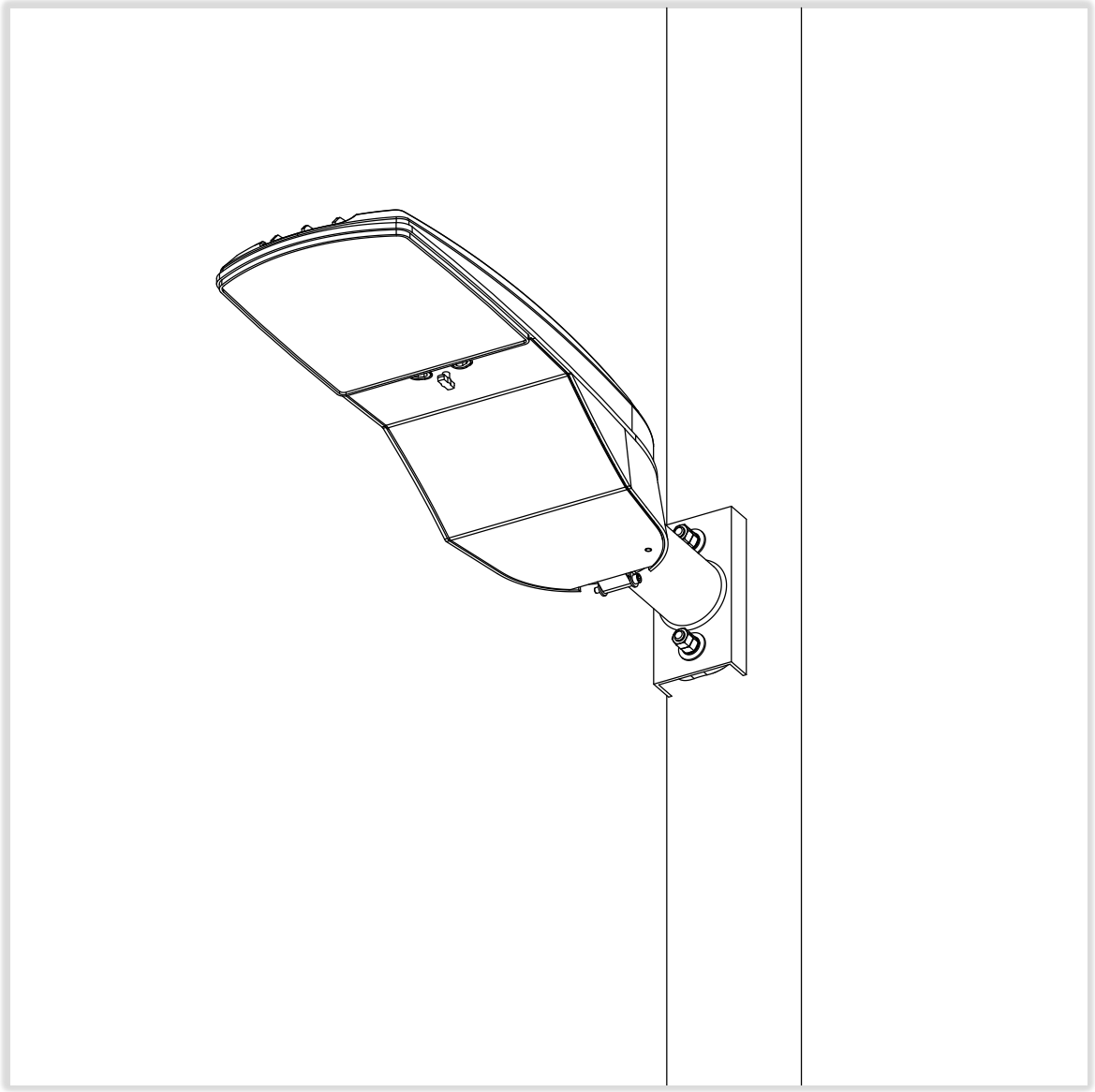
MX Series

OVERHEAD LIGHTING KIT INSTALL GUIDE

LEVEL 4



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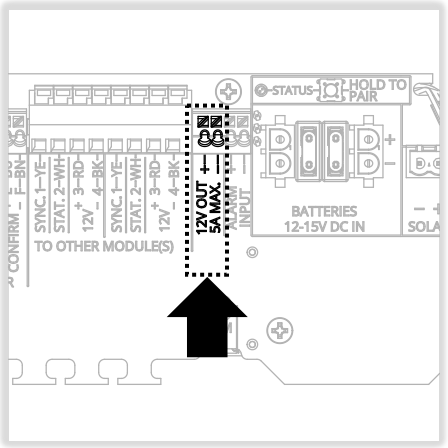
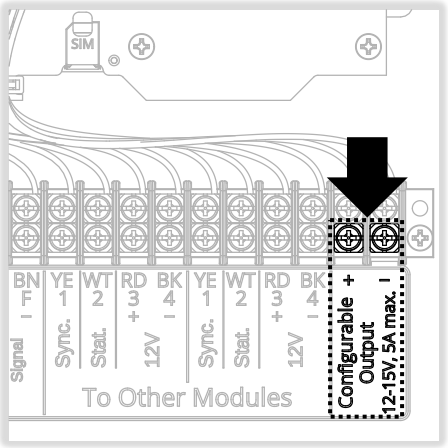
LED Fixture Types and MX Power Module Types

