



# Environmental Potentials

Power Quality For The Digital Age



## EP-2700

Installation and Application Manual



# EP-2700 WALL MOUNTED FILTER

## Installation and Maintenance Manual

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### FIVE YEAR WARRANTY

- Environmental Potentials will replace or repair any product from the EP-2700 product line as long as it was not damaged during installation or damaged from faulty installation.
- EP warranty registration card must be filled out and received by Environmental Potentials within 15 days of installation.
- This warranty is for the repair or replacement of damaged EP products only. Environmental Potentials accepts no liability, written or expressed, for the damage that may have occurred to any other equipment; nor does Environmental Potentials warranty cover any labor cost associated with replacement of such product.

**Contact Us:** [info@ep2000.com](mailto:info@ep2000.com) • 1.844.500.7436



**EP Technical Support:** [techsupport@ep2000.com](mailto:techsupport@ep2000.com) • 1.844.500.7436

**Mailing Address:** 4220W 2100S, Suit N&O, Salt Lake City, UT 84120

# Safety First

Even though EP units are designed for common installation, electricity is dangerous and only qualified personnel should attempt installation.

1. Read and understand entire contents of installation manual prior to installation.
2. Measure voltage of the electrical panel where the installation is taking place.
3. Verify that voltage and electrical configuration matches the model of the EP unit being installed.
4. If the model number does not match **DO NOT install**.
5. Turn off electrical supply prior to any installation in electrical panel.
6. Verify with voltage meter that electricity is off.
7. Ensure all connections in electrical panel are secure and all tools and equipment have been removed from electrical panel before re-energizing system.



**WARNING**



**ALWAYS** have a professional electrician with proper safety equipment perform installation.

**Do NOT** install waveform corrector on the output of a variable frequency drive

## Pre-Installation Preparations

1. Read entire contents before performing installation.
2. Verify the voltage rating of the system before installing the EP unit. Make sure the electrical system operates at or below the maximum continuous operating voltage of EP product. It should not exceed five (5) percent of the rated nominal voltage of the unit.  
**Note: If you have questions regarding voltage ratings, contact EP.**
3. Check all the fuses of the electrical system before installing EP unit.
4. Make sure the power distribution configuration of the EP unit matches with the configuration of your electrical system (Delta or WYE).
5. Make sure your EP product is suitable for your application.

**Note: Call to confirm the product application.**

## EP-2700 Application & Installation Criteria

The EP-2700 line of filters are very unique in that they are only used to enhance the filtering capabilities of the EP-2000 or EP-2500 power quality devices. NEVER install the EP-2700 filter by itself, **under any circumstances**, as it offers no protection from transient voltage spikes.

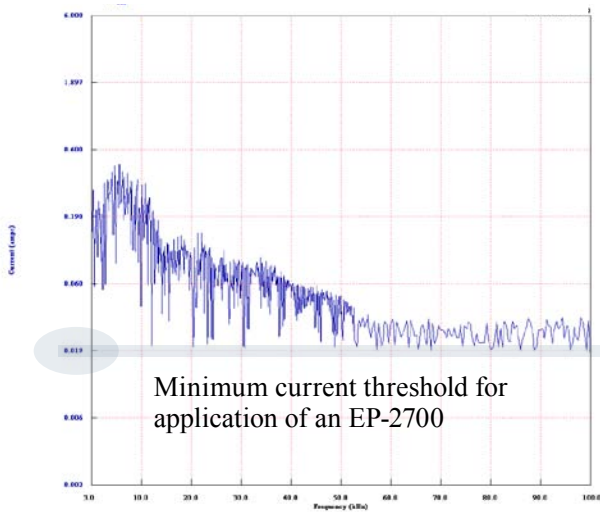
The EP-2000 and EP-2500 line of power quality devices have the ability to absorb and dissipate high frequency voltage and voltage transients that routinely occur in any electrical distribution system. Because of the EP-2000 and EP-2500 inductive characteristics they are limited in the amount of high frequency current they can effectively absorb. It is for this reason that the EP-2700 was created. The EP-2700 was engineered with a more capacitive characteristic in order to effectively handle high frequency current in the system.

