cast Aluminum
Mounting Configuration	Wall or Pole mount
Dimensions (H x W x D) inches	7.15 x 5.69 x 1.65
Dimensions (H x W x D) cm	18.16 x 14.45 x 4.19
Weight lbs (kg)	0.8 lbs (0.36 kg)
Surge Side Connector	RJ45 shielded
Protected Side Connector	RJ45 shielded
Cable Type	Cat 6/6A shielded
Warranty	15 Years

4. Mechanical Outline



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