

# Install Home Load Controller Devices for North America — Application Note

## Revision history

Version 1.0, May 2024: Initial version

## Overview

This application note explains how to wire the SolarEdge Home Load Controller to a contactor and correctly mount it in a NEMA-rated enclosure. It's important to install the physical components before you define load devices in SetApp or the Monitoring platform. For details, see [Configure and Operate Load Control Devices](#).

## Required equipment

- SolarEdge Home Network card installed in the inverter
- NEMA 3R or bigger enclosure made of a composite (non-metallic) material, with a hinged door and listed to UL50
- SolarEdge Home Load Controller
- Contactors
- Wire cutters and strippers
- Crimping tool for spade terminal if applicable
- Drill and drill bit for mounting anchors
- Appropriate anchors for mounting surface

## Before you begin

- Select the loads you want to control and build a Bill of Materials (BOM) with components listed in:
  - Appendix A: Suggested enclosures
  - Appendix B: Suggested contactors.
- Mount the contactor and the load controller inside the enclosure and wire the connections between them.

## Wire home load controller to contactor

The Home Load Controller controls the contactor. The contactor is made up of a relay which, when energized, connects power to the load. You can connect the Home Load Controller to a 120V<sub>AC</sub> or 240V<sub>AC</sub> contactor.

## Wire 120V<sub>AC</sub> contactors

### Step 1: Prepare the conductors

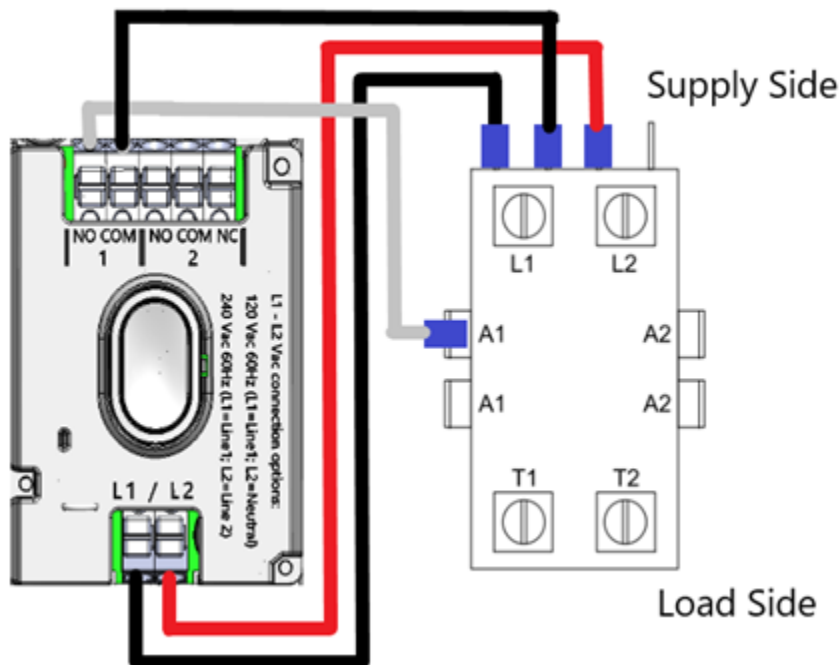
1. Strip the insulation from the wires.
2. Crimp the spade connectors on the wires for the contactors according to the following:

120 V<sub>AC</sub>

Origin		Connection Point (Contactor)
Home Load Controller	L1/L2	L1/L2 Supply side
	NO/NC	L1 Supply side
	COM	A1
Circuit Breaker	L1/L2	L1/L2 Terminal supply side
Neutral	Neutral Bar	A1
Contactor	L1/L2 Load	L1/L2 Terminal load side