# Application Thresholds for EP-2700

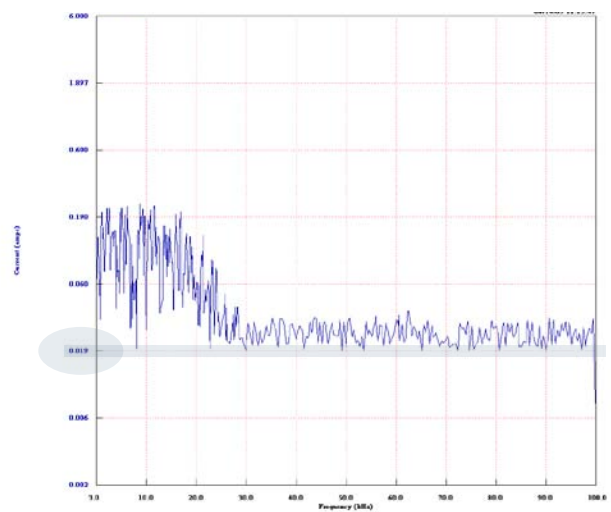
- NO EP-2700 required when readings for the middle line current is below .019 amps.
- Apply one EP-2700 in conjunction with an EP-2000 or EP-2500 when readings for middle line current are above .019 but below .6 amps.
- Apply two EP-2700's in conjunction with an EP-2000 or EP-2500 when readings for middle line current are above .6 but below 1.89 amps.
- Please contact EP Technical Support for readings with consistent spiking above 1.89 amps.

Following are some example high frequency readings to illustrate each threshold along with what an EP-2000 or EP-2500 can do on its own under different current situations.

