

We Care Solar Suitcase® Installation Guide



We Care Solar® promotes safe motherhood and reduces maternal mortality in energy poor regions by providing healthcare workers with reliable lighting, mobile communication, and medical devices using solar electricity.

The We Care Solar Suitcase® provides highly efficient solar energy systems to health facilities in areas without reliable electricity. Our durable, easy-to-use Solar Suitcases power medical lighting, mobile communication, and essential medical devices.

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Installation Planning

Before Installation Day



Identify installation team

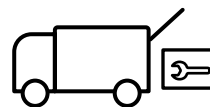
2-3 technicians + 1 driver



Location planning

Call the clinic at least one day in advance

- Ensure the in-charge and midwives will be present on installation day
- Check if the facility still needs a Solar Suitcase; it is possible the facility may have recently received alternate solar power or been connected to the grid



Prepare and load tools

Review preparation checklist

- When possible, bring an extra solar panel and Solar Suitcase for backup and teaching
- Bring food and water in case there is little available at the site

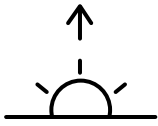
Preparation Checklist



- | | | |
|---|---|--|
| ① | Solar Suitcase + 1 extra for teaching healthcare facility staff and as a backup | |
| ② | Solar Panel(s) + 1 extra in case of breakage | |
| ③ | Toolkit including drills and ladder
Make sure the drill batteries are charged and you bring the charger | |
| ④ | Installation tracking sheet and other documents like baseline survey if applicable | |
| ⑤ | Camera for taking photos at installation | |

Installation Planning

Installation Day



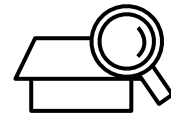
Leave early

Avoid working in the hot afternoon sun. Leave time for unexpected delays.



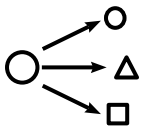
Arrive and introduce yourselves to the person in charge of the clinic

Take a tour of the clinic with the medical team



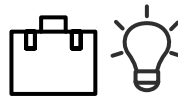
Plan the installation

Ask healthcare workers to show you where they do procedures to determine the best place to install the lights and Solar Suitcase



Organize team

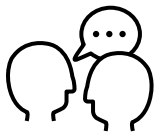
Assign responsibilities to roof lead, ground lead, and teaching lead



Complete installation

Review installation checklist for solar panel, Solar Suitcase, lights, and last steps

After Installation



Teach healthcare workers

Train healthcare staff on how to use and maintain the Solar Suitcase



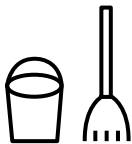
Complete paperwork

Please take the time to complete the necessary paperwork



Review final installation checklist

Checklists reduce errors – use them!



Clean up the site

Take away debris and re-organize any furniture moved



Take photos

Take photos of installation. Show us your good work!



Depart prior to dark

Re-organize tools and load vehicle

Installation Overview



- (A) **The Solar Panel** must be installed where it will get sun all day long
- (B) **The Homerun Cable** is 40 feet (12.2 meters) and must reach from the solar panel to the Solar Suitcase
- (C) **The Solar Suitcase** should be mounted in a secure and dry area of the facility and at a height where **all** healthcare workers can easily turn on lights and charge appliances

- (D) **The Lights** must be placed where they are most needed at the facility. Talk with the midwife to determine the best location for each light. Light cables are 33 feet (10m) in length.

Primary locations:

- Delivery bed
- Resuscitation table
- Pre or post delivery room

Secondary locations:

- Entrance
- Waiting area
- Hallway
- Office

- (E) **Light Expansion Box** should be mounted in a convenient location such as the building entrance, hallway, or delivery room. The Light Expansion Box cable is 40 feet (12.2m) in length.

Solar Panel Installation

Parts & Tools Required

From the Solar Suitcase



Homerun Cable



(4) L Brackets



Actual size

#12 x 3" Roof Screws

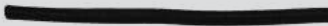


Zip Ties



Actual size

#8 x 1-1/4" Self-Tapping Screws



Cable Guard



Silicone

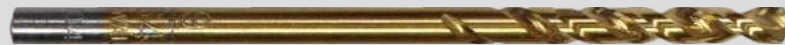


Actual size

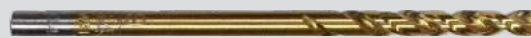
1/4" Nuts and Bolts



1/4" & 5/16" Nut Drivers



1/4" Standard Drill Bit Actual size



1/8" Standard Drill Bit Actual size



Marker



Electrical Tape

From the Large Tool Bag



Cordless Drill Driver



Inclinometer



Wire Stripper



Safety Glasses



Step Drill Bit



Slip Joint Plier



Hammer



Wrench

Solar Panel Installation

Safety First



Look

Identify any potential dangers. This includes power lines, skylights, wasps, bats, holes in the roof, or rusty spots on the roof.



Plan

Work safely — make a plan with your team on how to work safely and communicate with your team

Be Aware



Do not touch electricity lines with your body or ladder



Do not walk near or over skylights



Avoid wasp nests, attics with bats or rodents. They may harm you during installation and can also eat through cables.

If roof is too steep or too weak for you to work on safely you can:



Mount the solar panel on the eave of the roof while standing on the ladder. We do NOT want you to risk getting hurt.



Mount the solar panel on a post or build a structure near the clinic to mount the solar panel and then route the homerun cable into the clinic



Ladder Safety

- When you use a ladder, be careful and make sure it is stable before you climb
- Only one person should be on the ladder at a time
- When standing at the base of the ladder, your outstretched arms should be able to reach the ladder
- Climb with your eyes facing the ladder
- Have someone hold the ladder
- When getting off the ladder onto the roof, step around the ladder and not over the top of the ladder



Solar Panel Installation

Using the Drill



 **Wear safety glasses when you are drilling**

Solar Panel Installation

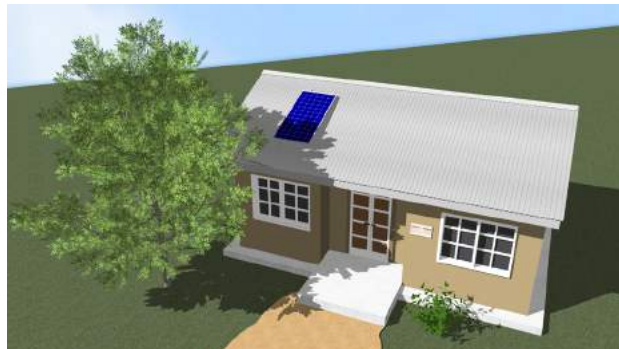
Where to Place the Solar Panel



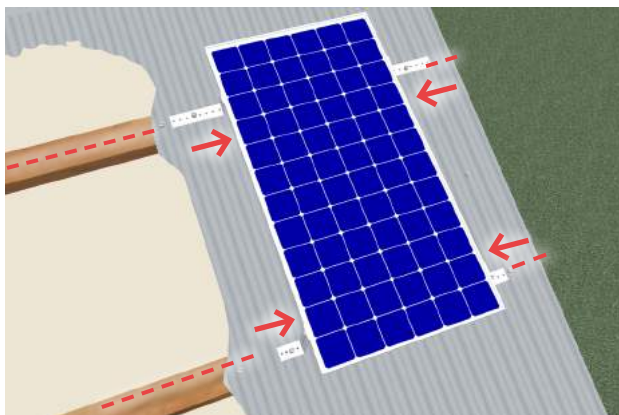
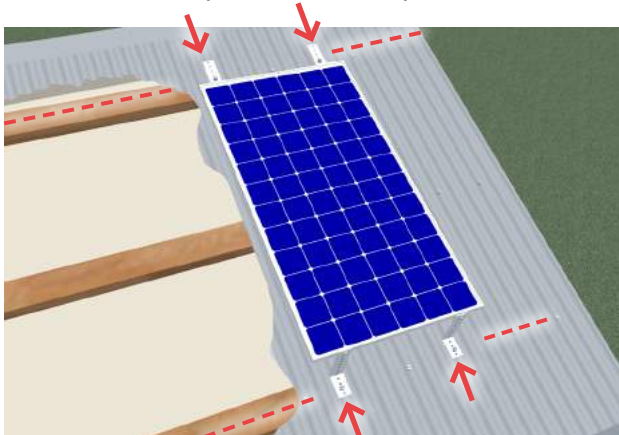
The solar panel must be placed where it will receive the most direct sun all day long