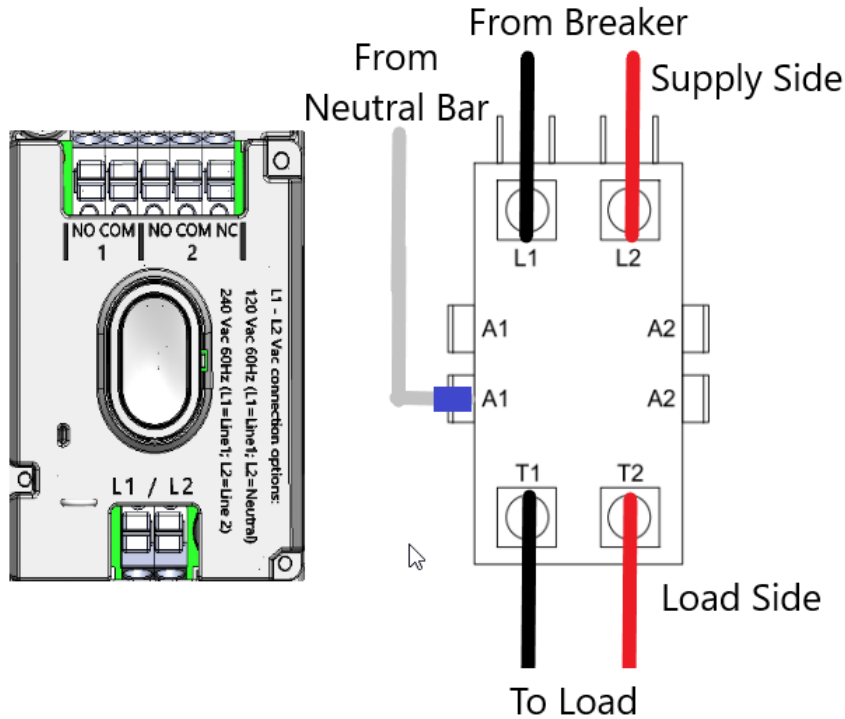
### Step 2: Terminate the wires (see diagram below)

1. Release the pressure clamp on the terminal of the Home Load Controller using a flat blade screwdriver.
2. Insert the stripped wire ends into the SolarEdge Load Controller according to the table above.
3. Connect the crimped-on spade terminals to the locations on the contactor.



**Step 3: Install the contactor to the load (see diagram below)**

1. Connect the supply side of the contactor to the breaker.
2. Connect the load side of the contactor to the load.
3. Connect the A1 coil of the contactor to the neutral bar of the load center.



**Wire 240V<sub>AC</sub> contactors**

**Step 1: Prepare the conductors**

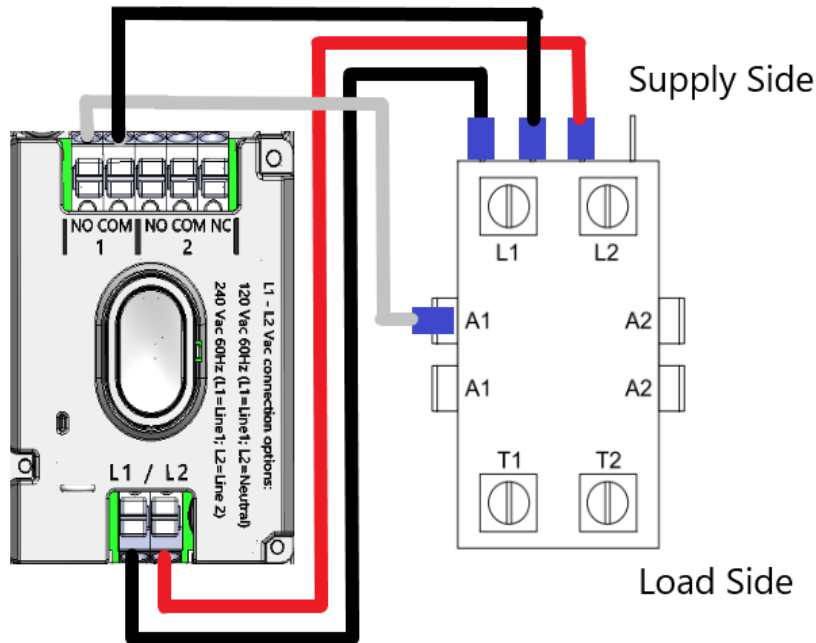
1. Strip the insulation.
2. Crimp the on the spade connectors for the contactors according to the following:

