

SolShare Installation Manual



0112_F1_US_InstallationManual-2P-100-2

This document is intended to provide guidance on how to install the US version of the SolShare with serial numbers of 2P-100-0001 to 2P-100-0119.

This document does not override any local codes or standards. It is the responsibility of the installer to ensure the Solshare installation meets the relevant requirements and is installed in a safe manner.

This document is subject to change. Please check our website at <https://allumeenergy.com/document-library> for the most up-to-date version.

Version	Date	Version History
F1	17 NOV 23	Initial Release

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This manual accompanies our equipment for use by the end users.

The technical instructions and illustrations contained in this manual are to be treated as confidential and no part may be reproduced without the prior written permission of Allume Energy and end users may not divulge the information contained herein or use this manual for purposes other than those strictly connected with correct use of the equipment.

All information and specifications are subject to change without notice.

Hello

Thank you for purchasing a SolShare system. The installation of this device will likely be different from any other solar technology you have installed in the past. As a result, please follow the guidelines in this manual carefully. Installations that contravene these guidelines are not covered under warranty unless a written exemption from Allume Energy is provided.

Your SolShare is designed to meet relevant US codes and standards. This guide provides the general instruction of the installation procedure of the SolShare.

If you have questions or feedback on the product or this manual, please contact us and ask for a technical representative.

US



(213) 347-4293



support@allumeenergy.com

List of supplementary documents available online

- SolShare-2P-100 Datasheet
- UL1741 Certificate



Document Library

For most up to date versions of all documents (including this Installation Manual), scan this QR code or go to

<https://allumeenergy.com/document-library/>

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1. Handling and Safety Instructions

SAVE THESE INSTRUCTIONS.

This manual contains important instructions for the SolShare 2P-100 that shall be followed during installation and maintenance.

This guide is provided to help the installer understand the standard SolShare installation procedure. Installations may vary depending on the existing electrical infrastructure and the specific system design. It is the responsibility of the installer to ensure their installation meets all local electrical codes and standards.


Utilizing this manual as a tool, the installation must be completed by a competent and qualified person as improper installation of the electrical equipment could result in damage to the unit, serious injury, or death. As the installer, make certain to read over, fully understand, and strictly follow the detailed instructions of this installation manual and other related documentation before installing the equipment.

SAFETY SYMBOLS INFORMATION


The following safety symbols are used in this document. Familiarize yourself with the symbols and their meaning before installing or operating the system:

 **Warning:**
xxxxx xxxx xxxx xxx xxx xx xxxx xxx xxxx

This symbol indicates a potentially hazardous situation, which if not avoided, could result in serious injury or death.

 **Caution**
xxxxx xxxx xxxx xxx xxx xx xxxx xxx xxxx

This symbol indicates a potentially critical step, which if not completed correctly, could result in equipment damage or minor to moderate injury.

 **Important:**
xxxxx xxxx xxxx xxx xxx xx xxxx xxx xxxx

This symbol indicates important information that is not safety related. These instructions either ensure proper operation of the SolShare once commissioned, or support better installation efficiency.

IMPORTANT SAFETY INSTRUCTIONS




Warning:

- Risk of electric shock.
- Multiple AC voltage sources are terminated inside this equipment.
- Installing or opening of the SolShare must only be performed by a competent and qualified person, and according to local codes and standards.
- This equipment must be permanently grounded.
- Ensure the SolShare and surrounding Solar Energy System is grounded according to local codes and standards prior to operation. The SolShare must be connected to a grounded, metal, permanent wiring system or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment grounding terminal or lead on the product.
- All electrical connections including sensor circuits, made between the SolShare and an electrical distribution panel shall be run through conduit or another code compliant raceway.
- Before working on this equipment, the SolShare must be de-energized and isolated from all power sources on both the inputs and outputs.
- It is the responsibility of the installer to ensure their installation meets all local codes and standards. Wiring methods in accordance with the National Electrical Code ANSI/NFPA are to be used at a minimum.