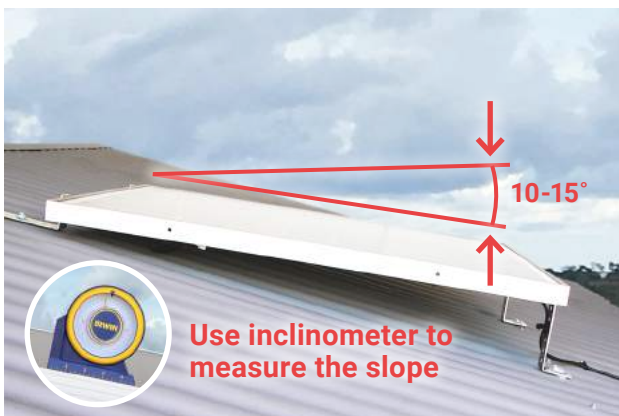
Do not place the solar panel where it will be shaded by a tree or another building



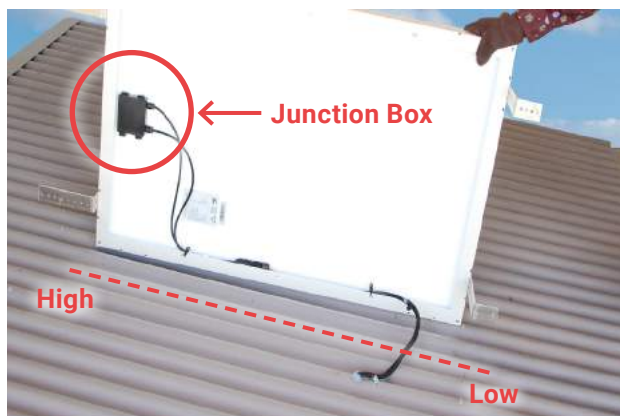
The L feet can be attached to the top and bottom of the solar panel or the sides of the solar panel. The solar panel must be mounted to the wood frame to the roof below.



The solar panel must be mounted on a slope of 10 to 15 degrees from horizon to allow for rain to run off



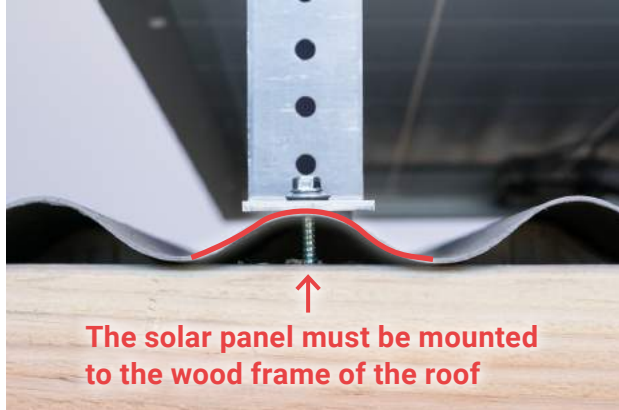
Install the junction box close to the ridge/high part of the roof



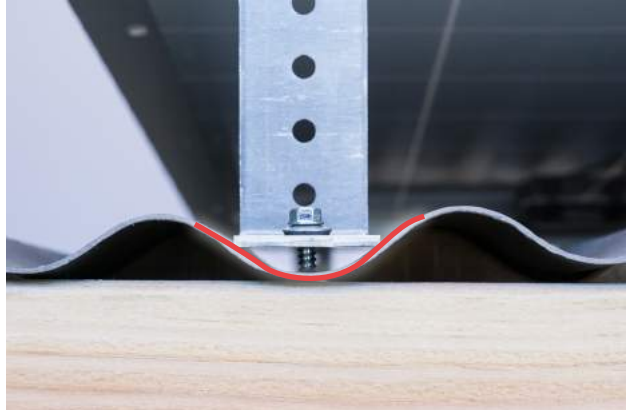
Solar Panel Installation



All roof insertions must be done at the top of the corrugated ridge. The solar panel L feet must attach to the wood frame of the roof.



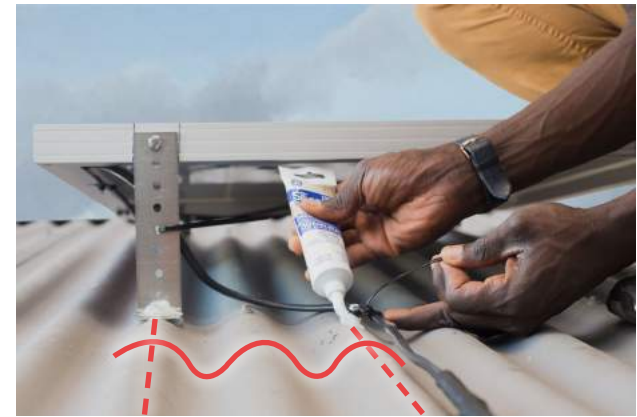
Do not make insertions at the bottom of the corrugated ridge



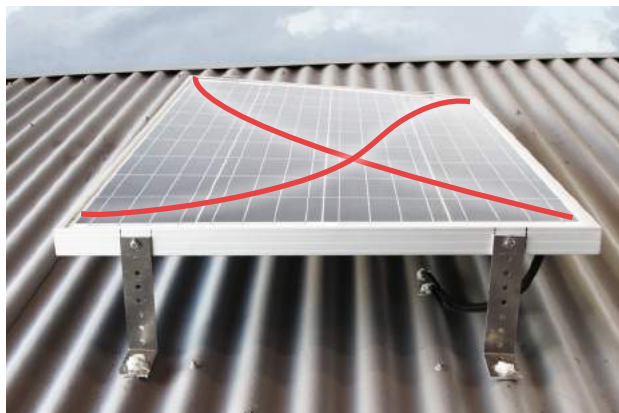
Do not bend or crush the corrugated ridge



All penetrations must be sealed with silicone

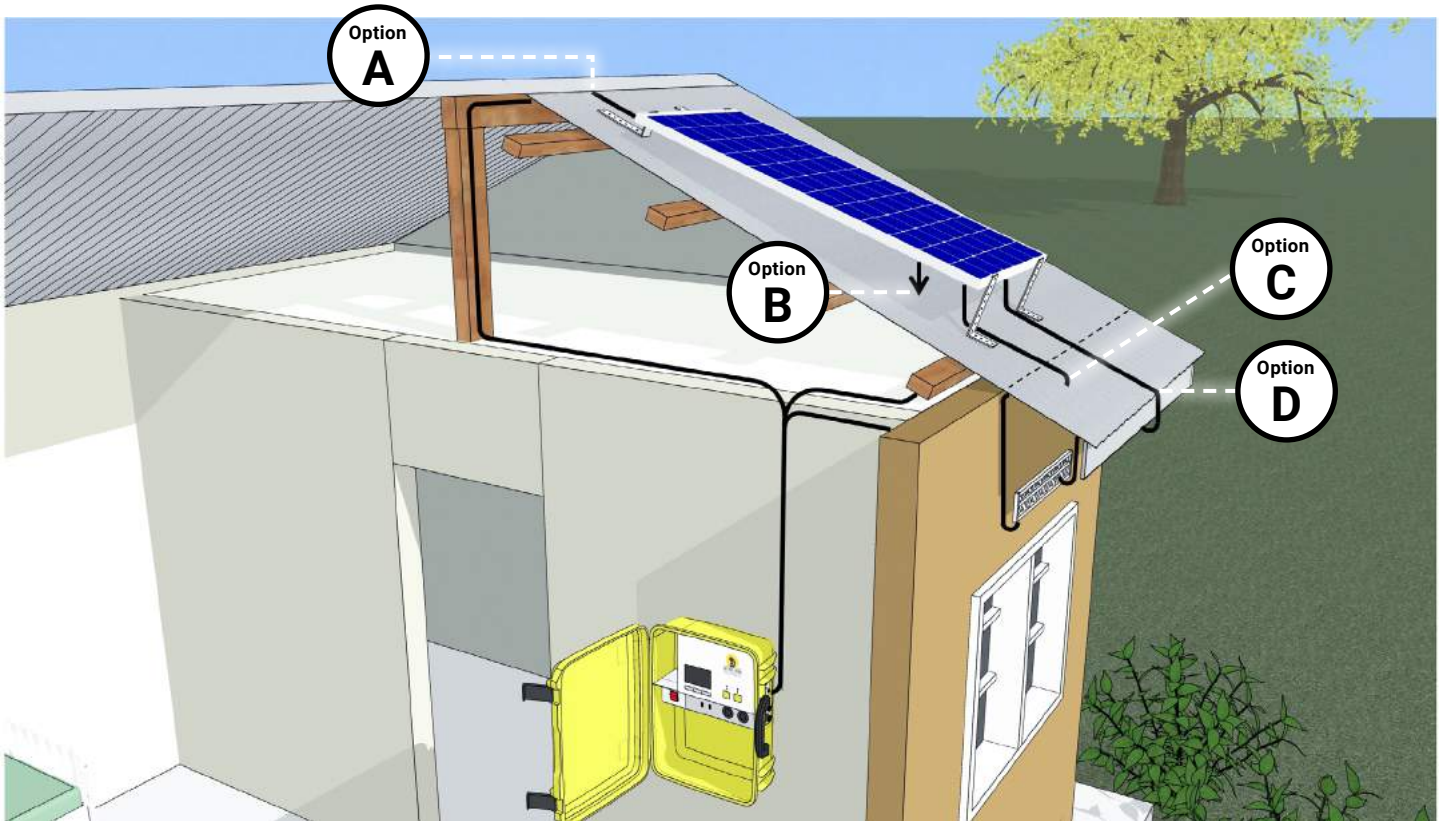


The solar panel should not be stressed, warped, or twisted when mounted to the roof



Solar Panel Installation

How to Run the Homerun Cable



Option A Under the ridge vent

Option C Through the eave

Option B Through the roof

Option D Over the edge

-
- ❗ If needed, you can remove and reassemble the homerun cable connector to make it easier to run through the roof and walls. See P.15 for instructions.
 - ❗ Always use the cable guard where the homerun cable goes through the roof or around the edge of the roof. The cable guard should extend at least 6" inches (15cm) through the roof panel.

