MAX® 2 Dog Fence

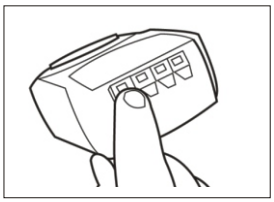
Premier Series Surge Protection for All Pet Containment Systems

EXCLUSIVE NEW! NEW TECHNOLOGY FROM PANAMAX

Featuring Protect or Disconnect™ Circuitry

In the event of a rare catastrophic surge, such as a massive direct lightning strike, it ***disconnects*** the transmitter.

- **Protects Against AC Power Surges and Lightning**
  Specifically designed for use with all electronic containment systems with protection for the AC and transmitter loop.
- **Increased Surge Current Ratings**
  The protector has a larger capacity to dissipate surges
- **Reduce the Risk of a System Failure**
  Protects the transmitter so it can continue to keep the pet inside the designated safety zone.
- **Space Saving Design**
  Low profile unit plugs directly into the wall. The transformer plugs into the side of the unit for better balance and stability. There is an extra convenience outlet.
- **Better Loop Connectors**
  Easier to attach the loop wires to the unit.
- **Power Indicator Light**
  Easy to see and shows power is on and protection is working.



MAX 2 Dog Fence
Part# M2DF

GUARANTEED LIGHTNING PROTECTION

LIFETIME PRODUCT WARRANTY*

*See actual warranty for claims procedures and details.

Lifetime Product Warranty*
The surge protector shall be free of any defects in design, materials, or workmanship, and Panamax will repair or replace any defective unit.

Sold by:
TWAcomm.com
http://www.TWAcomm.com
Toll Free: (877) 892-2666

SPECIFICATIONS

AC Protector:
120VAC, 50/60 Hz, 15 Ampere rating
UL 1449 TVSS rating 700 volts
Single Pulse Energy Absorption: 1200 Joules
Protection modes: L-N, L-G, N-G

Loop Protector:
Two wires protected
Clamping level: 70 volts
Surge withstand: 18,000A each wire
Easy spring-clip connections
Specifications subject to change without notice

PANAMAX®
The Surge Protection Specialist

www.panamax.com
(800) 472-5555 (415) 499-3900
150 Mitchell Boulevard, San Rafael, CA 94903

Q & A - Lightning Protection for a Pet Containment System (PCS)

1. Why do you need lightning protection at all? Pet Containment System transmitters are vulnerable to lightning-induced surges from the AC power line, as all AC-powered equipment is. But there is an extra vulnerability for PCSs, because the loop acts as an antenna, and can pick up lightning-induced currents/voltage from lightning even hundreds of feet away. Lightning currents can be up to 100,000 Amperes, with voltages into the millions! Experience shows that in difficult sites (frequent lightning, large loop, hilltop locations) transmitters will be damaged several times per year unless they are protected.

2. Why can't I just use an ordinary AC protector? As stated above, PCS transmitters need to be protected BOTH on the loop side and on the AC side. The loop protector needs to be specially designed for the PCS frequencies/voltages.

3. Can I use separate protectors for the loop and AC? You can, but it won't work, unless the installation is very carefully done. It is MUCH better to have the loop and AC protectors in one package. That eliminates connecting wiring, and is less expensive, because only one housing is needed.

4. Can't I ground the loop to a ground rod and protect the loop that way? No. People tend to think, "Ground is ground." The reality is very different. Depending on soil conditions, the resistance of an 8-foot ground rod can be from 20 ohms or so to 1000 ohms, or even more in rocky or dry earth. The resistance of a short (say 2 foot) rod would be about 4 times larger- say 1000-4000 ohms! This can be easily measured with an ohmmeter. Lightning currents coming into the loop from direct lightning can be several thousand amperes. Ohm's law tells you that a 1000 ohm ground isn't going to take much current away from the loop.

Note that the NEC Article 250-52C requires that ground rods be AT LEAST 8 FEET long. The NEC also requires (250-50) that all grounding electrodes be bonded (i.e., connected together) with a heavy conductor (Table 250-66).

5. Don't I have to worry about lightning currents being brought into the house by the loop? Yes, you do. The PCS loop is one of the many paths that lightning can take to get inside the house. CATV, AC wiring, phone, and TV/DBS antenna wires are other paths. The NEC describes how these various lines have to be protected- basically, by passing lightning currents into the building grounding system. That's what the protector does.

The protector is UL Listed (approved) as an AC protector, and ALSO tested and approved as an "isolated loop protector" for the PCS loop.

The protector contains fusible links on the loop side to limit the amount of lightning current that can come through to values the protector can handle without damage. (About 20,000 ampere surge on each loop wire.)

6. What is the expected field life of the protectors? The few protectors that have been damaged suggest a field life (MTBF) of AT LEAST 500 YEARS, and probably more, even in high-lightning areas.

7. If I bury the loop, do I still need a protector? YES! Lots of field experience shows that even with burial 3 feet deep, wires and cables can be struck by lightning. This occurs, once again, because soil is not a good conductor. So the lightning current keeps going down until it finds something metallic. Shallow burial (less than 1 foot deep) provides very little protection.

Quick Connection Tips - See Instructions for Complete Information

FIGURE 1: Plug the lightning transformer into a grounded (3 wire) 120V AC outlet within five feet of where you want to locate the transmitter.

FIGURE 2: Cut the loop wires near the protector and strip all four ends back ¼ inch

FIGURE 3: Push the connector tab firmly away from yourself. The connector jaws will open. Push the stripped end of the wire into the connector. Repeat with the other three wires.

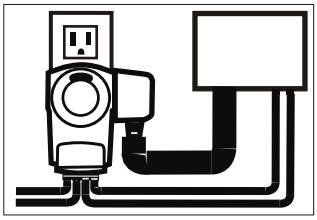


FIGURE 1

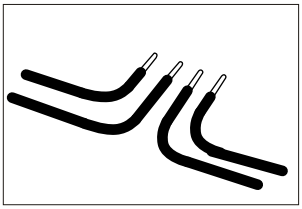


FIGURE 2

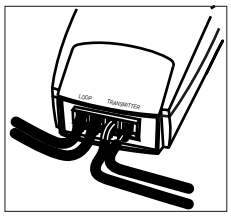


FIGURE 3

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