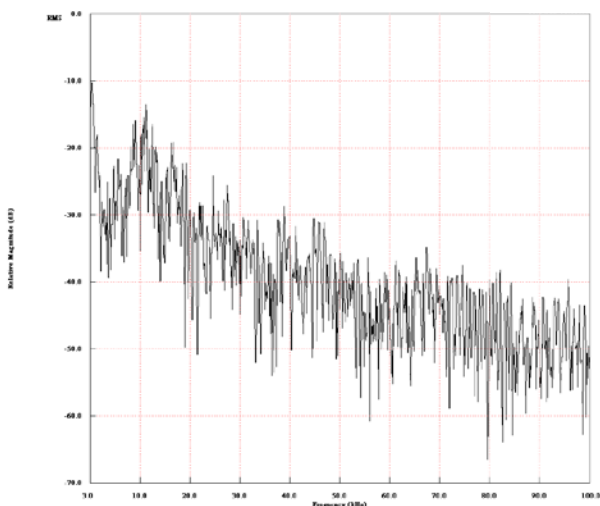
CURRENT NOISE AT MINIMAL THRESHOLD FOR AN EP-2700



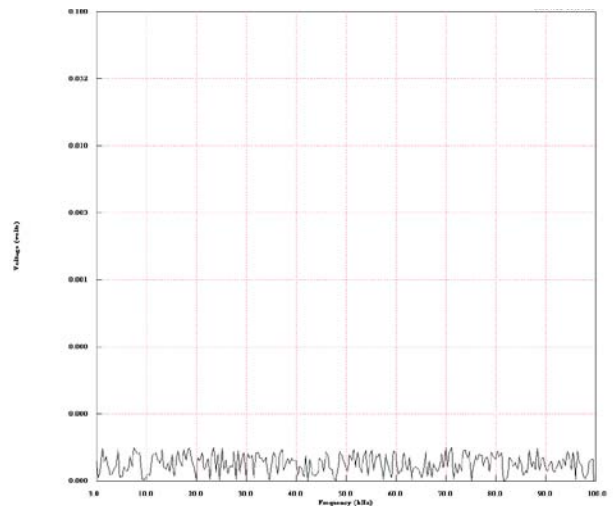
CURRENT NOISE AT MINIMAL THRESHOLD FOR AN EP-2700 WITH ONLY AN EP-2000 APPLIED



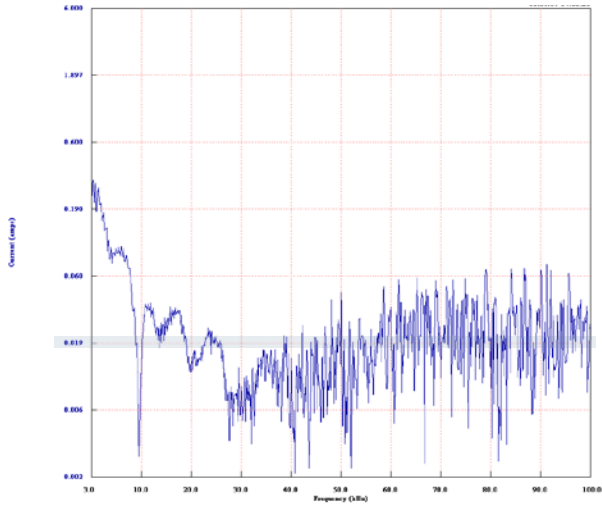
VOLTAGE READING FOR ABOVE "BEFORE" CURRENT READINGS



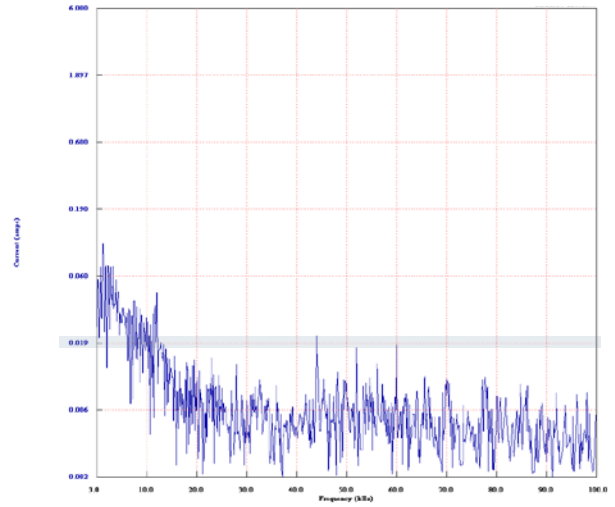
VOLTAGE READING FOR ABOVE "BEFORE" CURRENT READINGS WITH THE APPLICATION OF AN EP-2000