**240 V<sub>AC</sub>**

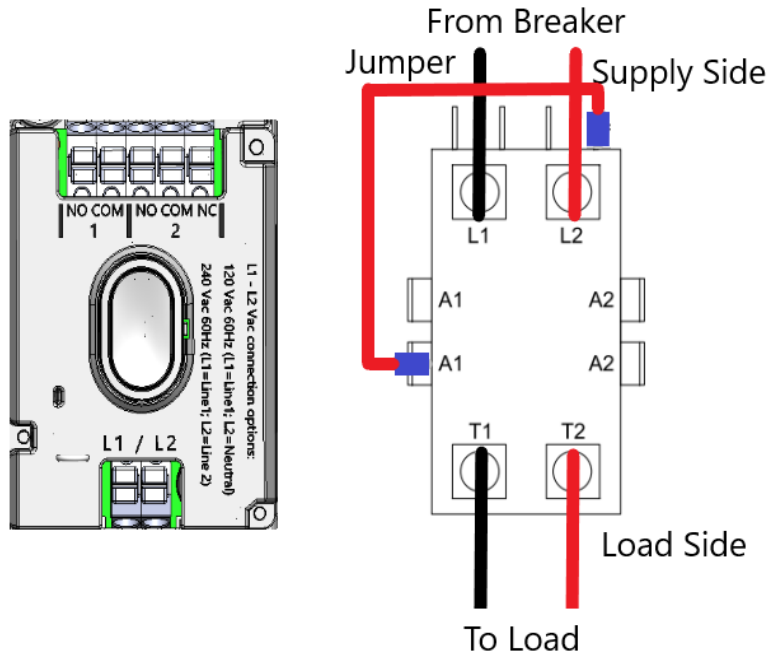
Origin		Contactor
Home Load Controller	L1/L2	L1/L2 Supply side
	NO/NC	L1 Supply side
	COM	A1
Jumper	L2 Spade terminal	A1
Circuit Breaker	L1/L2	L1/L2 Terminal supply side
Contactor	L1/L2 Load	L1/L2 Terminal load side

**Step 2: Connect wires to the contactor (see diagram below)**

1. Release the pressure clamp on the terminal of the Home Load Controller using a flat blade screwdriver.
2. Insert the stripped wire ends.
3. Connect the crimped-on spade terminals to the appropriate locations on the contactor.

**Step 3: Install the contactor to the load center (see diagram below)**

1. Connect the supply side of the contactor to the breaker.
2. Connect the load side of the contactor to the load.
3. Connect the coil of the contactor to the neutral bar of the load center.



## Commissioning

The SolarEdge Home Load Controller must be connected to the Home Hub inverter through the Home Network. For details, see [Configure and Operate Load Control Devices](#).

## Appendix A Suggested enclosures

The enclosure size is based on the number of Home Load Controllers and contactors installed in the enclosure. Large enclosures can be used with fewer controlled loads. This table lists the enclosures based on the number of components.

Number of Components	Dimensions	Recommended Products
1	8" x 6" x 4" (L x H x D)	<ul style="list-style-type: none"> <li><span style="color: red;">■</span> <a href="#">BW-SL864 Mier UL</a></li> <li><span style="color: red;">■</span> <a href="#">INTEGRA N4XP - HLL SERIES LOCKING LATCH</a></li> <li><span style="color: red;">■</span> <a href="#">Universal IP67 Project Box Waterproof DIY Electrical Enclosure</a></li> <li><span style="color: red;">■</span> <a href="#">WIEGMANN Enclosure</a></li> </ul>
2	12" x 10" x 6" (L x H x D)	<ul style="list-style-type: none"> <li><span style="color: red;">■</span> <a href="#">BW-SL12104 Mier UL</a></li> <li><span style="color: red;">■</span> <a href="#">INTEGRA N4XP - HLL SERIES LOCKING LATCH</a></li> <li><span style="color: red;">■</span> <a href="#">QILIPSU Waterproof Outdoor Junction Box</a></li> <li><span style="color: red;">■</span> <a href="#">WIEGMANN Enclosure</a></li> </ul>
3	14" x 12" x 6" (L x H x D)	<ul style="list-style-type: none"> <li><span style="color: red;">■</span> <a href="#">BW-SL14126 Mier UL</a></li> <li><span style="color: red;">■</span> <a href="#">INTEGRA N4XP - HLL SERIES LOCKING LATCH</a></li> <li><span style="color: red;">■</span> <a href="#">QILIPSU Waterproof Outdoor Junction Box</a></li> <li><span style="color: red;">■</span> <a href="#">WIEGMANN Enclosure</a></li> </ul>

