

# Solar Panels & Batteries

Installation Manual



# 24/7 Support

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Your purchase or lease of this TrueLook system includes customer and technical support. If you have any questions regarding the equipment or online platform, please don't hesitate to contact us.

**Phone** 833.878.3566

**Email** [support@truelook.com](mailto:support@truelook.com)

**Office** 575 4th Street E, Winston Salem, NC 27101

## Online Resources

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Use this QR code or visit [truelook.com/install](https://truelook.com/install) to access:

- 1 An admin guide that walks through creating time-lapses and other administrative settings.
- 2 Video demonstrations of installation procedures.
- 3 A digital PDF of this install guide.
- 4 Download links for the TrueLook mobile app.
- 5 Other helpful resources.

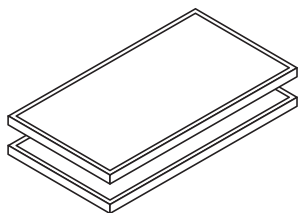


For Terms & Conditions, as well as Warranty information, visit [truelook.com/terms-conditions](https://truelook.com/terms-conditions).

# Hardware Packing List

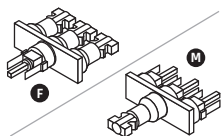
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## Solar Panels

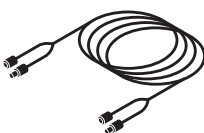


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## Connectors



3-to-1 Connectors



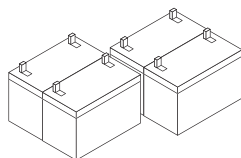
20' Panels to Battery  
Enclosure Cable



Load Connector

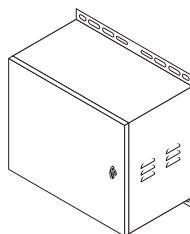
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## Battery Backup System



2-4 Batteries

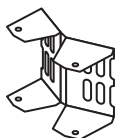
Number of batteries varies  
based on solar model.



Enclosure

# Hardware Packing List

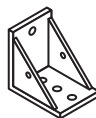
## Mounting Hardware



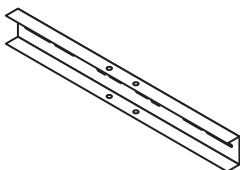
Mount  
Brackets (2x)



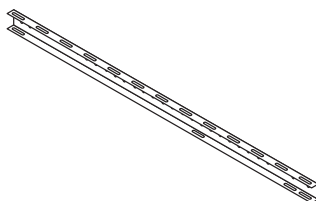
Steel  
Straps (4x)



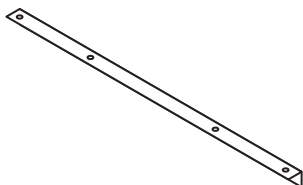
L Brackets (4x)



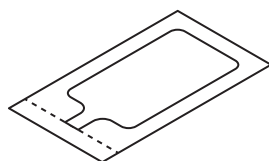
Saddle Brackets (2x)



Side Rails (2x)



Tilt Legs (2x)



Anti-Seize Packet (1x)

Assorted  
Hardware:



5/16" bolts



5/16" nuts

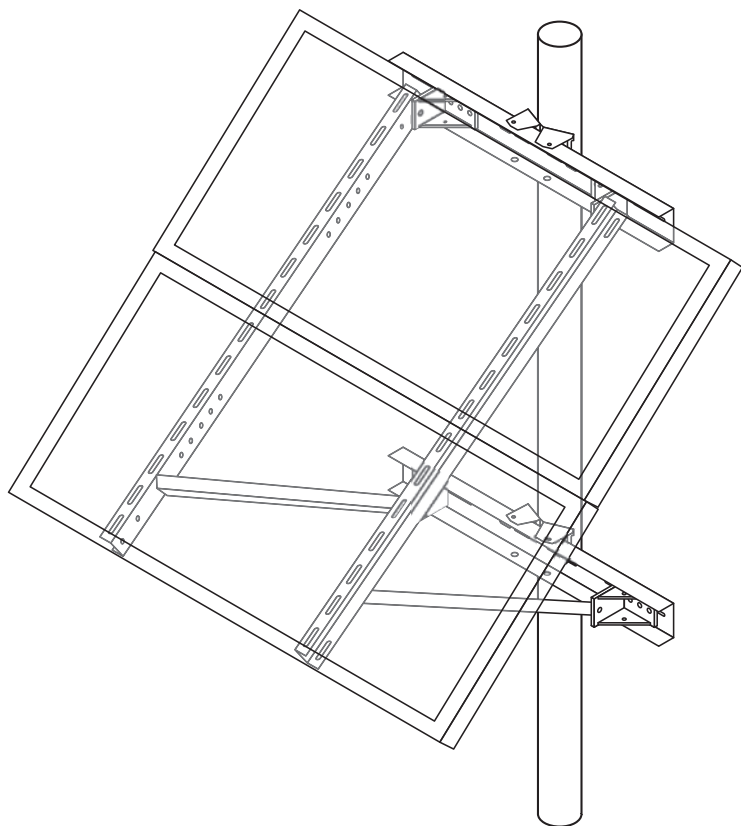


1/4" bolts



1/4" nuts

# Assembled Unit



# Preparing for Installation

## Solar Panel Positioning



FAILURE TO OBSERVE ALL FOLLOWING REQUIREMENTS MAY RESULT IN SYSTEM DOWNTIME. UNITS SELF-RECOVER AUTOMATICALLY ONCE PANEL RECEIVES SUFFICIENT SUNLIGHT.