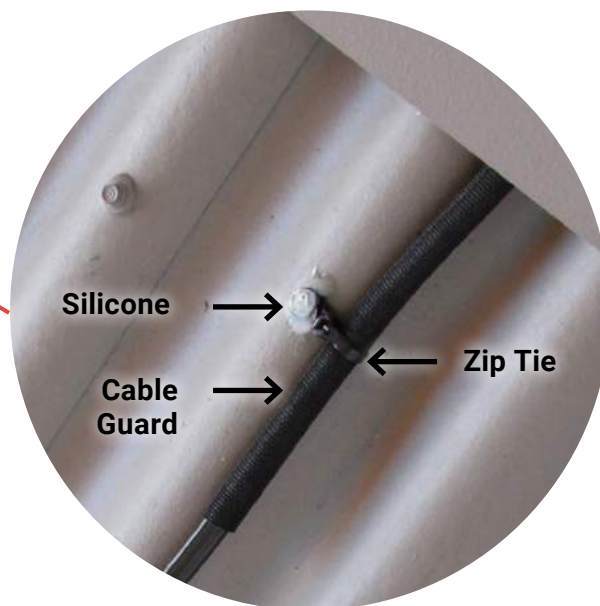


Solar Panel Installation

Homerun Cable Options

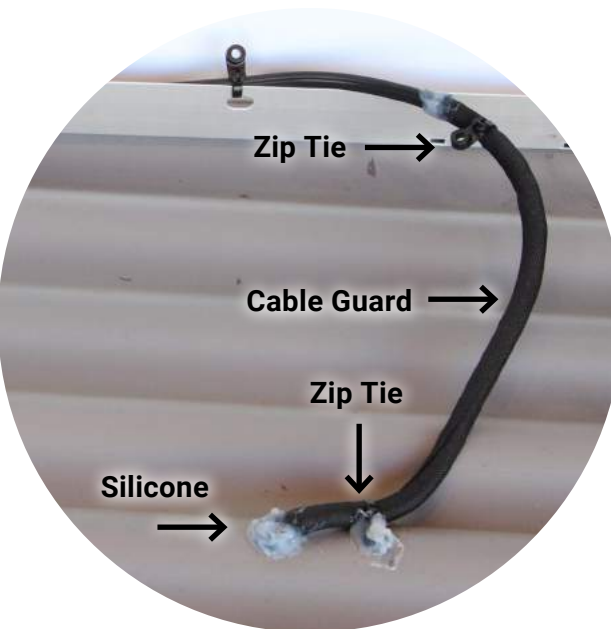
Option
A

Under the ridge vent



Option
B

Through the roof

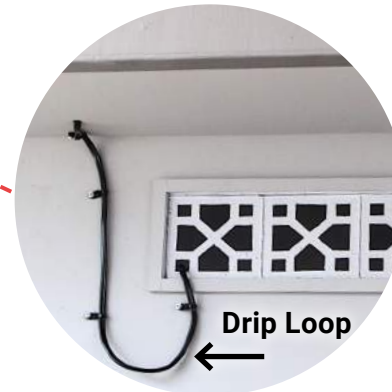
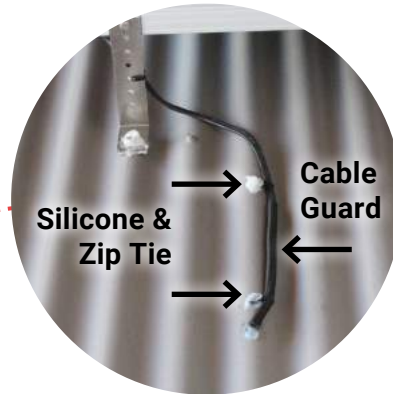


Solar Panel Installation

Homerun Cable Options

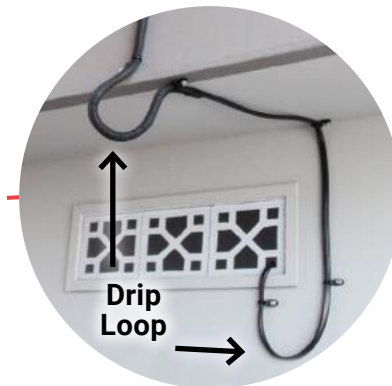
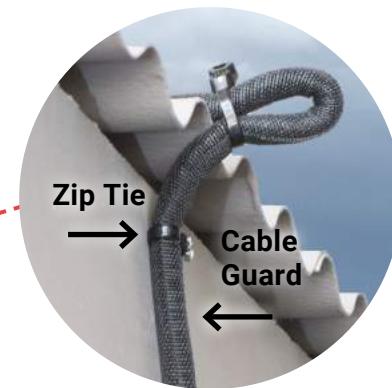
Option
C

Through the eave



Option
D

Over the edge



ⓘ Make a "Drip Loop" in the cable to allow water to drip off the cable, preventing the water from entering the health facility and Solar Suitcase

Solar Panel Installation

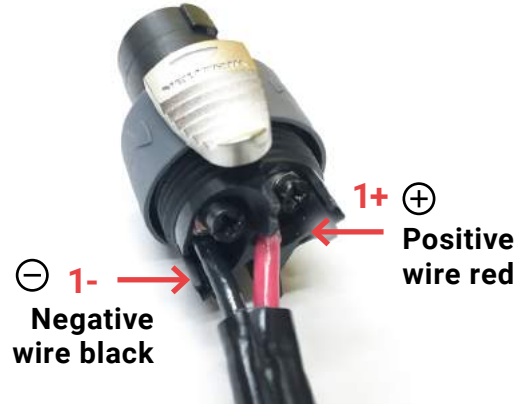
How to Remove and Reassemble the Homerun Cable Connector

This will make it easier to run the homerun cable through the roof and walls

- ① Twist blue shroud to disassemble



- ② Loosen the terminals



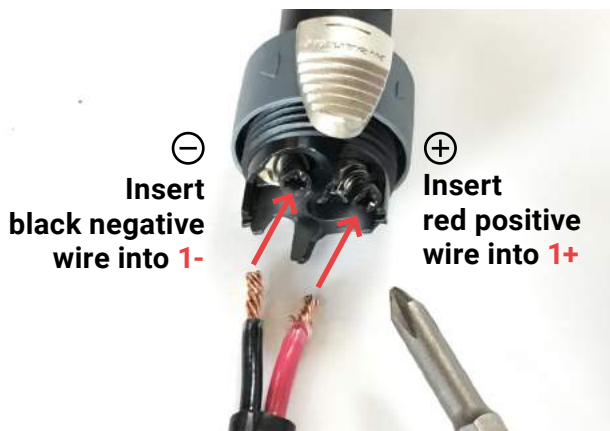
- ③ Leave screws attached to the connector



- ④ To run the homerun cable through the roof and walls, tape each wire individually and then tape the two wires together



- ⑤ To rewire the connector, tighten screws firmly onto wire. When finished, you should not be able to pull the wires from the connector.