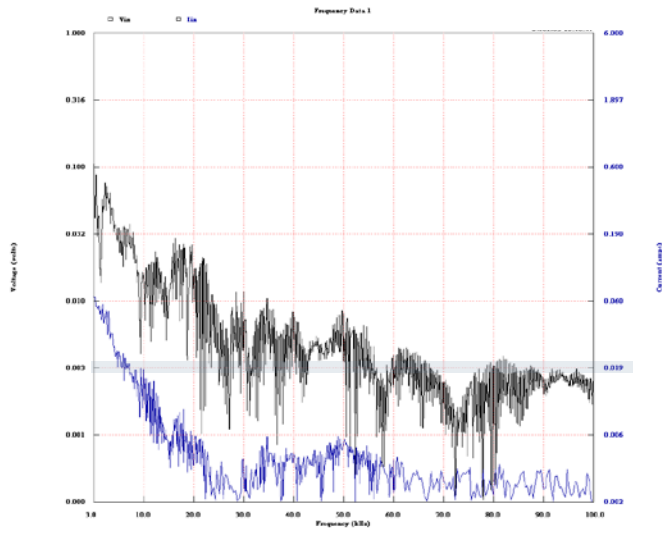
CURRENT READINGS AT MIDDLE LINE OF .019 AMPS  
EP-2700 REQUIRED



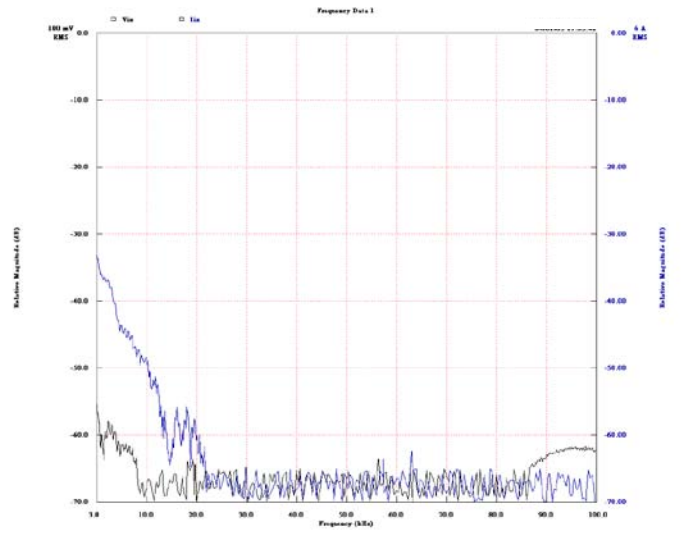
CURRENT READINGS BELOW MIDDLE LINE OF .019 AMPS  
EP-2700 IS NOT REQUIRED



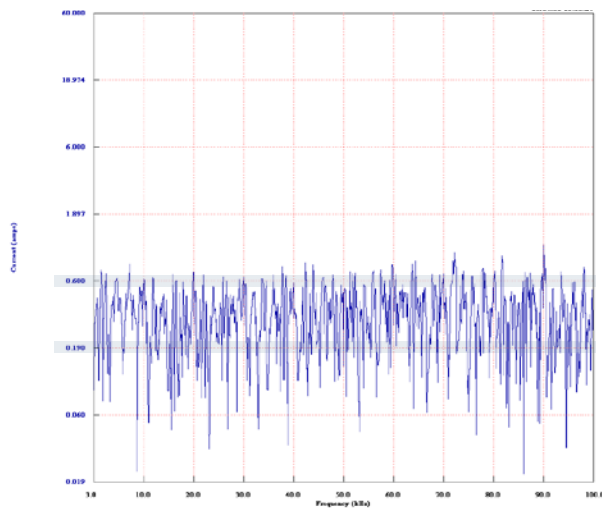
CURRENT READINGS BELOW MIDDLE LINE OF .019 AMPS



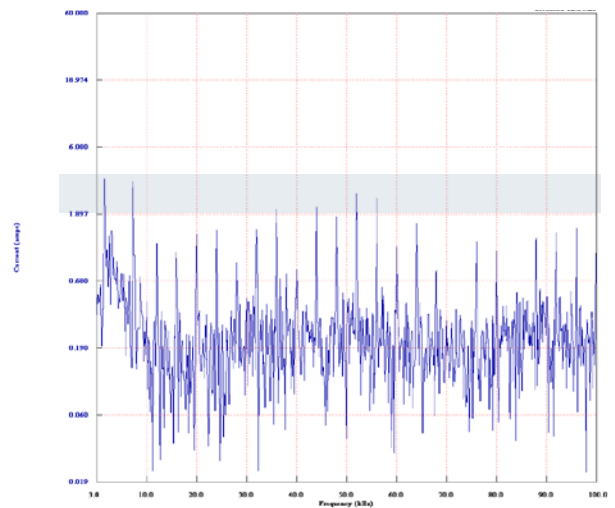
EFFECT OF AN EP-2000 ON VOLTAGE AND CURRENT  
WITH CURRENT READINGS BELOW MIDDLE LINE OF .019 AMPS



CURRENT READINGS ABOVE .019 AMPS, BUT BELOW .6 AMPS  
TWO EP-2700S REQUIRED FOR EFFECTIVE ELIMINATION OF CURRENT NOISE



CURRENT READINGS WITH SPIKES EXCEEDING 2 AMPS  
CONSULT WITH TECHNICAL SUPPORT



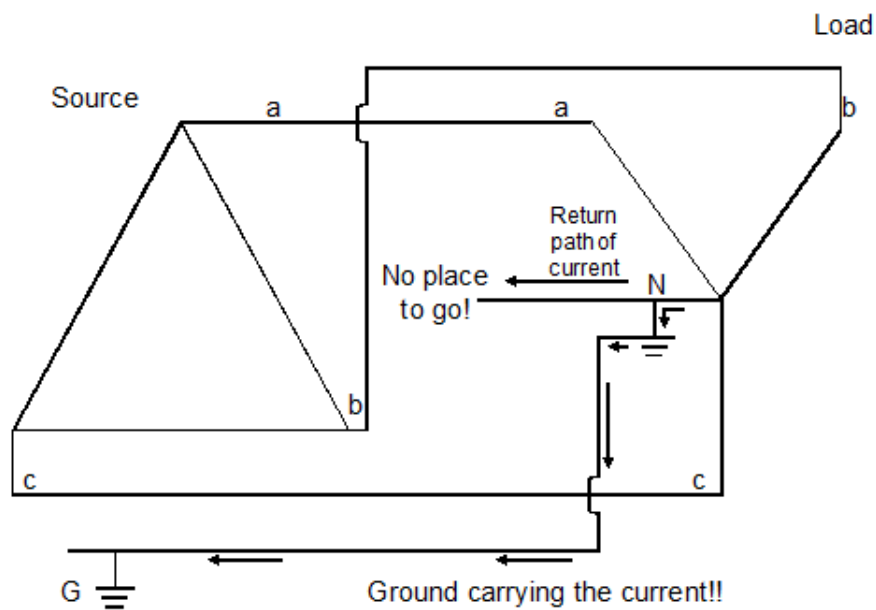
# Please Read Before Installation

Never install the **EP-2700** on improper electrical configurations. Whenever a Delta System is connected to a Wye load or Wye System is connected to a Delta Load, do NOT install an **EP-2700**.