### STEP 01

Ensure panels will face **due south**.

The chosen mounting location should allow the panels to face the equator (**directly south**) in order to capture adequate sunlight and properly charge.

### STEP 02

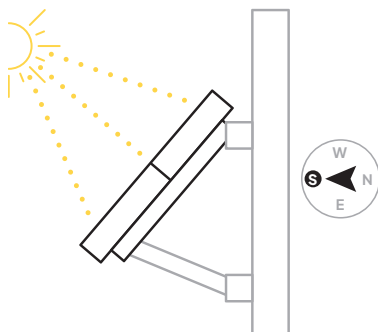
Determine your panels' angle.

Refer to the chart on the following page to find the proper angle for your solar panels based on your state.

### STEP 03

Ensure panels remains **unobstructed**.

Panels must receive direct sunlight throughout the day. Do not let trees, equipment, structures, or anything else block the sun.



### Panel Angles by State

Alabama	45°	Montana	70°
Alaska	80°	Nebraska	65°
Arizona	45°	Nevada	65°
Arkansas	60°	New Hampshire	65°
California	45°	New Jersey	65°
Colorado	55°	New Mexico	45°
Connecticut	60°	New York	65°
Delaware	65°	North Carolina	60°
District of Col.	60°	North Dakota	70°
Florida	45°	Ohio	60°
Georgia	55°	Oklahoma	50°
Hawaii	40°	Oregon	65°
Idaho	65°	Pennsylvania	65°
Illinois	65°	Rhode Island	65°
Indiana	65°	South Carolina	55°
Iowa	65°	South Dakota	65°
Kansas	65°	Tennessee	60°
Kentucky	60°	Texas	45°
Louisiana	45°	Utah	65°
Maine	65°	Vermont	65°
Maryland	60°	Virginia	60°
Massachusetts	65°	Washington	65°
Michigan	65°	West Virginia	60°
Minnesota	65°	Wisconsin	65°
Mississippi	45°	Wyoming	65°
Missouri	60°		

# Determine Mounting Hardware

## POLE MOUNTING

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Your panel mounting kit includes steel straps for pole mounting. For jobsites that experience extreme wind conditions, we suggest using one of the following hardware options in their place:

- ✓ U bolts
- ✓ Lag bolts
- ✓ Through bolts

When using any of these alternatives, discard the mount brackets and place chosen bolts directly into the saddle brackets.

## WALL MOUNTING

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Your panel mounting kit **does not include** hardware for wall mounting. Choose appropriate mounting hardware for your surface.

## BATTERY ENCLOSURE MOUNTING

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Your battery enclosure **does not include** hardware for pole or wall mounting.

- ✓ For pole mounting, choose two steel straps that are rated for 500 lbs in total.
- ✓ For wall mounting, choose the appropriate mounting hardware for your surface. Lag bolts and U bolts are recommended.



# Mounting Hardware

## Pole Mounting

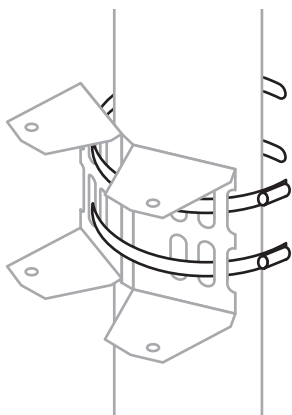


**WEAR PROTECTIVE WORK GLOVES THROUGHOUT INSTALLATION PROCESS. SOLAR PANELS AND OTHER HARDWARE PIECES HAVE SHARP EDGES.**

### STEP 01

**Secure one mount bracket to pole at maximum desired height using two steel straps.**

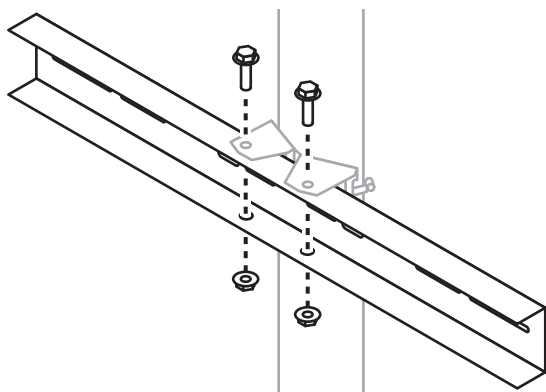
Tighten each strap around pole using a drill with a 5/16" hex head driver bit (not included) and trim steel straps to desired length using tin snips (not included).



## INSTALLATION

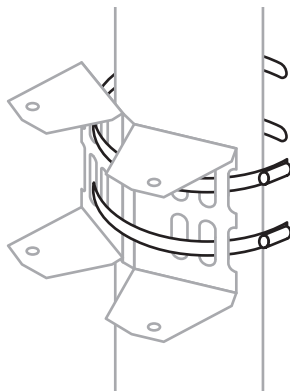
### STEP 02

Secure one saddle bracket to mount bracket using 5/16" hardware.