- ⑥ Twist the blue shroud firmly to complete assembly



Solar Panel Installation

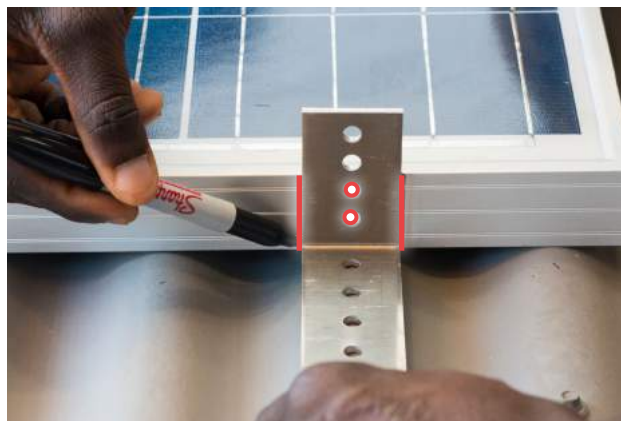
Solar Panel Installation Steps

- 1 Take the solar panel, installation hardware, and tools up on the roof



- ! Walk where you see the rows of nails

- 2 Mark on the solar panel where you will attach the L brackets



- 3 Using speed #2, drill 1/4" holes in the frame of the solar panel where the L brackets will be attached



- ! Use one of the L brackets to protect the solar panel

- 4 Attach all four L brackets to the solar panel using 1/4" bolts and locking nuts



Actual size



1/4" Bolt and Locking Nut



1/4" Standard Drill Bit Actual size

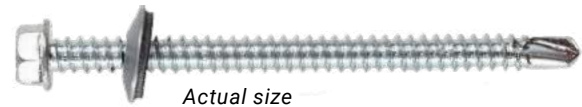
Solar Panel Installation

Solar Panel Installation Steps

- 5 Connect the homerun cable to the solar panel and fasten the solar panel connectors and the homerun cable to the frame with zip ties. This is called stress relief and will prevent pull on the delicate parts of the panel.



- 6 Using drill speed #1, use 12 X 3" screws with rubber washer to mount the L brackets to the roof and drill the screws down 50% of the way. If necessary, use the 1/8" standard drill bit to make a pilot hole before attaching roof screws.



Actual size
#12 x 3" Roof Screws with Rubber Washer



1/8" Standard Drill Bit Actual size

- 7 Use silicone to seal the area below the L brackets



- 8 Using speed #1, drill the screws down so that the solar panel is firmly attached to the roof but not so tight that it flattens the metal corrugations of the roof



Solar Panel Installation

Solar Panel Installation Steps

- 9 Use silicone to seal the area on top of the L brackets



- 10 Secure the homerun cable to one of the L brackets and to the roof. Use silicone to seal all holes.



- 11 Attach the cable guard where homerun cable goes over the edge of the roof or through the roof. Secure the cable guard with zip ties & silicone.



- ! Make a Drip Loop to prevent water from entering into the Solar Suitcase

- ! See P.12 for details on securing cable guard

- 12 Great job! Remember to do the Solar Panel Installation Checklist.



Solar Panel Installation

Solar Panel Installation Checklist

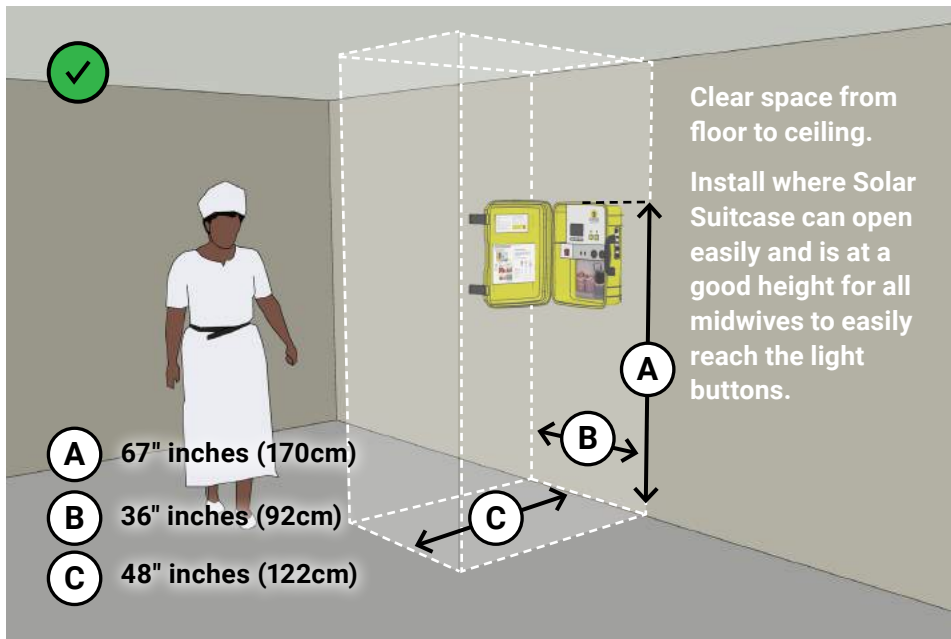


- | | | |
|---|---|--|
| ① | Solar panels will not be shaded at any time of the day | |
| ② | Solar panels are firmly attached to roof beams at peak of the corrugation | |
| ③ | Solar panels are installed at a 10 to 15° angle; they should not be flat | |
| ④ | Solar panel frame is straight, not warped, or twisted | |
| ⑤ | Homerun cable is wrapped with cable guard for extra protection where it might be damaged such as sharp edges and doorways | |
| ⑥ | Homerun cable has a drip loop immediately before entering building or room | |
| ⑦ | All roof holes are sealed with silicone | |
| ⑧ | Cables on the back of the solar panel have stress relief | |

Solar Suitcase Installation

Where to Place the Solar Suitcase

Before you install the Solar Suitcase, you need to make sure you have a good location that meets the needs of the healthcare staff. **The Solar Suitcase powers the medical lights. The Solar Suitcase has important appliances that should be easily accessed and also stored properly.**



- Install the Solar Suitcase where the lights can reach the delivery room
- Consider how the homerun cable from the solar panel on the roof will reach the Solar Suitcase
- Install in a room that is easy to access and secure



Do not place the Solar Suitcase next to a cabinet



Do not place the Solar Suitcase over a patient bed



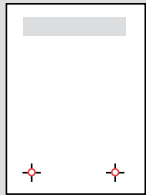
Do not place the Solar Suitcase over water

ⓘ The Solar Suitcase is designed to be attached to a strong wall. However, sometimes another solution is needed: If the wall is too soft and the wall crumbles when drilling, install the Solar Suitcase on a table to protect it from theft.

Solar Suitcase Installation

Parts & Tools Required

From the Solar Suitcase



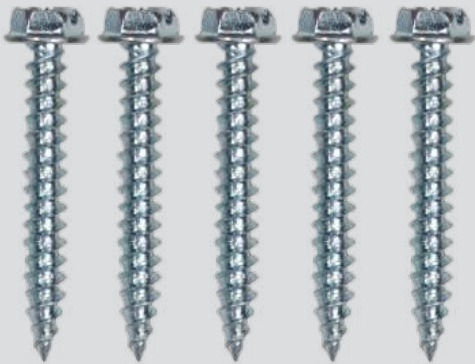
Solar Suitcase
Mounting
Template



(2) Rubber
Backed Washers



Bracket with Level Indicator



(5) #12 X 1-3/4"
Self-Tapping
Screws
Actual size



(5) Plastic
Anchors
Actual size



Actual size



Actual size

1/4" Masonry Drill Bit for masonry or cement walls or 1/8" Standard Drill Bit for wood walls



