Installation

Contents: (1) *ZAP-PRO* Protection Device; (4) Tab Splitters; Twist Ties

Warnings:

- **This product should be installed by qualified and trained HVAC/R personnel only!**
- **Disconnect supply voltage and discharge the system capacitors before proceeding!**
- **Follow all applicable electrical codes and safety standards!**

How it works:

If voltages remain normal, *ZAP-PRO* simply allows them to pass unimpeded. However, if voltage swings (or spikes) too high, the three devices in *ZAP-PRO* act to clamp or clip off the excess voltage. Typical response time is 28ns - 30ms. The excess voltage is converted to heat energy and dissipated, if it isn't excessive. These protectors can dissipate up to about 8000v for one cycle, or 4000v for two cycles, etc., before being damaged. The excess voltage will cause the device's poles to short together permanently, (often with an audible 'pop') and will cause the circuit breaker to trip. This damaged condition is usually visible inside the clear shrink wrapping as a discoloration and the circuit breaker will continue to trip when power is restored. REPLACE the *ZAP-PRO* don't just disconnect it – it has done its job protecting the unit's (or circuit board's) components.

Installing *ZAP-PRO* on a **Heat Pump Unit** or **Condensing Unit:**

Disconnect all power to system. Locate the LINE side of contactor. Install *ZAP-PRO*'s black and red wires to the 1/4" male tabs on the side of contact that is always 'hot'. This is done because many systems have transformers or other devices that are always 'on', and connecting the *ZAP-PRO* to this side protects all parts full me, not just when the contactor is energized. The green/yellow ground wire must be securely a ached to the best ground point available. Tighten the screw securely. Tie off any wires that might be exposed to sharp or rotang

Installing *ZAP-PRO* on a **Circuit Board** in a Furnace, Air Handler, or other Unit:

Disconnect all power to system. Locate the tab connectors where incoming power is supplied to the board. Some boards will have an extra connector for each leg to be connected to, but it is BEST if you use the 2-to- 1 connectors provided, attaching them directly to the incoming power terminals. Use the *ZAP-PRO* 's black wire to attach to the black or 'hot' incoming wire and use the *ZAP-PRO* 's red wire to attach to the neutral side (or the other power leg if the board receives 240v power.) The green/yellow ground wire must be securely attached to the best ground point available. Tighten the screw securely. Tie off any wires that might be exposed to sharp or rotating parts, or that might be damaged by vibration. Fill out and apply "Tech Note" sticker nearby.

The Yellow & Green LED Monitors:

The yellow and green monitoring LED's indicate the voltage and protection status of the power line that they correspond to: the green LED is for the black power lead and the yellow LED is for the RED power lead. **IF the RED power lead is connected to the equipment's neutral terminal (as would be the case if the unit operates only on 120V) THE YELLOW LED WILL NEVER LIGHT.** That is normal, because each LED only monitors the status if it is a LINE potential. Other than that exception, a dark LED indicates either a.) power loss, b.) loss of protection, or c.) ground loss.

Notes:

- A normal *ZAP-PRO* device measures near 'infinity' Ohms across any two leads.
- A failed device will measure low resistance between some of the leads.
- Visit *Zebralnstruments.com* to learn more about other devices that protect against surges and spikes in ECM motors.

Find these instructions online by following the QR Code