### STEP 03

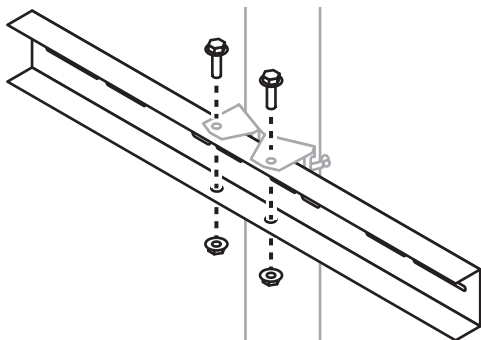
Secure lower mount bracket to pole using previous method. Do not fully tighten bracket to pole.



## INSTALLATION

### STEP 04

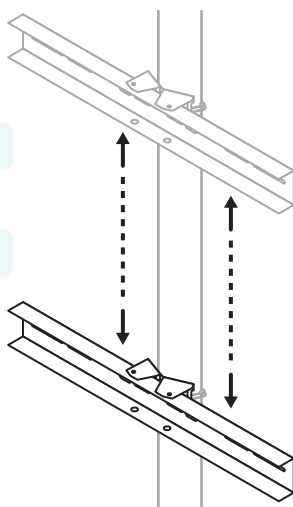
Secure lower saddle bracket to mount bracket using 5/16" hardware.



### STEP 05

Adjust lower hardware so saddle brackets are necessary distance apart for needed angle degree (see chart), then fully tighten lower mount bracket to pole.

Angle	Double Panel Rail (61 in)
30°	38 in
45°	49.5 in
60°	67 in

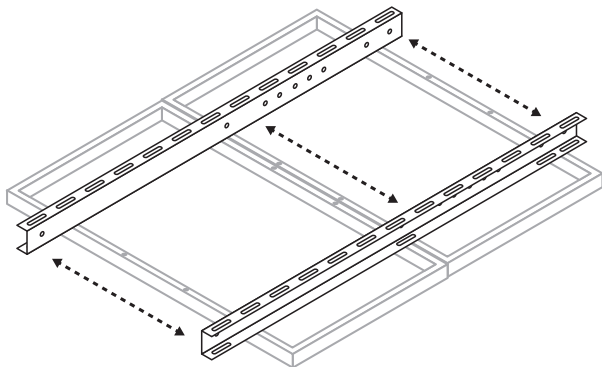


## INSTALLATION

### STEP 06

Lay side rails on solar panel holes to estimate upper L bracket spacing.

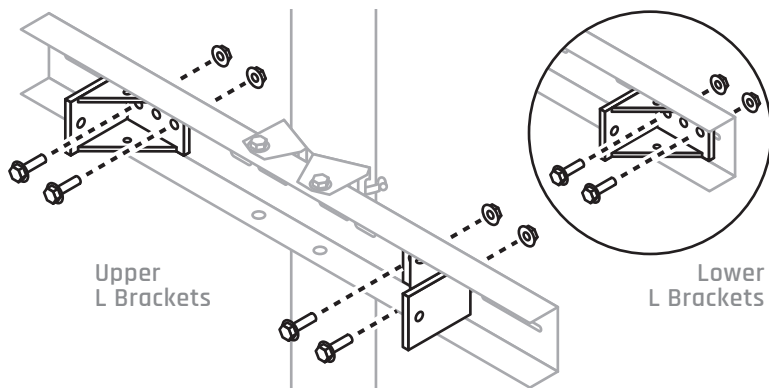
Measure between inside of rails for accuracy.



### STEP 07

Attach L brackets to upper and lower saddle brackets using 5/16" hardware.

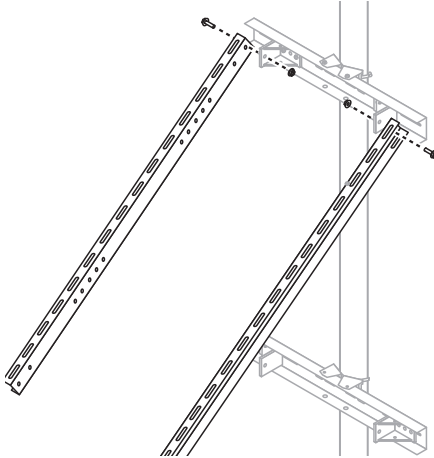
Lower L brackets face outward, and upper L brackets face inward.



## INSTALLATION

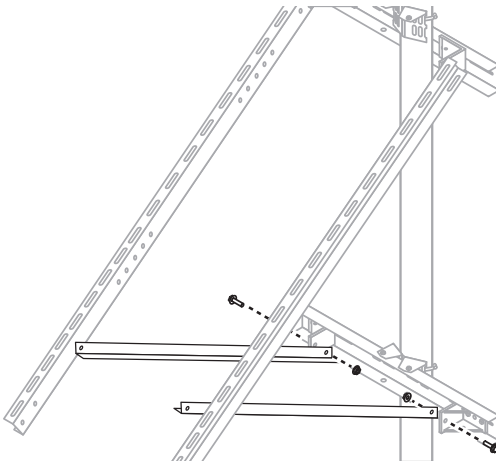
### STEP 08

Secure side rails to exterior of L brackets on upper saddle bracket using 5/16" hardware.



### STEP 09

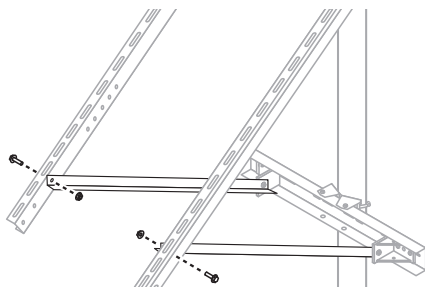
Attach tilt legs to interior of L brackets on lower saddle bracket using 5/16" hardware.