Carmanah provides AC or DC fixture options:

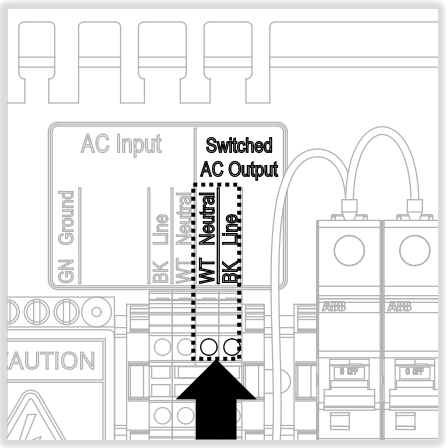
- DC fixtures are powered from the "12V OUT 5A MAX." power module circuit board terminals.
- AC fixtures can be used only with MX 400 AC Cabinet Modules equipped with the optional AC Relay Kit and are powered from the Switched AC Output terminals in the MX 400 cabinet.



MX 100/200/300 connections for DC fixtures



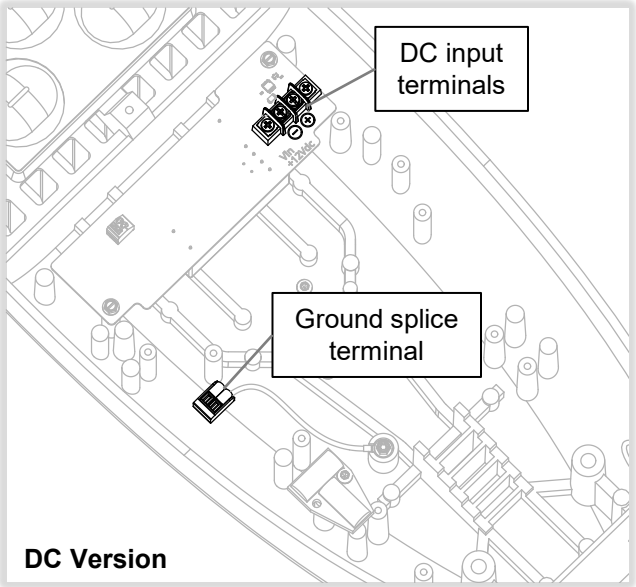
MX 400 connections for DC fixtures

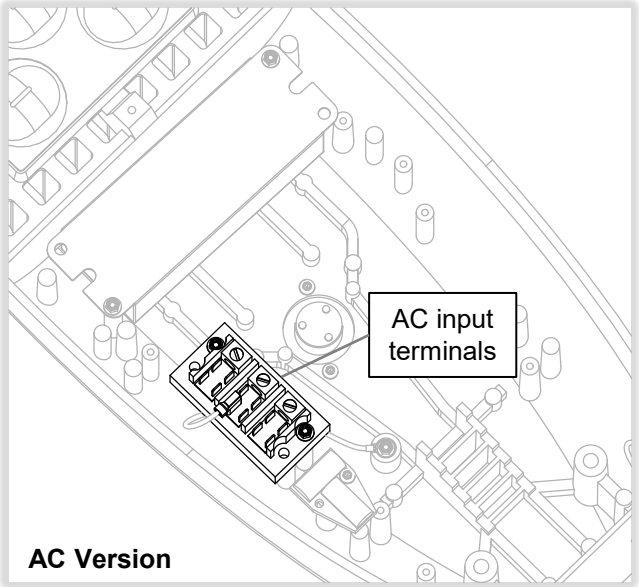


MX 400 connections for AC fixtures

The fixture type can be verified by the box label (UL = AC fixture, SL = DC fixture) or by the internal features shown below.

NOTE Not all fixture wires shown in the following illustrations.





NOTE Only LED fixtures provided by Carmanah are supported. A maximum of one DC LED fixture can be connected per system using the integrated relay on the power module circuit board.

Mounting

Various options are available including 9" direct mount and a backlight control shield kit. Refer to the manufacturer's installation instructions included with these items when installing the LED fixture.

Consult with a lighting designer for detailed recommendations and simulation for project-based roadway lighting layouts which may affect LED fixture mounting height and overall pole size and height.

Wiring

To connect the fixture to the power module, Carmanah offers the by-the-foot cable options shown in the table below.

Cable Type	Carmanah Part Number	Application
2c 16AWG	92707	Single DC fixture, 15 ft max.
1c 14AWG	92709	DC fixture applications where voltage drop requires greater conductor size. Note that this is single-conductor wire.
3c 18AWG	92708	Single or dual AC fixtures using AC relay kit.

Use appropriate 10-16 AWG wire, and in all cases install and ground the system in accordance with local electrical codes.