Caution:

- **HEAVY OBJECT:** This product has a weight of approximately 84 lbs. Un-boxing and mounting the product requires 2 people.
- Ground-Fault Circuit Interrupter (GFCI) breakers must not be used as Overcurrent Protection devices in SolShare Output circuits.
- The unit must be operated according to the product datasheet.
- The symbol  appears at grounding points within the SolShare equipment. This symbol is also used within this manual.

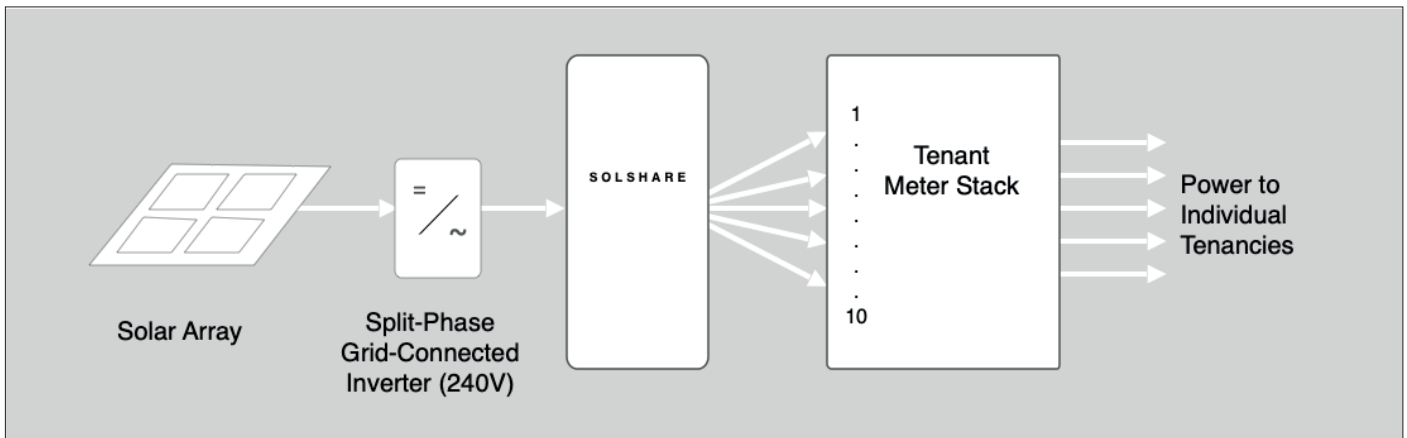


Important:

- Use only AWG copper conductors rated for a minimum of 90°C/194°F.
- This product is rated for a maximum ambient temperature of 50°C/122 °F.
- For minimum torque requirements for field wiring connections, please refer to *Appendix C* and *D*.
- This product relies on fan cooling. Install in a well-ventilated location in accordance with the mounting instructions.
- The SolShare will impose a current dependent voltage drop/rise which should be taken into account during design of the installation.
- Specifications are provided within the product datasheet (*Appendix K*).
- The SolShare is Type 4 rated per the UL50E standard. Where used, conduit glands and/or blanking plugs must be Nationally Recognized Testing Laboratory (NRTL) listed for rain tight or wet locations to maintain the enclosure rating.