## INSTALLATION

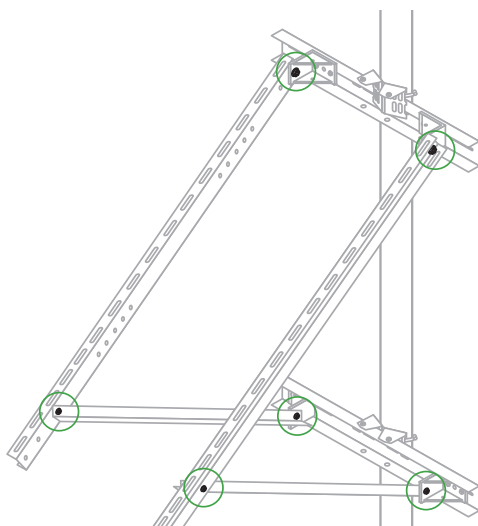
### STEP 10

Secure tilt legs to side rails using 5/16" hardware.



### STEP 11

Check all bolts are securely tightened.



### STEP 12

Using disposable gloves, carefully apply anti-seize to all nuts and bolts.

## INSTALLATION

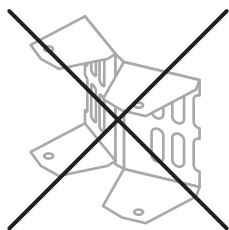
### Wall Mounting



WEAR PROTECTIVE WORK GLOVES THROUGHOUT INSTALLATION PROCESS. SOLAR PANELS AND OTHER HARDWARE PIECES HAVE SHARP EDGES.

#### STEP 01

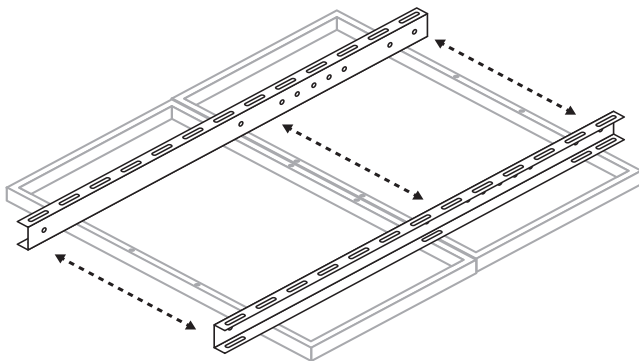
Set aside mount brackets, as these aren't needed for wall mounting.



#### STEP 02

Lay side rails on solar panel holes to estimate upper L bracket spacing.

Measure between inside of rails for accuracy.

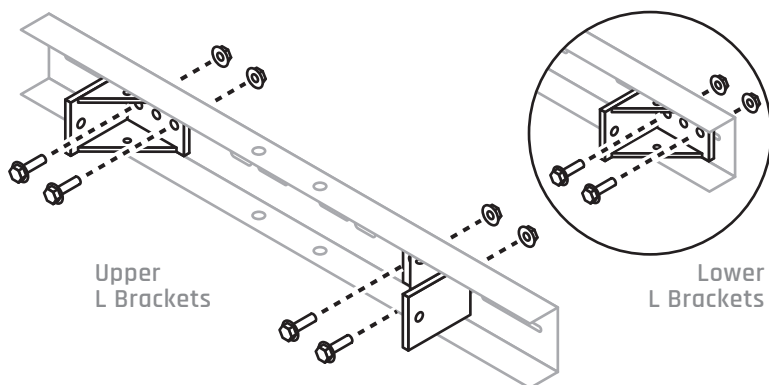


## INSTALLATION

### STEP 03

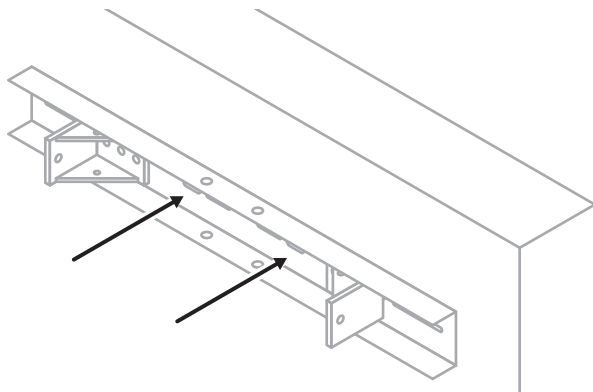
Attach L brackets to upper and lower saddle brackets using 5/16" hardware.

Lower L brackets face outward, and upper L brackets face inward.



### STEP 04

Using appropriate mounting hardware for your surface, secure upper saddle bracket directly to wall at maximum desired height.