LED Fixture Day/Night Behavior

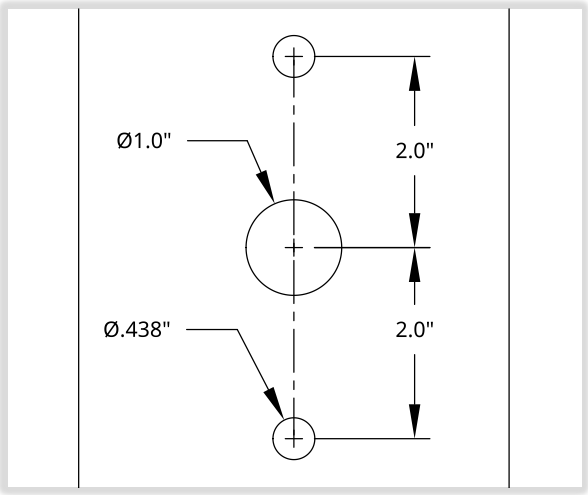
The power module "Relay Mode" setting determines the LED fixture behavior according to the table below. Refer to the MX Field App Guide for more information.

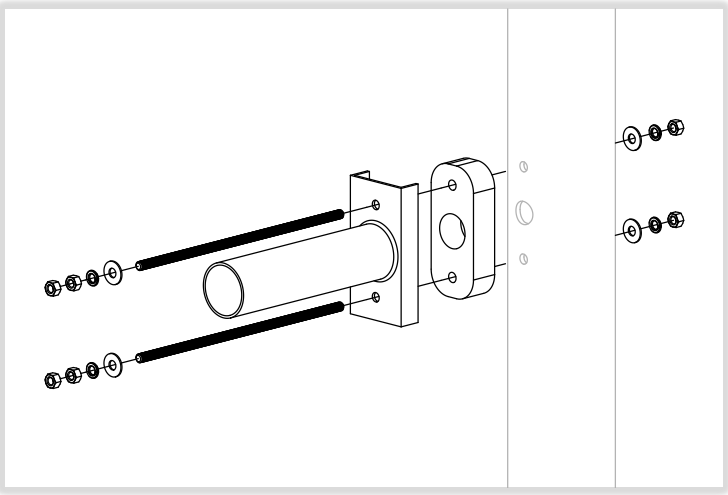
Power Module "Relay Mode" Setting	LED Fixture Behavior
Night Only	• Turns on when system activated during the night only • Day/night determination made by the power module • Recommended for solar systems
Day and Night	• Turns on whenever system activated, day or night • Recommended for AC systems only

1.0 Mounting the LED Fixture

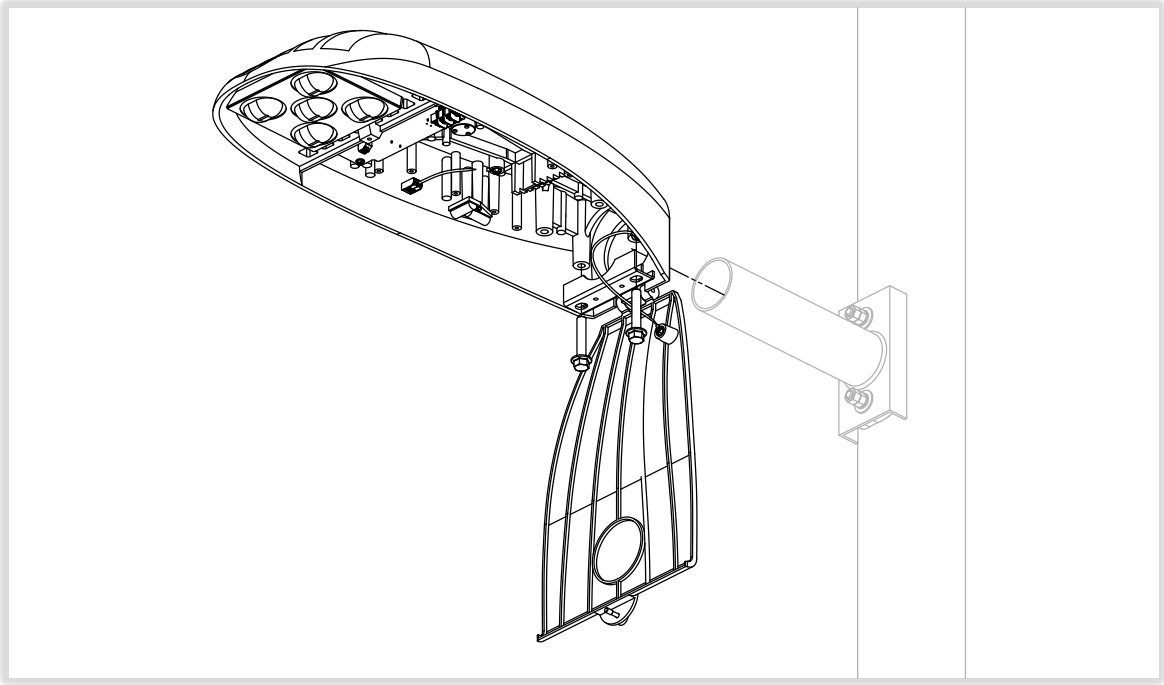
NOTE Cable routing steps not shown in this guide. Fixture details may not be exactly as shown.