Failure to follow this advice will void warranty.

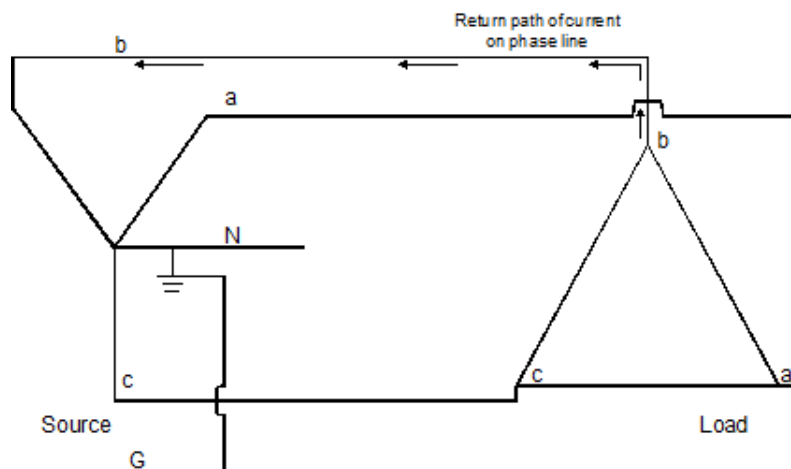
## Delta System to Wye Load

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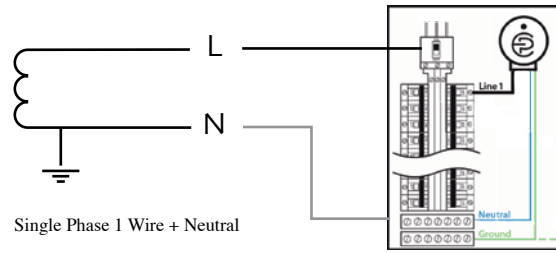
## Wye System to Delta Load

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# Voltage Ratings & Power Source Configurations

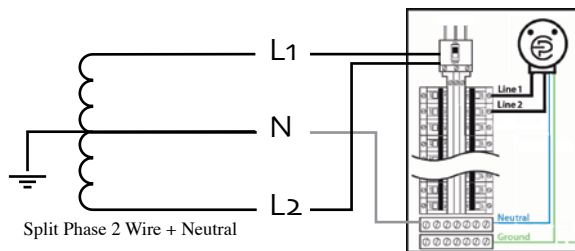
## Single Phase Two Wire + Ground Installation



1. Connect white neutral to neutral bus bar.
2. Next connect black phase A to phase A of the 30 A breaker.
3. **Last connect green ground to ground bus bar or panel. Ground is case ground only and should NOT be connected to neutral bus bar.**

SINGLE PHASE WYE	
PRODUCTS	
EP-2700	
VOLTAGE ID#	MCOV
1Y120	120V
1Y240	240V

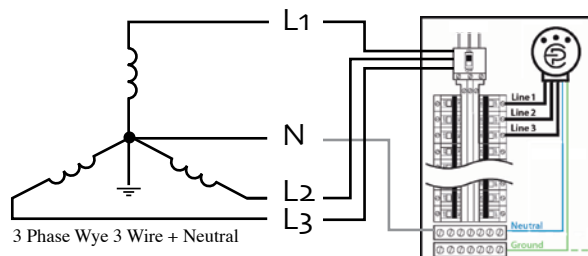
## Split Phase Wye Installation



1. Connect white neutral to neutral bus bar.
2. Next connect black phase A to phase A of the 30 A breaker.
3. Then connect black phase B to phase B of 30 A breaker.
4. **Last connect green ground to ground bus bar or panel. Ground is case ground only and should NOT be connected to neutral bus bar.**