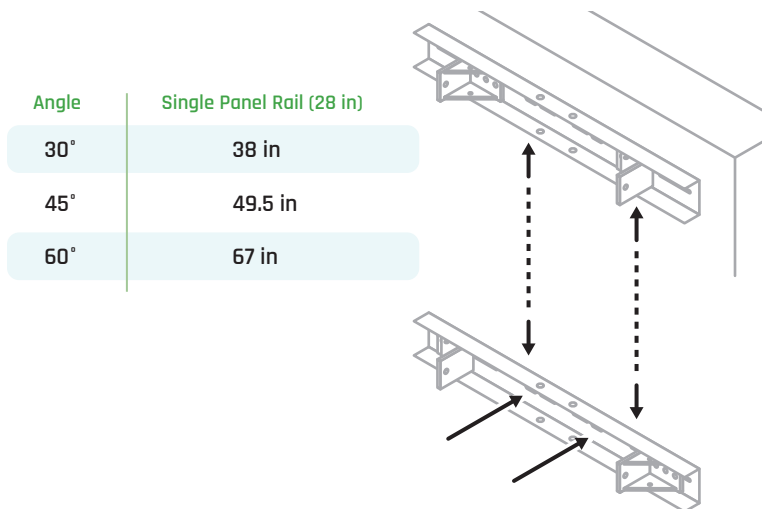




## INSTALLATION

### STEP 05

Measure necessary distance downward for needed angle degree (see chart), then secure lower saddle bracket directly to wall using appropriate mounting hardware for your surface.

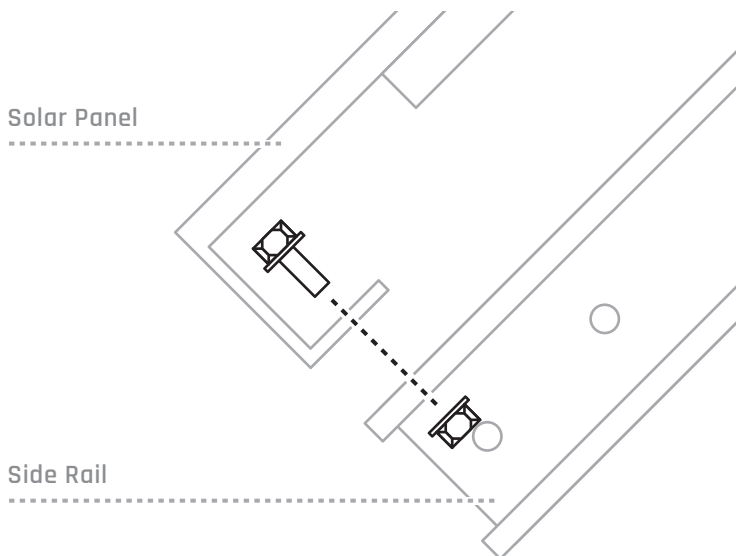


To complete assembly, follow pole mounting steps 8-12.

# Solar Panels

### STEP 01

Secure solar panels to side rails using 1/4" hardware.



### STEP 02

Using disposable gloves, carefully apply anti-seize to nuts and bolts.

# Battery Enclosure

### STEP 01

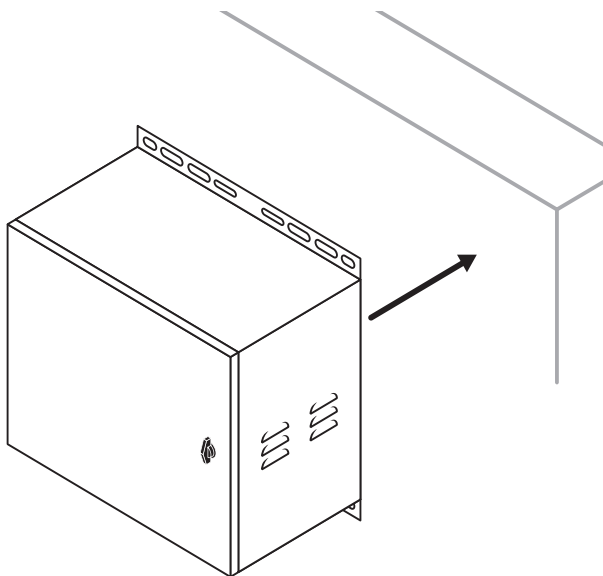
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Determine mounting location. It's recommended to mount battery enclosure at ten feet high or lower for maintenance purposes.

### STEP 02

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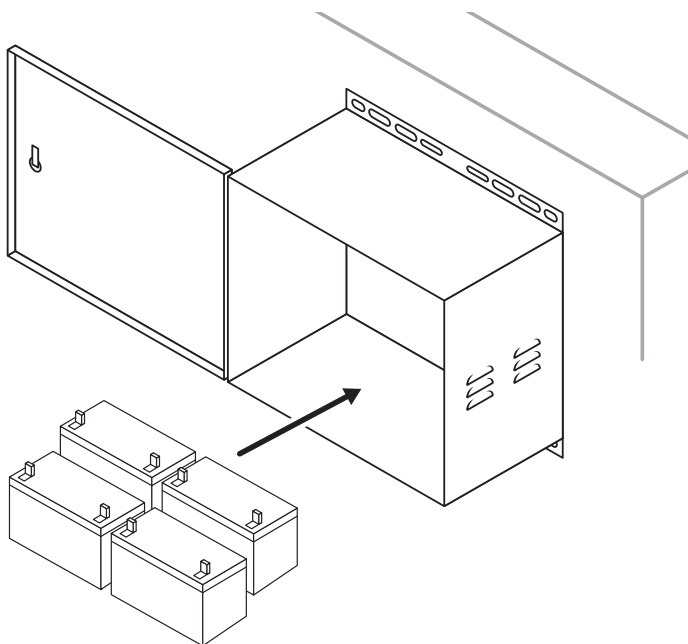
Using chosen hardware (see Preparing for Installation section), secure battery enclosure to pole or wall.