1. For 9" direct mount, drill cable and fastener holes in pole as shown. Deburr cable hole. Assemble mount onto pole with provided gasket, studs, nuts and washers. Trim excess stud length and coat cut ends with cold galvanizing compound. For other mount types, refer to manufacturer's instructions.





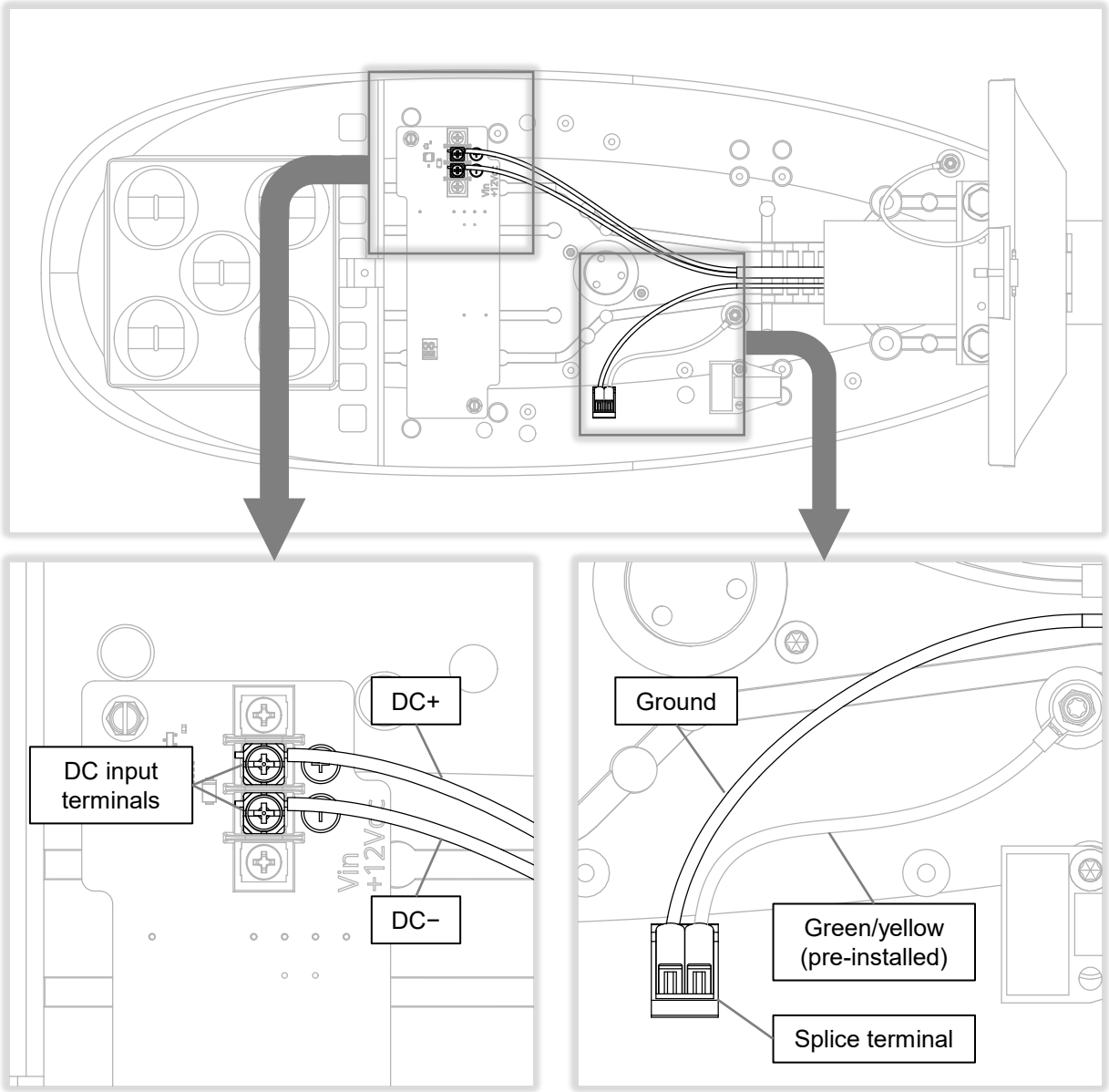
2. Install LED fixture onto mount following manufacturer's instructions.



2.0 Wiring DC LED Fixtures

NOTE Not all fixture wires shown in the following illustrations. Fixture details may not be exactly as shown.

1. Strip incoming DC+ and DC− wires 0.38" and connect to DC input screw terminals shown.
2. Where required by local codes, strip ground wire 0.43" and connect to splice terminal shown.
3. Secure incoming cables with cable ties and install shorting cap on top of LED fixture.