Number of Components	Dimensions	Recommended Products
4	16" x 14" x 7" (L x H x D)	<ul style="list-style-type: none"><li><span style="color: red;">■</span> <a href="#">BW-SL14126 Mier UL</a></li><li><span style="color: red;">■</span> <a href="#">INTEGRA N4XP - HLL SERIES LOCKING LATCH</a></li><li><span style="color: red;">■</span> <a href="#">QILIPSU Waterproof Outdoor Junction Box</a></li><li><span style="color: red;">■</span> <a href="#">WIEGMANN Enclosure</a></li></ul>

**NOTE**

- You can use a larger enclosure with fewer components.
- There are numerous types of suitable contactors and enclosures each with a unique installation.
- Each installation is unique and can require specific contactors.
- SolarEdge does not provide a warranty for third party manufacturers' products.

## Appendix B Suggested contactors

### Contactors

Contactors have a relay switch that turns electrical current ON or OFF for high current applications. They provide operating power to the load when the contactor coil is energized.

Contactors benefits:




- On-site installation
- Compact sized
- Multiple contacts
- Open contacts


### Considerations

When selecting a contactor, make sure that its current rating (Locked Rotor Amps) matches the current of the controlled load. The coil’s voltage rating is 120V<sub>AC</sub> or 240V<sub>AC</sub>. For an easier installation, use 240V<sub>AC</sub> coils. You can use a single, double, triple, or quadruple pole contactor with a single SolarEdge Load Controller. We recommend using a quadruple pole contactor to control two 240V<sub>AC</sub> loads simultaneously.



The table below lists compatible contactors, specifications, and links to recommended products.

#### 120VAC Coil Contactor

Number of Poles	Current Rating	Image	Recommended product
Single	20A 30A		<ul style="list-style-type: none"> <li>■ <a href="#">Holdwell 45GG10AFA 1 Pole</a></li> <li>■ <a href="#">SIEMENS Definite Purpose Magnetic Contactor: 1 + N Poles</a></li> </ul>
Double	20A 30A 40A		<ul style="list-style-type: none"> <li>■ <a href="#">Dual Quick Connect Terminals (Dual QCT)</a></li> <li>■ <a href="#">SQUARE D Definite Purpose Magnetic Contactor: 2 Poles</a></li> <li>■ <a href="#">Migro 2 Pole 40 AMP Heavy Duty Lighting Contactor 2 Pole Models</a></li> </ul>
Triple	40A 50A 60A		<ul style="list-style-type: none"> <li>■ <a href="#">Ex9CKT Series 3-Poles</a></li> <li>■ <a href="#">Yuco YC-CN-42-603-2 3-Pole</a></li> </ul>

Number of Poles	Current Rating	Image	Recommended product
Quadruple	40A 50A 60A		<ul style="list-style-type: none"> <li>■ <a href="#">Ex9CKT Series 4-Poles</a></li> <li>■ <a href="#">Migro 4 Pole 40 AMP</a></li> </ul>

**240VAC Coil Contactor**

Type of Pole	Ampere	Image	Recommended product
Double	40A		<ul style="list-style-type: none"> <li>■ <a href="#">Ex9CKT Series 2-Poles</a></li> <li>■ <a href="#">CGele 2 Pole</a></li> <li>■ <a href="#">DAYTON Definite Purpose Magnetic Contactor: 2 Poles</a></li> </ul>
Triple	40A 50A 60A		<ul style="list-style-type: none"> <li>■ <a href="#">Ex9CKT Series 3-Poles</a></li> <li>■ <a href="#">SQUARE D Definite Purpose Magnetic Contactor: 3 Poles</a></li> <li>■ <a href="#">Yuco YC-CN-PBC503-3 3P DP Contactor</a></li> </ul>

**NOTE**

- Each installation is unique and can require specific contactors.
- SolarEdge does not provide a warranty for third party manufacturers' products.