## INSTALLATION

### STEP 03

Carefully place batteries into battery enclosure.



**OPTIONAL:** For extra security, add a padlock (not provided) to enclosure handle.

# Batteries Installation

## Two Batteries Wiring



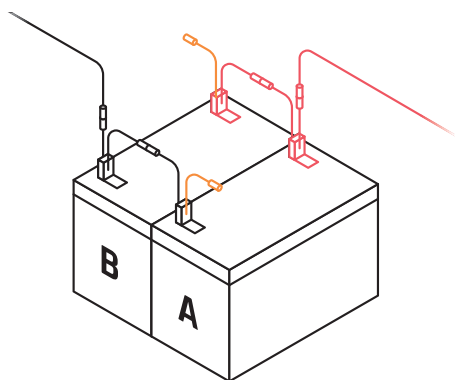
NEVER CONNECT RED TO BLACK. BATTERIES ARE WIRED PARALLEL FOR 12VDC.

Snap the Positive (red) battery cable to the Positive (red) connector on **Battery A**.

Snap the Negative (black) battery cable to the Negative (black) connector on **Battery B**.

Snap the Positive (red) connector on **Battery A** to the Positive (red) connector on **Battery B**.

Snap the Negative (black) connector on **Battery A** to the Negative (black) connector on **Battery B**.



Note: There will be an unused set of connections (highlighted in orange).

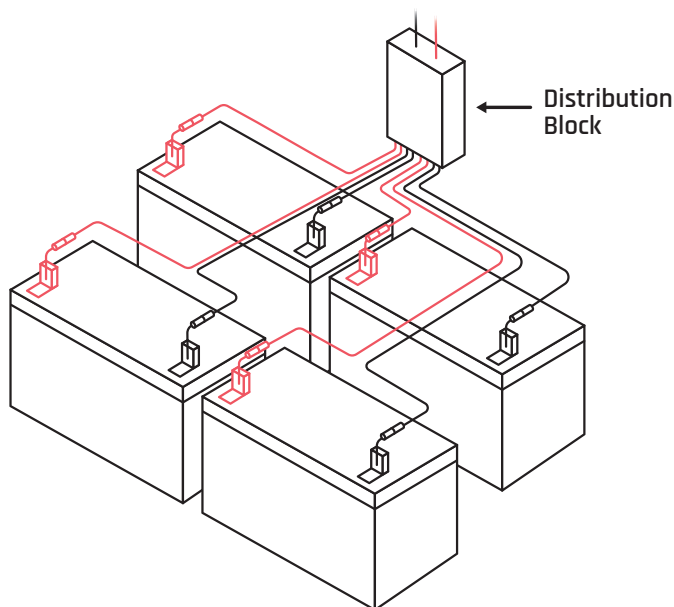
### Four Batteries Wiring



**NEVER CONNECT RED TO BLACK. BATTERIES ARE WIRED PARALLEL FOR 12VDC.**

Take the four positive (red) wires coming from the distribution block and connect them to the positive (red) connectors coming from each battery.

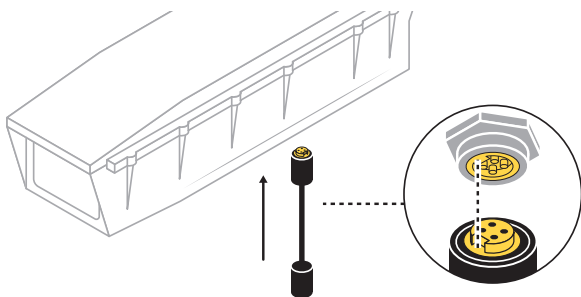
Take the four negative (black) wires coming from the distribution block and connect them to the negative (black) connectors coming from each battery.



# Connecting Camera to Battery Box

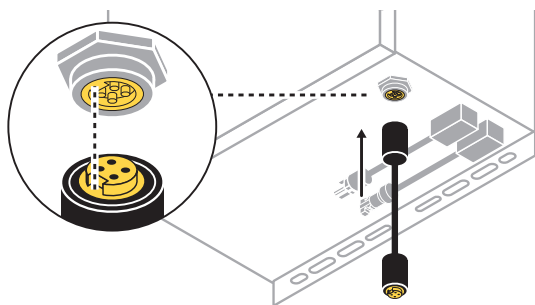
### STEP 01

Locate yellow load connector port on camera enclosure or control box. Align notches and plug one end of load connector into camera or control box port.



### STEP 02

Locate yellow load connector port on bottom of battery enclosure. Align notches and plug other end of load connector into battery enclosure port.



## CONNECTING & POWERING

### STEP 03

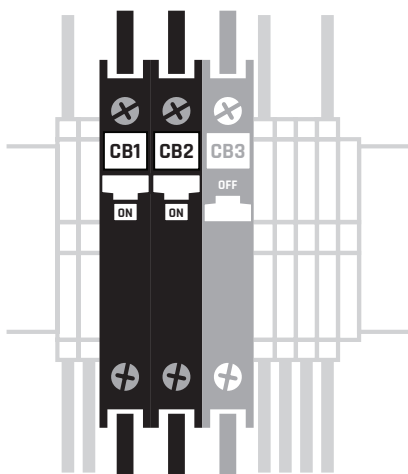
Gently hand tighten to screw connectors into inputs.