5/16" Nut Driver



Marker



Tape Measure

From the Large Tool Bag



Cordless Drill Driver

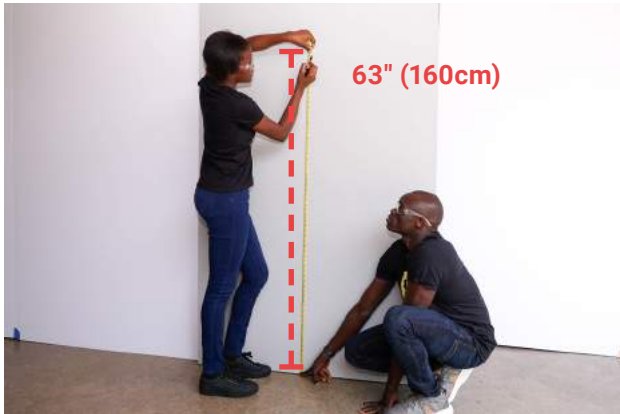


Safety Glasses

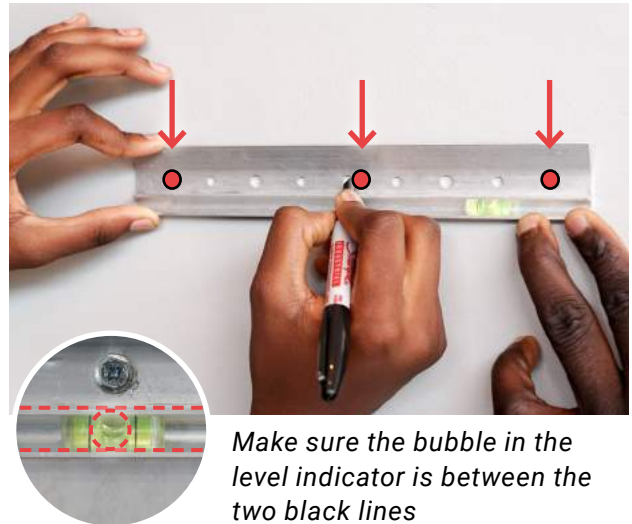
Solar Suitcase Installation

Solar Suitcase Installation Steps

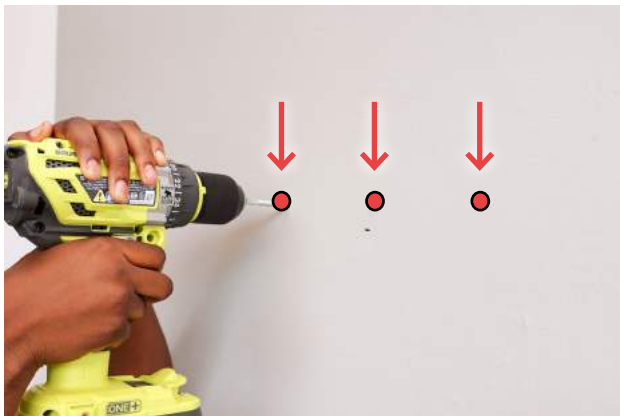
- ① Mark 63" inches (160cm) to floor



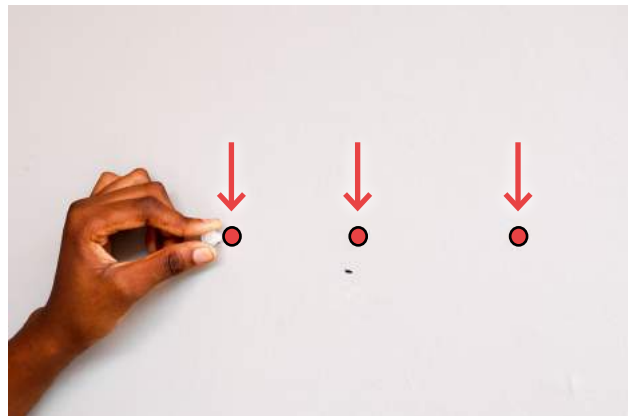
- ② Place the level and make 3 marks to drill



- ③ Drill 3 holes



- ④ Insert 3 plastic anchors



Actual size

1/4" Masonry Drill Bit for masonry or cement walls
or 1/8" Standard Drill Bit for wood walls



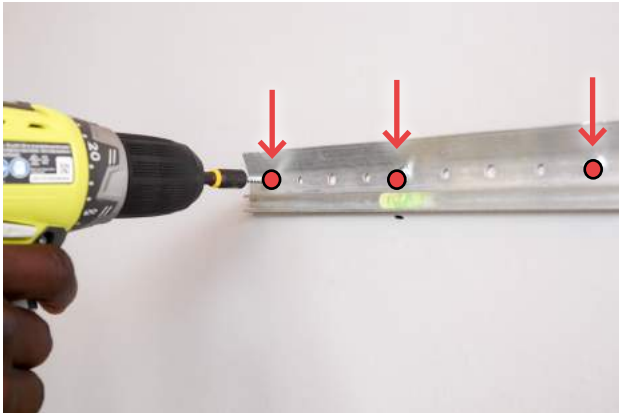
Plastic Anchors

Actual size

Solar Suitcase Installation

Solar Suitcase Installation Steps

- 5 Attach the bracket to the wall

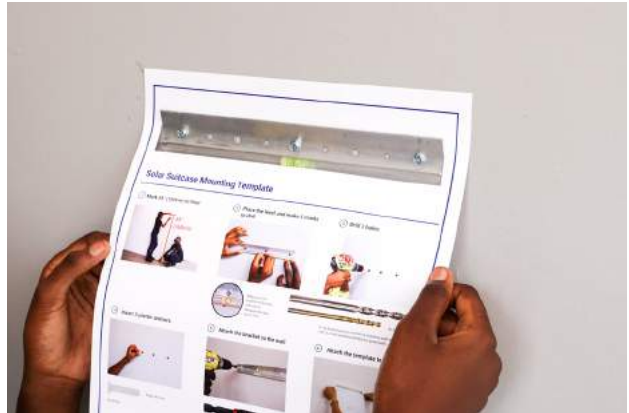


Actual size
#12 X 1-3/4"
Self-Tapping Screws

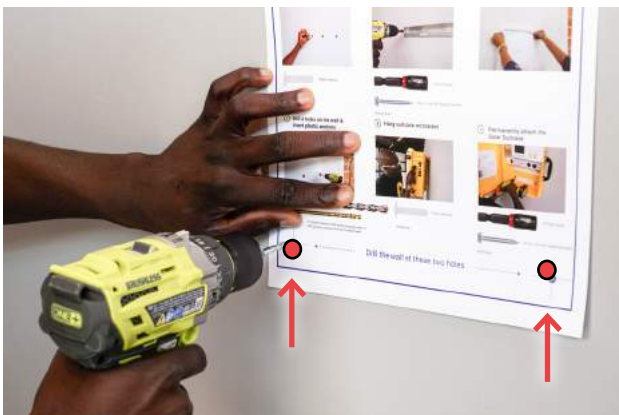


5/16" Nut Driver

- 6 Hang template on bracket



- 7 Use template to drill 2 holes in the wall and insert plastic anchors



Actual size
1/4" Masonry Drill Bit for masonry or cement walls
or 1/8" Standard Drill Bit for wood walls



Plastic Anchors

Actual size

Solar Suitcase Installation

Solar Suitcase Installation Steps

- 8 Hang the Solar Suitcase on bracket



- ! Make sure the Solar Suitcase is firmly attached on the bracket and level



- 9 Permanently attach the Solar Suitcase. The Solar Suitcase comes with 2 holes for installation.



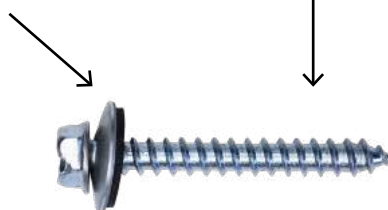
5/16" Nut Driver



Rubber Backed Washer



Actual size
#12 X 1-3/4"
Self-Tapping Screws



Actual size
Attach Rubber Backed Washer to
#12 X 1-3/4" Self-Tapping Screws

- 10 Review Solar Suitcase Installation Checklist

Solar Suitcase Installation

Solar Suitcase Installation Checklist		✓
①	Midwives can easily reach and see the display screen on the Solar Suitcase	
②	The Solar Suitcase is firmly attached to the wall. If you pull on it, it does not move.	
③	The Solar Suitcase is straight and not crooked on the wall	

Lights Installation

Where to Place the Lights

To determine essential medical activities that need light, ask the midwife the following 3 questions:

- ① Where do you stand when conducting deliveries?
- ② Where do you care for the baby after delivery?
- ③ Where does the mother rest after giving birth?

Most essential locations for lighting:



Delivery bed



Resuscitation table



Pre or post delivery room for patient observation

Other locations to consider (only after the above three are lit):

- Nursing station
- Receiving room
- Any other rooms that are related to maternal and newborn care
- Hallway

Location Factors to Consider:

- Light gets dimmer with distance
 1. If you need a bright and focused light, place it directly in line with the area and as close as possible. You can make it a mobile light so it can be brought closer to procedure areas.
 2. If you are trying to illuminate a whole room, place the light in the center and as high as possible so the light reaches further
- Remember the cable length is 33 feet (10 meters) and the Light Expansion Box cable is 40 feet (12.2 meters)
- Make sure the location for the light buttons on the light expansion box are convenient for healthcare workers
- Place lights to avoid the shadows. Remember medical staff may create shadows where they work.