3.0 Wiring AC LED Fixtures

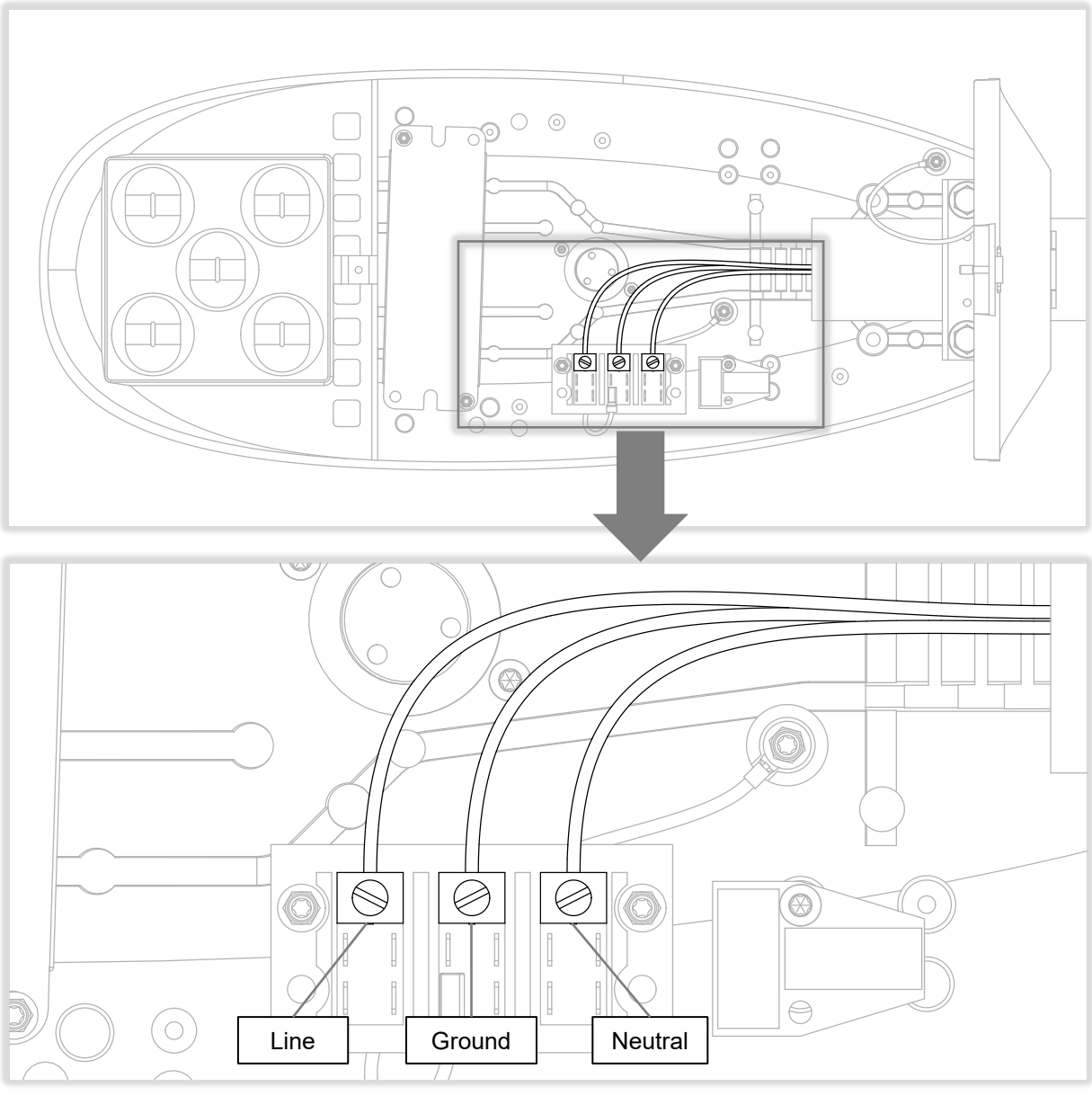
WARNING

DO NOT ENERGIZE AC SUPPLY OR TURN CABINET BREAKER(S) ON UNTIL ALL SYSTEM WIRING IS COMPLETED.

NOTE

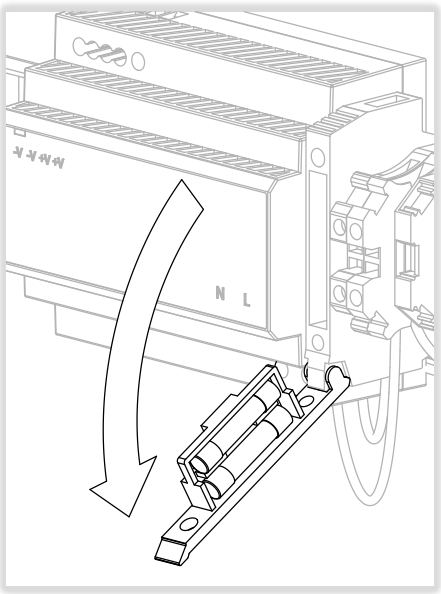
Not all fixture wires shown in the following illustrations. Fixture details may not be exactly as shown.