**NEVER USE TOOLS TO TIGHTEN CONNECTORS. THIS MAY RESULT IN OVER TIGHTENING AND COULD BREAK CONNECTOR.**

### STEP 04

Open battery enclosure and flip on breakers CB1 and CB2.





# Connecting Panels to Battery Box

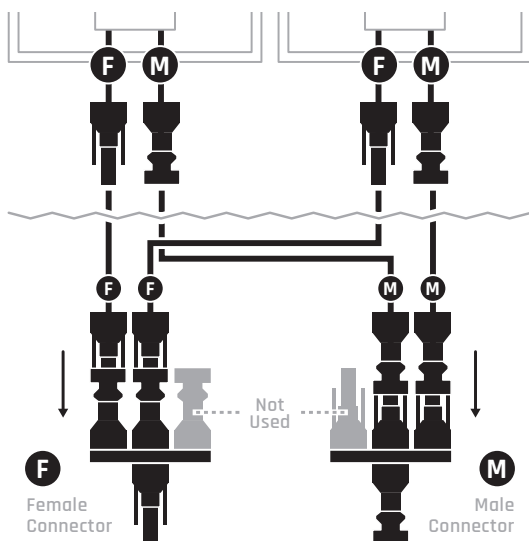


YOU SHOULD NOT NEED TO FORCE CONNECTORS TOGETHER.

### STEP 01

Each solar panel has two short cables coming from them with one male connector end and one female connector end.

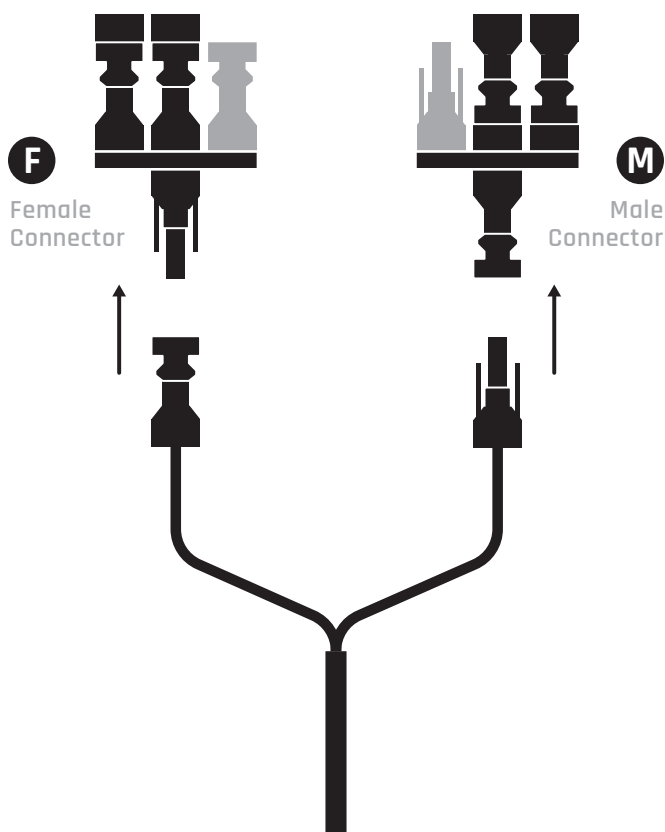
Plug the female connector ends into the two open ports on the female 3-to-1 connector and the male connector ends to the two open ports on the male 3-to-1 connector. There will be one port on each 3-to-1 connector that will not be used.



## CONNECTING & POWERING

### STEP 02

Connect one end of the 20' cable to the single connection sides of their respective 3-to-1 connectors.

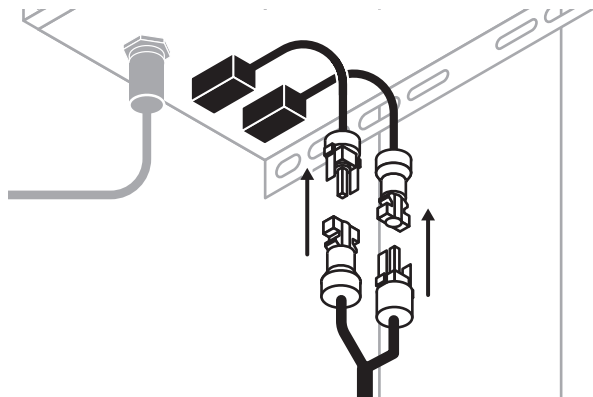


## CONNECTING & POWERING

### STEP 03

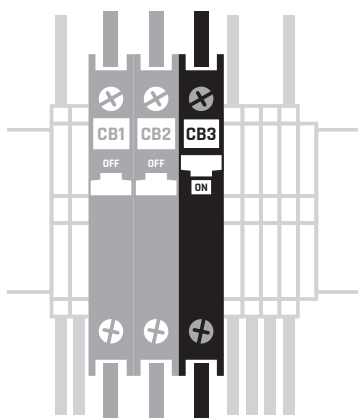
Connect the other end of the 20' cable to their respective connector ends coming from the battery enclosure.

The connectors are positive locking mechanisms, and each pair is keyed differently to ensure they are connected properly.



### STEP 04

Flip on breaker CB3.



# Confirming System Power

### STEP 01

Verify the panel is charging the unit. With sunlight, the leftmost LED on the ProStar unit will turn green within 5 minutes after powering.

