MARS®

INSTALLATION INSTRUCTIONS

Model 83907 iSPD, intelligent Surge Protection Device
Type 1 or Type 2
Brownout / Short Cycle / Low Voltage / Freeze-up and Surge Protection

IMPORTANT SAFETY INSTRUCTIONS, SAVE THESE INSTRUCTIONS

WARNING

Risk of Electrical Shock
Attention: Risqué De Choc-Ne Pas Ouvrir

- **Thoroughly read instructions before installing unit.**
- **Installation and Service to be performed by a Qualified Licensed Electrician.**
- **Intended for indoor and outdoor use.**
- **All wiring must comply with all state and local electrical codes including the National Electrical Code and/or Canadian Electrical Code.**
- **This unit contains no serviceable parts.**
- *Attention: Aucune piece remplacable ou reparable.*
- **This product does not protect against direct lightning strikes.**
- **Suitable for use on a circuit capable of delivering not more than 10,000 rms amperes 120 volts per line.**
- **In all applications, NEC recommended maximum Ground resistance should not exceed 25 ohms. Verify ground resistance prior to installation.**

HVAC Disconnect Installation for 83907 iSPD

1. **Turn off main breaker to panel / equipment the protector is to be installed and verify power is off with appropriate meter.** Remove the ½" knockout on the side of the disconnect box. **Do not use the bottom knockouts as this may allow water entry and void product warranty.**
2. Remove the retaining locknut from the nipple on the 83907 iSPD. Feed the wires and nipple into the ½" knockout hole. Use appropriate hardware if unit is to be installed outdoors. Secure the SPD in place with the lock nut.
3. Connect the two black wires as shown in illustrations.
4. Connect the green wire to ground buss bar.
5. Ensure all wiring is correct and securely fastened.
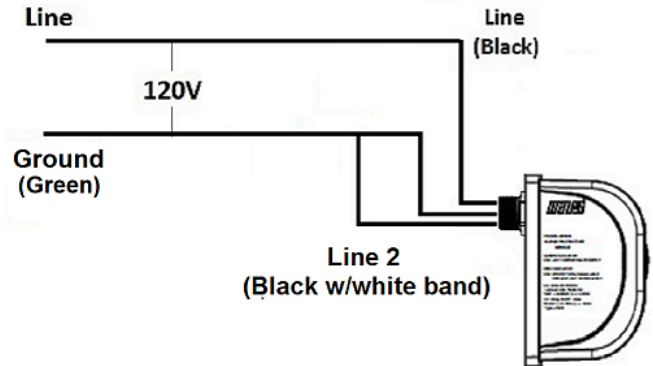
120V two wire installation of the 83907 iSPD

1. **Turn off all power to the equipment the protector is to be installed and verify power is off with appropriate meter.**
2. Connect the black wire of the 83907 iSPD to the equipment black wire, and ensure wiring is securely fastened.
3. Connect the green and black w/white band of the 83907 iSPD to the equipment ground and ensure wiring is securely fastened.

Installation tips: For best performance ensure conductor length is as short as possible. Hard 90-degree bends will reduce effectiveness
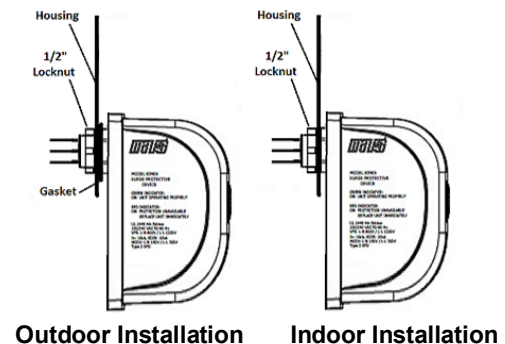

A = Black (Load)
B = Black (Load)
C = Green (Ground)
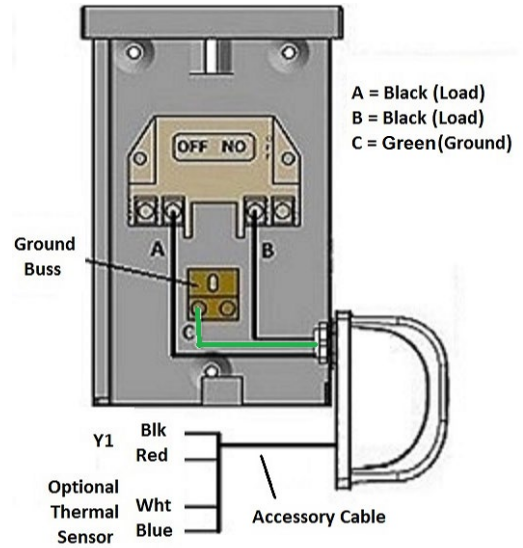
White and Blue wires must remain connected with supplied wire nut if thermal sensor option is not used