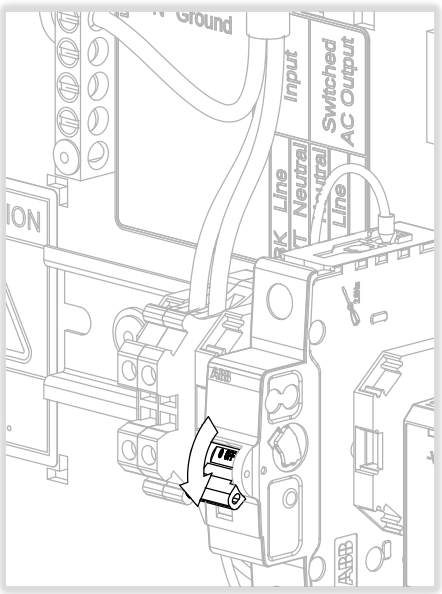
1. Strip incoming line, neutral and ground wires 0.40" and connect to AC input screw terminals shown.
2. Secure incoming cables with cable ties.

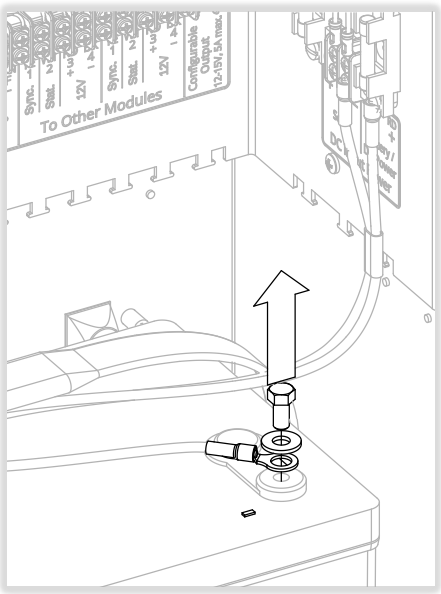


4.0 Cabinet Connections

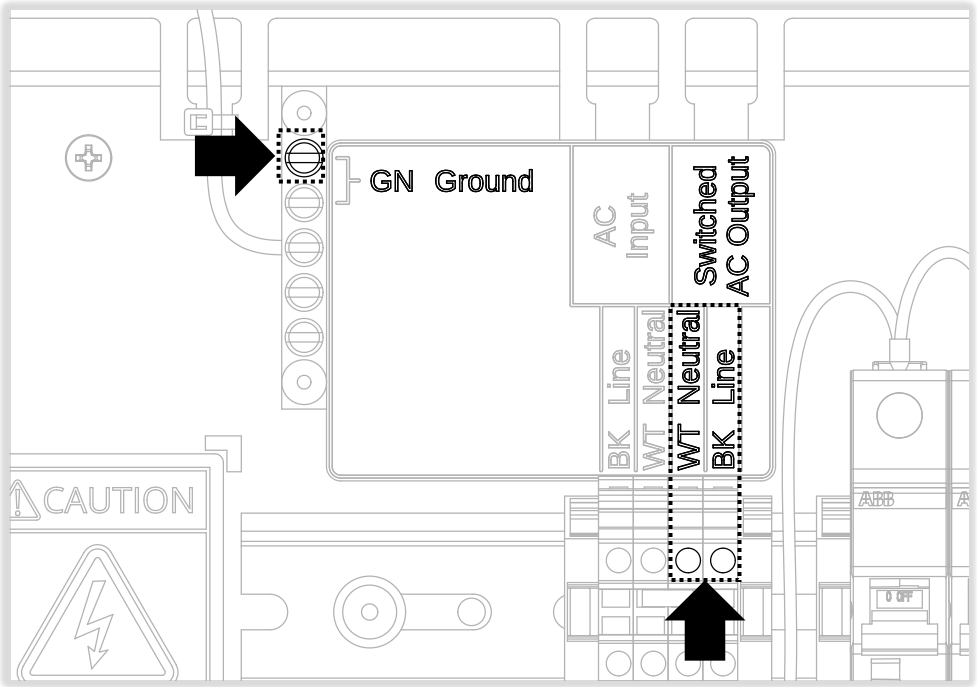
1. **Ensure systems are unpowered:**
   - **MX 300 AC Cabinet Module:** open fuse holder.
   - **MX 400 AC Cabinet Module:** turn off breaker.
   - **MX 400 Solar Cabinet Module:** disconnect negative battery terminal and secure wire out of the way.