- ✓ A yellow LED lit on the ProStar unit means your panels are not receiving sunlight, and the camera is running on battery power.
- ✓ A red LED lit on the ProStar unit means there is an issue with your system. Please contact TrueLook Support.

### STEP 02

Verify that the following numbers are displayed on the ProStar's digital readout. You may need to cycle left/right using the arrows to get to the pictured screen.

**Solar Amps** ☀️

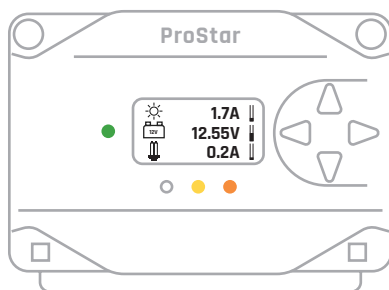
0.5 - 4+

**Battery** 🔋

12 - 14+

**Load Amps** 🏠

0.3 - 0.7

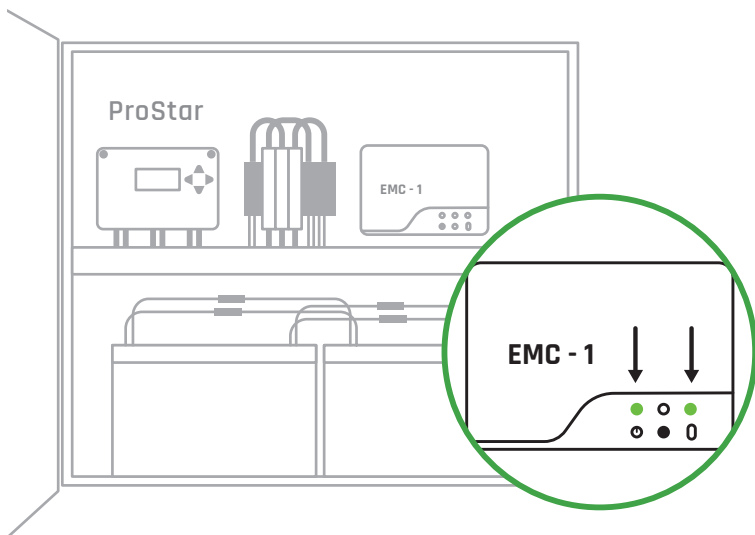


If numbers are displayed correctly, the system should be fully functioning at this stage.

## CONNECTING & POWERING

### STEP 03

Verify that there are two green LED lights on the EMC-1 unit.



# Troubleshooting

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If something seems wrong with the system, it may be necessary to troubleshoot.

### CAUTIONS:

- Troubleshooting should be attempted by qualified personnel only.
- A battery can cause serious damage if shorted.
- Do not disassemble the ProStar from its case. There are no user serviceable parts inside the ProStar.

### CAMERA NOT OPERATING PROPERLY

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- 1 Check that the load breaker is turned on.
- 2 Check that the camera cable connectors are securely fastened.
- 3 If the ProStar internal temperature is above 80°C/176°F, the load will be disconnected, and all LEDs will be flashing in sequence. Check that nothing is obstructing the vents at the top of the case to ensure clear airflow around the ProStar.

### BATTERY IS NOT CHARGING

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- 1 Check that all wire connections in the system are correct and tight.

**IF YOUR SYSTEM IS STILL NOT FUNCTIONING PROPERLY,  
PLEASE CONTACT TRUELOOK SUPPORT FOR FURTHER  
ASSISTANCE.**

# Maintenance Tips



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Do not allow smoking or open flames near the battery enclosure.



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If a battery has been unused for a long time, charge it externally with a battery charger prior to using it again for maximum efficiency.



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Solar panels are designed to quickly melt snow on their own.

If there is a more urgent need to remove snow, gently use a soft brush. Using too much force may scratch or damage the panels.



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If the solar panels need cleaning, use only water and a microfiber cloth.



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Do not store any system components on the ground to avoid the intrusion of water or dirt.

# Battery Replacement

We recommend the Duracell Ultra Platinum AGM BCI Group 31M Deep Cycle Marine & RV Battery as a replacement.

If you are unable to find this specific battery, the battery should meet the following specifications:

**Product Category:** Marine/RV

**Voltage:** 12

**Format:** BCI Group 31M

**Chemistry:** Lead Acid

**Lead Acid Type:** Deep Cycle, Dual Purpose (Starting/Cycling)

**Lead Acid Design:** AGM

**Capacity:** 105AH

**Capacity 20hr:** 105AH

**Cranking Amps:** 1000

**Cold Cranking Amps:** 800

**Marine Cranking Amps:** 1000

**Terminal Type:** DT, SAE/M8 Stud, SAE/M8 Threaded Post, WNT



# One Last Step!

Did you know that our support team offers a free installation review?

Once you're done, simply snap a few pictures and email them to [support@truelook.com](mailto:support@truelook.com). If we notice anything that we can help with, we'll reach out. This will also help our support team quickly view your setup if you run into equipment issues at any point in the future.

## THE EMAIL

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For the most efficient response from our team, include the following in your email:

- 1 Company Name
- 2 Project Name
- 3 Contact person for installation issues
- 4 The following photographs:
  - a) Your whole TrueLook solution: the camera, what it's mounted to, and any accessories
  - b) Close-ups of mounting
  - c) Close-ups of connections
  - d) Inside battery box

# Notes

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# Notes

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