Lights Installation

Parts & Tools Required

From the Solar Suitcase



Lights



Actual size

#8 x 1-1/4" Self-Tapping Screws



Actual size

#12 x 1-3/4" Self-Tapping Screws



Actual size

Plastic Anchors



Flex Clips



Light Expansion Box



1/4" & 5/16" Nut Drivers



Electrical Tape



Rubber Backed Washer



Actual size

1/4" Masonry Drill Bit for masonry or cement walls or 1/8" Standard Drill Bit for wood walls



Screw Driver



Zip Ties



Large & Small Hooks

From the Large Tool Bag



Cordless Drill Driver



Safety Glasses

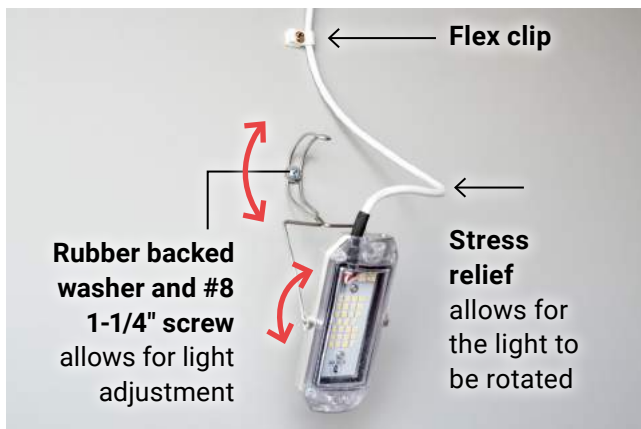
Lights Installation

How to Install the Lights

Lights can be fixed or mobile

Option
1

Fixed installation on a ceiling or wall



Light on a ceiling



Light on a wall

Option
2

Movable light attached to the wall



- Use large hooks for the roll of light cable to hang on
- Use small hooks for the light to hang on
- Attach Velcro to help keep the light cable neat

Option
3

Movable light hung on an IV pole or other fixture



Lights Installation

How to Install the Light Expansion Box

- 1 Work with the healthcare care staff to determine the best location for the light expansion box

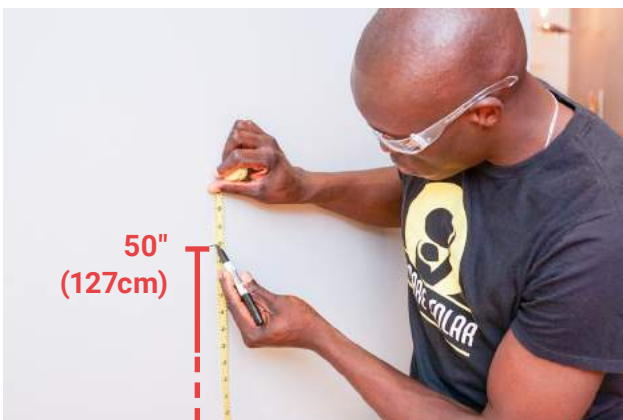


- 2 Place tape over the light sockets to avoid dust from entering

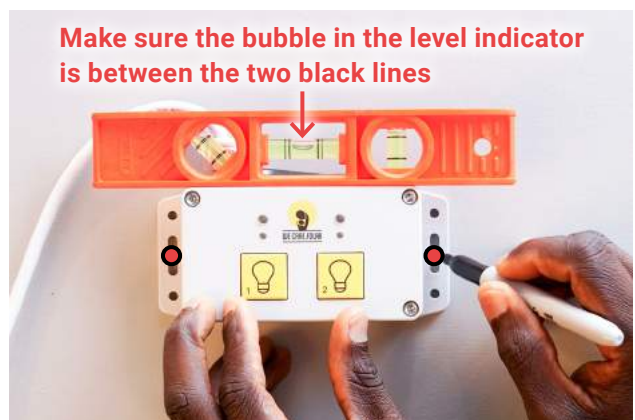


Electrical tape

- 3 Measure up 50" inches (127cm) from the floor and mark where to locate the top of the light expansion box



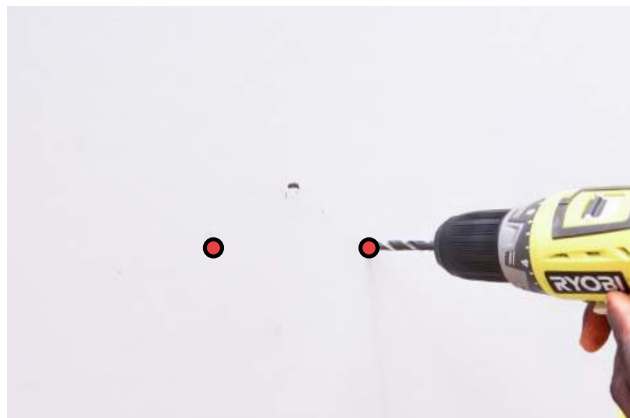
- 4 Make two marks on the wall where you will drill the holes



Lights Installation

How to Install the Light Expansion Box

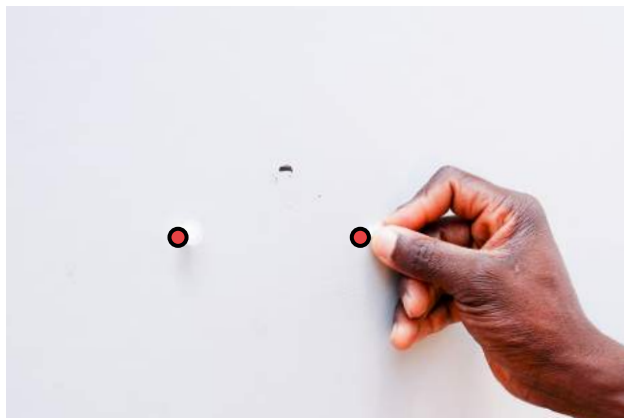
- 5 Drill the two holes where you made the mark



Actual size

1/4" Masonry Drill Bit for masonry or cement walls or 1/8" Standard Drill Bit for wood walls

- 6 Insert plastic anchors



Actual size

Plastic Anchors

- 7 Attach the light expansion box. Make sure it is level and tighten screws firmly.



Actual size

#12 X 1-3/4"
Self-Tapping Screws



5/16" Nut Driver

- 8 Drill the holes for where you will attach the light expansion box cable and the light cables to the wall above



Actual size

1/4" Masonry Drill Bit for masonry or cement walls or 1/8" Standard Drill Bit for wood walls

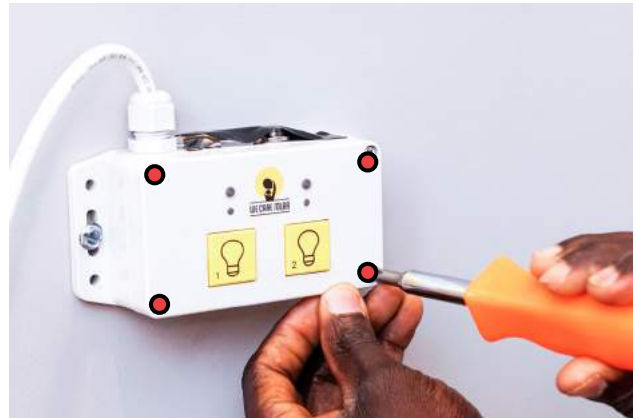
Lights Installation

How to Install the Light Expansion Box

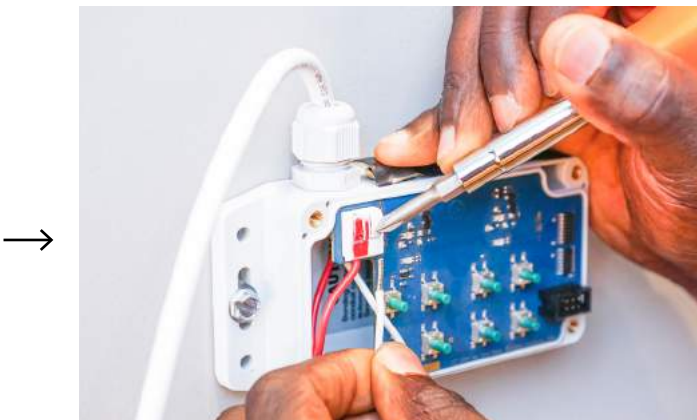
- 9 The light expansion box cable can be removed to make it easier to run the cable from the Solar Suitcase. To remove the cable follow these steps:



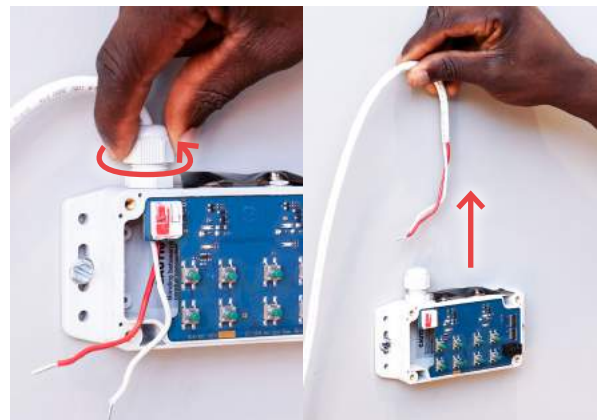
Make sure the light expansion box is disconnected from the Solar Suitcase



Remove the cover plate (4 screws) and put in a safe place



Using a screw driver, gently press the wire terminal release lever to pull out the red and white wires. Take care not to damage the vulnerable circuit board and electronics.