### HVAC Disconnect Box
240Vac three wire Installation

120Vac two wire single phase Installation

Outdoor Installation   **Indoor Installation**

Condenser Contactor Wiring

1. Locate the 24-volt accessory wire from the MARS 83907 iSPD and feed cable to the condenser wiring compartment.
2. Locate and prepare for termination, the Red and Black wire of the 24-volt accessory cable.
3. Connect the Red and Black wire to the thermostat control wires as shown below.
4. Ensure all wiring is correct and securely fastened.

24Vac Contactor Wiring
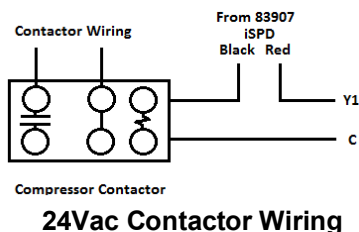
Optional Thermal Sensor (Kit p/n 33495)

The thermal sensor is installed as an option to detect potential coil "freeze-up" and/or low refrigerant events. If this option is not used the two sensor leads (blue/white) on the low voltage cable exiting the Surge Protector must remain connected with the supplied wire nut. This will disable the sensors function.

Thermal Sensor Installation

The thermal sensor should be installed as close as possible to the indoor "A" coil. The thermal sensor should be attached directly, in contact, to the refrigerant suction/return copper line using several wraps of ¾" vinyl electrical tape. Once attached, insulate sensor with standard refrigerant line insulation.
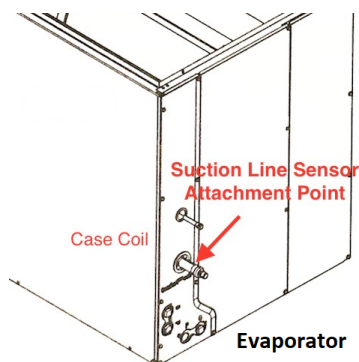
Thermal Sensor Electrical Connections

A 2-conductor thermostat type wire (contractor supplied) is used to connect the low voltage cable of the Surge Protector and the thermal sensor leads installed on the indoor evaporator "A" coil. Connect sensor leads with the 2-conductor wire with wire nuts or insulated crimp splices. Route the 2-conductor wire from the indoor evaporator coil to the wiring / control cabinet of the condenser unit. Connect the blue/white low voltage wire from the Surge Protector located in the wiring / control cabinet of the condenser unit, with the 2-conductor wire from the evaporator coil / thermal sensor. Ensure all wiring is correct and securely fastened

Restoring Power

1. Ensure all wiring is correct and securely fastened.
2. Restore compressor power at the circuit breaker(s) and at the 24Vac thermostat circuit.
3. Periodically check LED status lights confirming unit is functioning properly.

Function of LED Lights

Startup: Green/Red LED's will flash for 10 seconds

	Green LED	Red LED
Surge Protection Operational	ON	
Surge Protection No Longer Available**		ON**
Under Voltage		FLASHING
Frozen Return Line	FLASHING	

**Replace Surge Protection Device Immediately. The compressor will remain shut down until surge protective device is replaced.

83907 iSPD Operation

Startup:
When power is initiated the green and red LED's will flash for 10 seconds. During this time, the 83907 iSPD determines the connected voltage.

Under voltage:
When line voltage falls below acceptable levels the unit's relay will open and power will be disconnected to the condenser until the line voltage returns to the acceptable levels, power will then be restored to the condenser.

Frozen Return Line (Optional):
When the thermal sensor detects a frozen condenser return line the relay will open and power will be disconnected to the condenser. When the sensor detects a non-frozen line, power will then be restored to the condenser.

Surge Protection No Longer Available:
When there is a loss of any level of protection the relay will open and the power will be disconnected until the surge protective device is replaced.

83907 iSPD Specifications

- Input Voltage: 120Vac-240Vac
- MCOV: L/G: 150V, L-L: 300V
- In (Nominal Discharge): 10kA
- SCCR (Short Circuit): 22kA
- VPR (Voltage Protection): L/G 700 Vac L-L 1200 Vac
- Rated Indoor / Outdoor Use
- Operating Temperature -40C to +70C
- Unit Relay 24Vac
- Type 1 or Type 2 SPD
- Type 4X Weather Proof Housing

Technical Support 800-678-9888