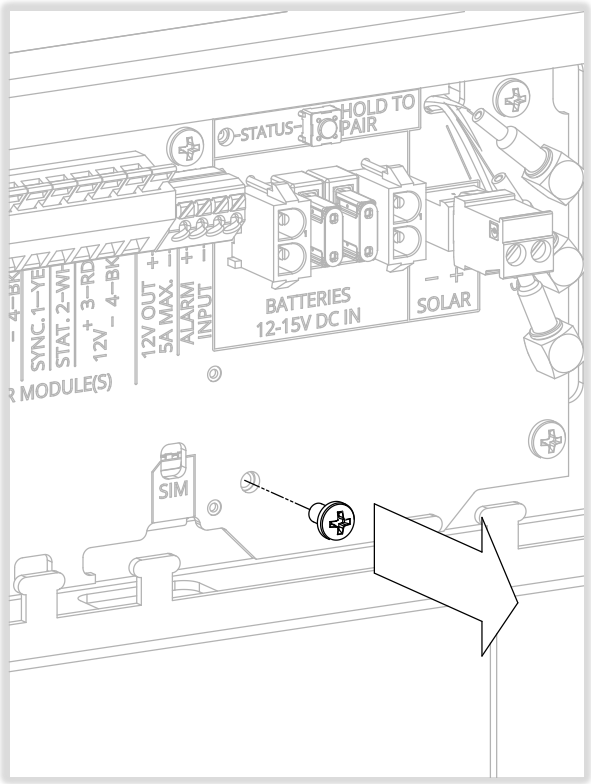


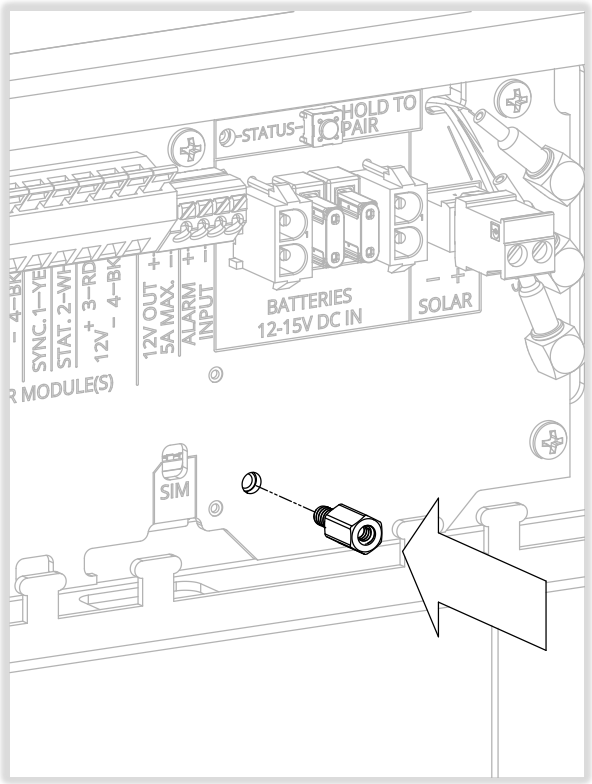
2. **Cabinet connections for AC LED fixture in MX 400 AC Cabinet Module:** strip incoming AC wires 0.35" and connect to "Switched AC Output" and ground terminals shown. Complete installation by securing wires with cable ties and restoring system power.

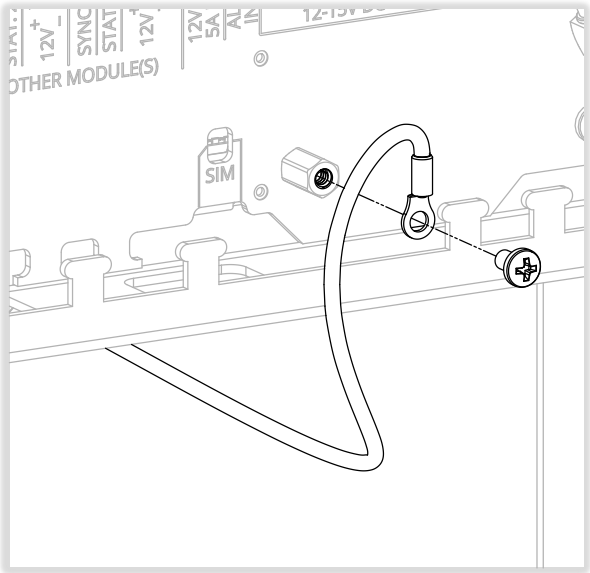


3. **Ground connection for DC LED fixtures:**

- Remove bottom middle screw from power module circuit board and set aside.
- Install provided standoff as shown.
- Crimp provided 12-10 AWG or 18-14 AWG ring terminal onto ground wire and fasten to standoff with screw removed in previous step.