Loosen the cord locking nut and gently pull the wires out



Wrap the ends of the wires with electrical tape to protect the wires

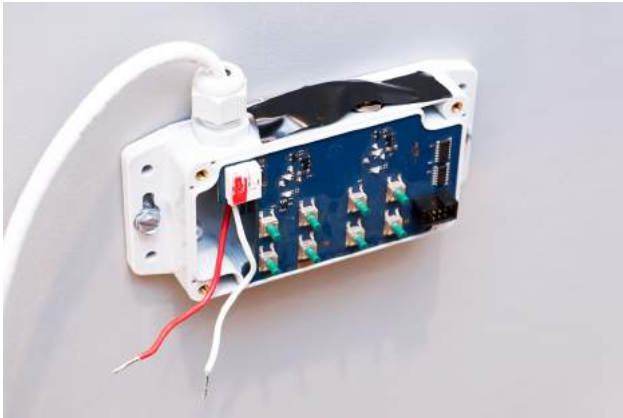


Route the cable from the Solar Suitcase to the light expansion box

Lights Installation

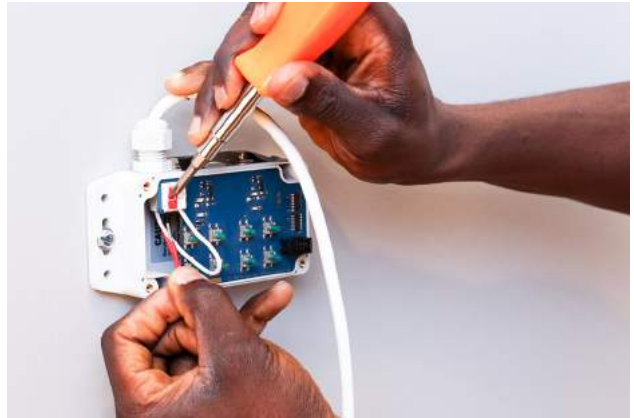
How to Install the Light Expansion Box

- ⑩ To reconnect the cable to the light expansion box follow these steps:

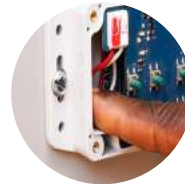


Insert the wires through the cord locking nut and back into the light expansion box and remove the tape from the end of the wires

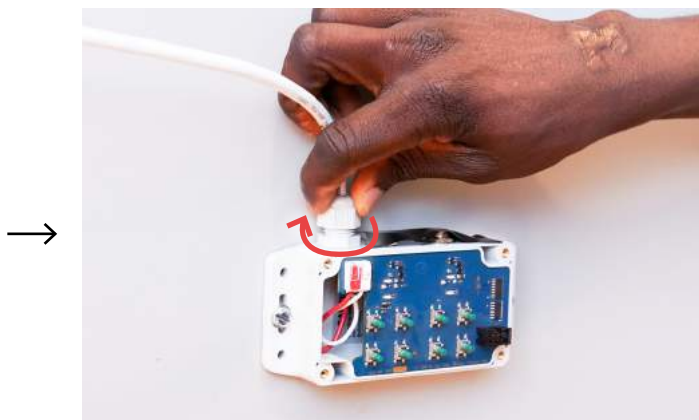
- ⚠ Ensure wire ends are straight and not frayed



Gently push the wire ends back into the terminal. Match red to red and white to white. Ensure the wire ends are inserted completely and no bare metal is exposed. Pull on the wires to ensure they are firmly attached to the terminals.



Tuck the wires into the space next to the circuit board



Tighten the cord locking nut



Replace the light expansion box cover and tighten the 4 screws

Lights Installation

How to Install the Light Expansion Box

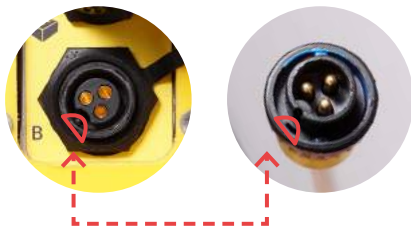
- ⑪ Run the light cables to the light expansion box and remove the tape



- ⑫ Connect the light cables to the light expansion box



- ⑬ Reconnect light expansion box to the Solar Suitcase



Light expansion box connector requires precise alignment

- ⑭ Secure the light cables and the light expansion box cables to the wall



Lights Installation

Lights Checklist



- | | | |
|---|--|--|
| ① | Check that all light and light expansion box cables are firmly connected and locking rings are tight | |
| ② | Make sure all lights work on both normal and brighter settings | |
| ③ | The lights are placed in an ideal location for midwives | |
| ④ | The light expansion box is firmly attached to the wall | |
| ⑤ | Fixed lights are securely mounted to the wall or ceiling | |
| ⑥ | Mobile lights have a hook for hanging the light and for cable storage and organization | |

Last Steps for Completing Installation

Step 1

Make sure the homerun cable is securely attached to the Solar Suitcase



⚠ The cable is properly connected when the silver tab clicks into place

Step 2

Make sure two lights are securely attached to the Solar Suitcase



Step 3

Make sure the Light Expansion Box is securely attached to the Solar Suitcase



Last Steps for Completing Installation

Step
4

Organize and secure cables



A Install zip ties to keep cables neat, out of the way of staff, and off the floor

B Coil any extra homerun cable above the Solar Suitcase and install zip ties to keep cables neat

C Install zip ties to provide stress relief for cables attaching to the Solar Suitcase and Light Expansion Box

Coil Extra Cable



When installing the light on the wall, coil any extra light cable at the top of the wall above the light. This allows future relocation of the light if necessary.



When installing the light on the ceiling, coil any extra light cable at the wall near the light. This allows future relocation of the light if necessary.



When installing the light expansion box, coil any extra cable at the top of the wall above the light expansion box

Last Steps for Completing Installation

Step
5

Turn on Solar Suitcase



After you turn on the Solar Suitcase, the sun icon on the display screen is visible

Step
6

Ensure all lights and appliances are operational



Last Steps for Completing Installation

Last Steps for Completing Installation Checklist



- | | | |
|---|--|--|
| ① | After you turn on the Solar Suitcase, the sun icon on the display screen is visible | |
| ② | Cables are fixed to the wall and have stress relief | |
| ③ | The homerun cable is firmly clicked into place with the silver tab facing forward | |
| ④ | The cables are neatly attached to the wall with zip ties and flex clips and are safe from damage | |
| ⑤ | Zip ties and flex clips provide stress relief for cables at the Solar Suitcase and light expansion box | |
| ⑥ | Turn on the Solar Suitcase | |
| ⑦ | Ensure all lights and appliances are operational | |

Installation Documentation

Installation Tracking Sheet

For each clinic where you install a Solar Suitcase, you need to record the following information:

- Solar Suitcase serial number (found on a small silver sticker affixed to the Solar Suitcase)
- Date of installation
- Name of the health facility, district, and region
- Health facility main contact name and phone number
- Catchment population
- # of health facility staff trained on Solar Suitcase use and maintenance
- # of deliveries in the past month

There are two ways to track installations: 1) We Care Solar's Excel Installation Tracking Sheet (template provided by We Care Solar), or 2) We Care Solar's Online Installation Form (link provided by We Care Solar). Which method you use should be discussed and agreed upon with We Care Solar.

Name of Partner Organization: <input type="text"/>											
Country: <input type="text"/>											
Project Coordinator Name: <input type="text"/>											
Number of Staff from Partner Organization Trained on Installation and Maintenance: <input type="text"/>											
Number of Staff from MOH Trained on Installation and Maintenance: <input type="text"/>											
Number	Solar Suitcase Serial Number	Date of Installation	Region	District	Health Facility Name	Health Facility Main Contact Name	Health Facility Contact Mobile Number	Catchment Population	Number of Health Facility Staff Trained on Solar Suitcase	Number of Deliveries in Past Month	Notes
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											

Other Documents

You may need to fill out other document such as a baseline survey or clinic certificate. If so, you will have already discussed with We Care Solar prior to installation and been given the required documents. Make sure to complete them before leaving the health facility.