TWO PHASE WYE	
PRODUCTS	
EP-2700	
VOLTAGE ID#	MCOV
1S240	120V

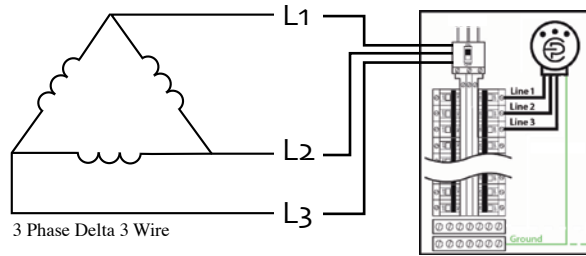
## Three Phase Wye Installation



1. Connect white neutral to neutral bus bar.
2. Next connect black phase A to phase A of the 30 A breaker.
3. Then connect black phase B to phase B of 30 A breaker.
4. Then connect black phase C to phase C of 30 A breaker.
5. **Last connect green ground to ground bus bar or panel. Ground is case ground only and should NOT be connected to neutral bus bar.**

THREE PHASE WYE	
PRODUCTS	
EP-2700	
VOLTAGE ID#	MCOV
3Y208	120V
3Y240	120V
3Y480	277V
3Y600	347V

## Three Phase Delta Installation



1. Connect black phase A to phase A of the 30 A breaker.
2. Next connect black phase B to phase B of 30 A breaker.
3. Then connect black phase C to phase C of 30 A breaker.
4. **Last connect green ground to ground bus bar or panel. Ground is case ground only and should NOT be connected to neutral bus bar.**

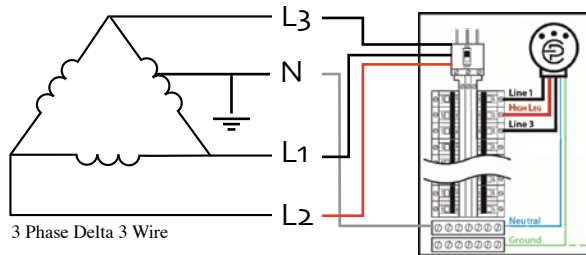
### THREE PHASE DELTA

#### PRODUCTS

EP-2700

VOLTAGE ID#	MCOV
3D240	240V
3D480	480V

## Three Phase High Leg Delta Installation



1. Connect black phase A to phase A of the 30 A breaker.
2. Next connect black phase B to phase B of 30 A breaker.
3. Then connect red phase C to phase C of 30 A breaker.  
**WARNING: Be sure that phase C is the HIGH LEG.**
4. **Last connect green ground to ground bus bar or panel. Ground is case ground only and should NOT be connected to neutral bus bar.**

### 3 PHASE HL DELTA

#### PRODUCTS

EP-2700

VOLTAGE ID#	MCOV
3H240	120/ 240V



**⚠ WARNING ⚠**

The EP-2700 must have an EP-2000 or an EP-2500 installed next to it to function properly. The EP-2700 offers no surge protection and failure to install next to an EP-2000 or EP-2500 voids warranty.

**⚠ WARNING ⚠**

Failure to follow all of these instructions may cause excessive heat in the EP-2700, resulting in premature burnout.

## Mounting

For optimal performance, mount EP product as close to electrical panel as possible. Longer wire increases inductance in the system and the EP unit may not function properly. The lead lengths of the wire for the EP-2700 needs to be 1 inch longer than that of the EP-2000 and EP-2500. Make sure the EP product is mounted in a dry and clean environment. The EP unit can be mounted in any secure area above, below or beside the electrical panel.

Although internal mounting can be preferred mounting for shorter lead lengths and optimal performance, it poses two problems: 1. IEEE does not recommend internal mounting of TVSS in the event of end of life termination of the unit that may cause damage to the internal distribution panel. 2. On internal installation the panel must be opened for visual verification of units' functional status.

## Wiring

1. Requires a dedicated 30 A circuit breaker to connect the EP filter to the electrical system.
2. Wire should be connected straight to the power source. Avoid sharp bends and refrain from splicing the wires as this will reduce the effectiveness of the unit.
3. Do not twist wires.

## Maintenance

EP products do NOT require periodic maintenance. The units have LED lights to provide visual indication of the unit's functional status. If the LED lights are off, the unit is functioning properly.

EP units are designed to reduce heat. If the units are hot to the touch for more than 60 days, additional EP units are needed.

It is also good practice to inspect the connections of the power supply wiring to the EP unit monthly.

**⚠ WARNING ⚠**

- ALWAYS have a professional electrician with proper safety equipment perform installation.
- Any attempt to open unit voids warranty.

## Servicing

EP units contain no serviceable parts and require no adjustments. All EP products are designed to provide many years of electrical protection without any need for servicing.

If the EP unit does malfunction, have a professional electrician inspect the wire connections. If the problem persists, contact your EP sales representative to discuss obtaining a replacement unit.