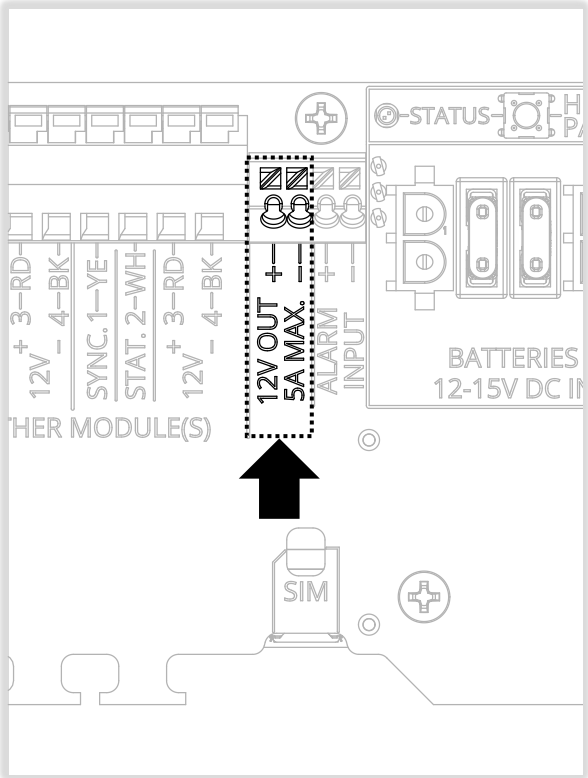


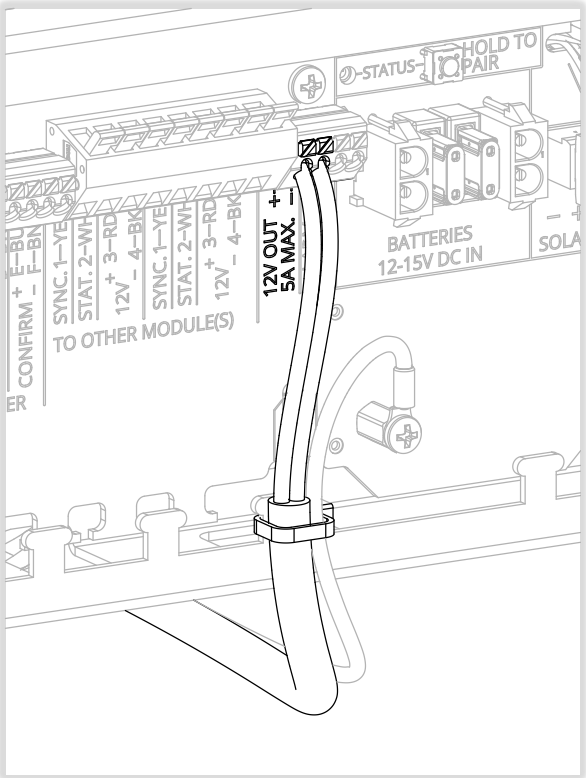




4. **MX 100/200/300 power connections for DC LED fixtures:**

- Connect DC power wires to MX Power Module "12V OUT 5A MAX." terminals.
- Secure wires with cable tie and restore system power to complete installation.

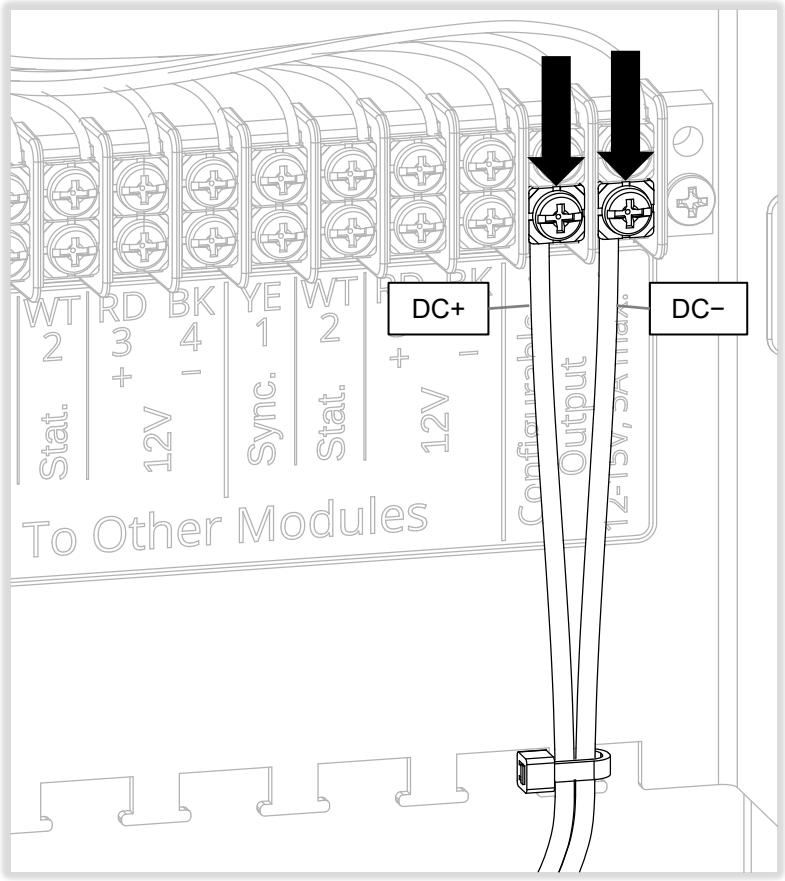




NOTE

The "12V OUT 5A MAX." terminals of the MX 100/200/300 power module circuit board accept up to 16 AWG wire. For cable runs over 15', use a sufficiently large wire gauge to keep cable losses under 5% and use an appropriate splice to step down to 16 AWG for connection to the circuit board terminals.

5. **MX 400 power connections for DC LED fixtures:**
   - Connect positive DC wire to "Configurable Output" + terminal.
   - Connect negative DC wire to "Configurable Output" − terminal.
   - Secure wires with cable tie and restore system power to complete installation.



6. For all fixture and cabinet types, set "Relay Mode" using MX Field App. For details, see MX Field App Guide and *LED Fixture Day/Night Behavior* section earlier in this guide.
7. In MX Field App, ensure system acquires a GPS fix with date, time, and latitude and longitude for your location. This can take a few minutes to complete.

NOTE: READ ALL INCLUDED INSTALL GUIDES BEFORE SYSTEM INSTALLATION