Installation Documentation

Fill out the Sticker and Place Quick Guide in the Plastic Folder

Installation & Service Info Sticker

Installation Date		IN CASE OF PROBLEMS CONTACT Name _____ Organization _____ Phone _____ <div style="background-color: yellow; padding: 10px;"> <i>If you are unable to reach anybody locally, please contact We Care Solar</i> Email info@wecaresolar.org Phone +1 510 766 0206 </div>
Installer		
Name		
Organization		
Phone		
Main Battery Replacement Date		 WE CARE SOLAR



Solar Suitcase Quick Guide

Charging Appliances

The diagram shows the Solar Suitcase with multiple charging ports. Arrows point from specific ports to detailed instructions:

- Rechargeable Handsets:** Connect the handset's charging cable to the 5V port.
- AALISA Rechargeable Battery Charger:** Insert the battery into the charger, which is plugged into the 5V port.
- USB Charge your phone here:** Plug the USB cable into the USB port.
- Rechargeable Batteries:** Insert the battery into the designated slot.
- Small Device Manual:** A small manual for the device being charged.

Maximizing Performance

The main power switch should remain ON at all times.
The only time to turn the main power switch OFF is when the Solar Suitcase is being serviced or when troubleshooting it is a problem.

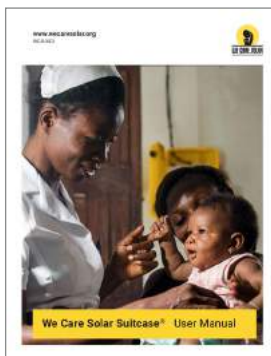
When to Use Lights & Charge Appliance

	Lights	Phone Charging	Appliance Charging
75% - 100%	✓	✓	✓
50% - 74%	✓	✓	✗
0% - 49%	✓	✗	✗

See User Manual p. 33 when to place batteries

(1) = only in emergency

Quick Guide



User Manual

Installation & Service Info Sticker

The sticker informs the health clinic who to contact when the main battery needs to be replaced. On the sticker, fill in the installation date, expected replacement date (2 years for SLA battery, 5 years for LFP), and contact information of the person responsible for main battery replacement. If you are unsure who is responsible for the main battery replacement, contact the in-country organization in charge of this program.

Review Quick Guide and User Manual with Staff

Quick Guide

The Solar Suitcase Quick Guide comes inside the Solar Suitcase. It is a Quick Guide for the health facility staff. It should be placed in the plastic folder on the inside of the Solar Suitcase door.

User Manual and Maintenance Log

The User Manual has useful information on how to use, maintain, and troubleshoot problems that may occur with the Solar Suitcase. In the back of the User Manual is the maintenance log. Encourage the healthcare worker to record maintenance performed on the Solar Suitcase in the maintenance log.

Maintenance Log

Name	Telephone	Address (Household or Business)	Activities Performed
Name	Telephone		
Occupation			
Phone			
Name	Telephone		
Occupation			
Phone			
Name	Telephone		
Occupation			
Phone			
Name	Telephone		
Occupation			
Phone			

Maintenance Log

Installation Documentation

Documentation Checklist



①	Complete installation tracking sheet Make sure to write down Solar Suitcase serial number and take photo if possible	
②	Fill out information on the Solar Suitcase sticker on the inside door of Solar Suitcase	
③	Place User Manual and Quick Guide in the plastic folder	
④	Take photos of the installation and healthcare workers training	
⑤	Complete other documents such as baseline survey if required	

Teaching Healthcare Workers

Teaching Preparation

- Get the right people in the room – all maternity staff, security, and staff in charge of the facility
- Pick a time that is convenient for them and tell them it will take about an hour
- Have everything prepared – set up the Solar Suitcase and appliances in advance

Teaching Tips

- Use the Solar Suitcase User Manual as a teaching tool when teaching the healthcare workers
- Speak slowly and clearly
- All healthcare workers should know how to interact with the Solar Suitcase and appliances. Don't do it for them! Make sure they get to practice using the Solar Suitcase and appliances.
- Repeat key messages
- Check healthcare workers understand by asking them to show you or explain what you just taught before moving on to next topic
- Reinforce reasons for training – proper usage will ensure midwives have light when they most need it



User Manual



What to Teach Healthcare Workers

1. Introductions

2. Overview of the Solar Suitcase (refer to P.06 “Solar Suitcase Overview” and P.07 “Main Battery and Solar Panel” in the User Manual)

a. How does the Solar Suitcase get power?

From the sun

b. Where is the power stored?

Solar Suitcase/ main battery

3. Main Switch is always on

a. Where is the main switch?

Red button on left side of Solar Suitcase

b. When do you turn it off?

It stays on all the time unless the Solar Suitcase is being serviced or when troubleshooting to fix a problem

c. What do you do if the main switch is accidentally turned off?

Turn it back on

4. Understanding the Display Screen (refer to P.10 “Display Screen” in the User Manual)

a. How do you know if the battery is being charged?

Look at the display screen. The arrow next to the battery symbol is pointing up.

b. How do you know if you are using more power than the Solar Suitcase is receiving from the sun?

Look at the display screen. The arrow next to the battery symbol is pointing down.

c. How full is your battery?

Look at the display screen. The battery percentage is directly below the battery symbol.

d. How do you know which loads are using power?

Look at the display screen. The symbols on the right of the screen show which lights, sockets, and appliances are using power.

5. Using the Solar Suitcase (refer to P.23 “Maximizing Performance” in the User Manual)

a. When is it a good time to use lights?

When you need them

Teaching Healthcare Workers

b. When is it a good time to charge my phone?

During a sunny day when the battery is at least 50% full

c. When is it a good time to charge the headlamps, thermometer, and fetal Doppler?

During a sunny day when the battery is at least 75% full

d. When is not a good time to charge my phone, headlamps, thermometer, or fetal Doppler?

At nighttime unless it's an emergency

6. Using the Lights (refer to P.08 "Lights" in the User Manual)

a. Where are the light buttons?

To the right of the display screen and on the light expansion box

b. Show me how to use the two settings on the light

c. When should you use the lights?

When you need them

d. When do you not want to use the brighter light setting?

When you need to conserve energy. Use the normal light setting.

7. Appliances Overview (refer to P.14 "Appliances" in the User Manual)

8. Using the Rechargeable Headlamps (refer to P.16 "Rechargeable Headlamps" in the User Manual)

a. Show me how to use the rechargeable headlamp

b. Show me how to make the rechargeable headlamp light brighter

9. Charging the Rechargeable Headlamps (refer to P.16 "Rechargeable Headlamps" in the User Manual)

a. How do you know when you need to charge the rechargeable headlamp?

Light is dim; side light is red

b. How do you charge the rechargeable headlamp?

With a USB charger

c. How do you know if it's charging?

Side light is blinking green

d. Show me how to charge the rechargeable headlamp

10. Using the Infrared Thermometer (refer to P.17 "Infrared Thermometer" in the User Manual)

a. When should you use the infrared thermometer?

To screen every patient that comes to the facility

b. Show me how to use the infrared thermometer

Teaching Health Workers

11. Using the fetal Doppler (refer to P.19 “Fetal Doppler” in the User Manual)

a. Show me how to use the fetal Doppler

b. Should you turn it off when it is not in use?

Yes

c. What kinds of lubricants can you use with the fetal Doppler?

Lubricant gel, clean vegetable oil, or KY jelly

d. If you can't find the fetal heart beat what can you do?

Slowly change the position and/or angle of the probe; check the batteries are inserted correctly and fully charged; make sure you are using enough gel or ky jelly.

12. Using the AA/AAA Rechargeable Battery Charger (refer to P.21 “AA/AAA Rechargeable Battery Charger” in the User Manual)

a. Show me how to use the battery charger

b. How do you know if the batteries are charging?

Rechargeable battery indicator is green and says CHG on the left side

c. What kinds of batteries can you charge in the battery charger?

Rechargeable only, not single use (alkaline batteries)

13. Charging Your Phone (refer to P.22 “Charging Your Phone” in the User Manual)

a. Show me how to charge your phone

b. When is the best time to charge your phone?

During the day when the battery is 50% or more full

14. Troubleshooting (refer to P.25 “Troubleshooting” in the User Manual)

a. Show me where you can get information on troubleshooting

P.25-P.44 from the User Manual

b. Who do you contact if you have a problem with the Solar Suitcase?

Look at Solar Suitcase sticker under section “In Case of Problems Contact”

c. When does the main battery need to be replaced?

Look at “Main Battery Replacement Date” on Solar Suitcase sticker

15. Where to Get Information on the Solar Suitcase and Training New Healthcare Staff

a. If you can't remember how to use something or need to teach a new healthcare worker, where can you find out information?

The User Manual which is inside the plastic folder or online at:

<https://wecaresolar.org/resources/product-info/>

b. Whose responsibility is it to train new healthcare workers?

Yours; the health facility



We Care Solar

+1-510-766-0206

info@wecaresolar.org

www.wecaresolar.org

Online Resources

For more information, including training videos on Solar Suitcase installation, use, maintenance, and repair, please visit

<https://wecaresolar.org/solar-suitcase/>

Designed by



<https://www.creative-integration.com/>