2. Introduction to the SolShare System

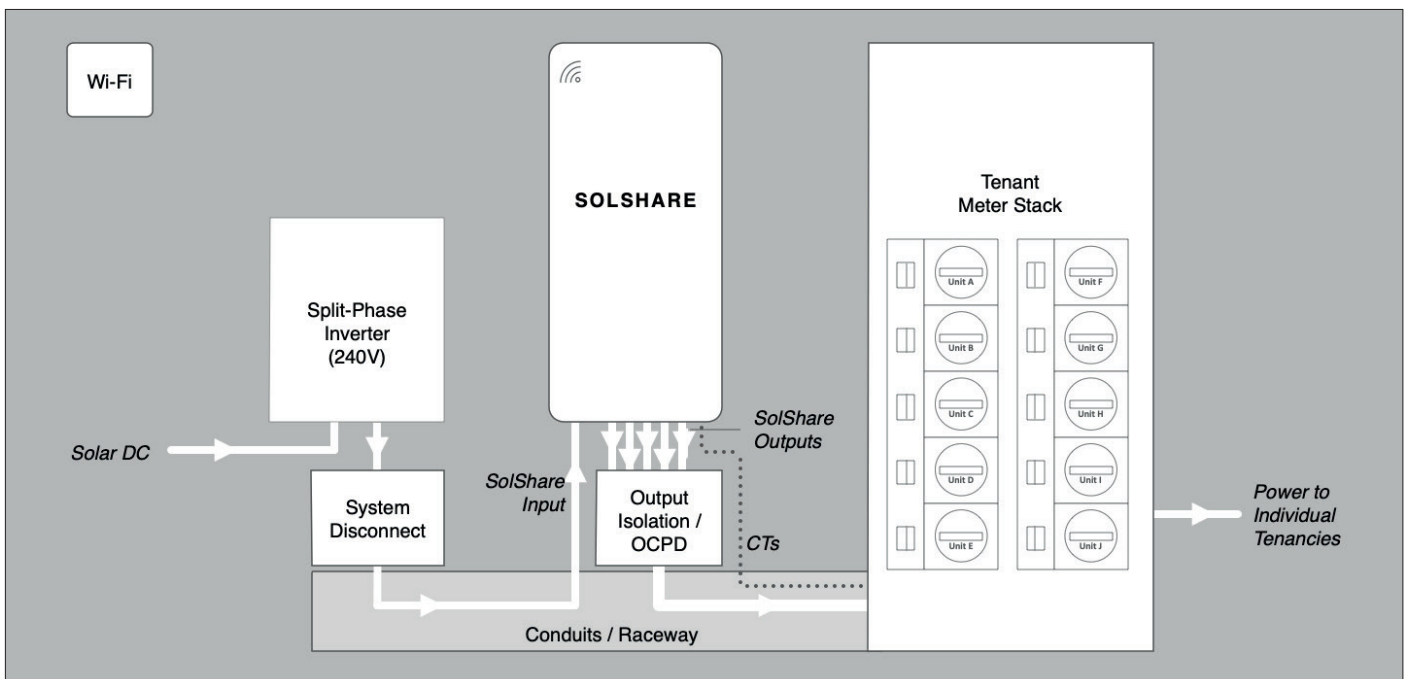
The SolShare distributes the power generated from a single solar energy system to up to ten participating tenants. This enables connected tenants to benefit from the full current generation of the solar system.



The SolShare operates as a power division control system. It takes a single split-phase input from a grid-connected solar inverter(s) and connects to each participating tenant on the load side of their electricity meter (usually by electrical tap).

The SolShare algorithm ensures each tenant receives their allocated share of solar energy each month. The default algorithm ensures solar is shared evenly among all tenants. For example, if a 15kW AC solar system is installed, with 10 tenant meters connected, each tenant will receive a solar energy allocation equivalent to a dedicated 1.5kW solar system. If a non-even even allocation is required, the algorithm can be configured accordingly. Please contact Allume Energy at support@allumeenergy.com to arrange this.

An overview of a typical SolShare solar installation is provided below. Please refer to your project system design for the details of your specific project.



Important:

- Solar system disconnect is required on the inverter output. This may also require overcurrent protection depending on the system's needs.
- Circuit breakers marked "line" and "load" must not be used for the System Disconnect.
- An Over Current Protection Device (OCPD) and/or isolating switch is required on each SolShare Output. This can be accomplished by utilizing isolation breakers not sharing a bus, or separate fused disconnects.
- The SolShare needs to be connected to Wi-Fi for commissioning, operation, and maintenance.

2.1 Overview of SolShare Functionality and Outputs

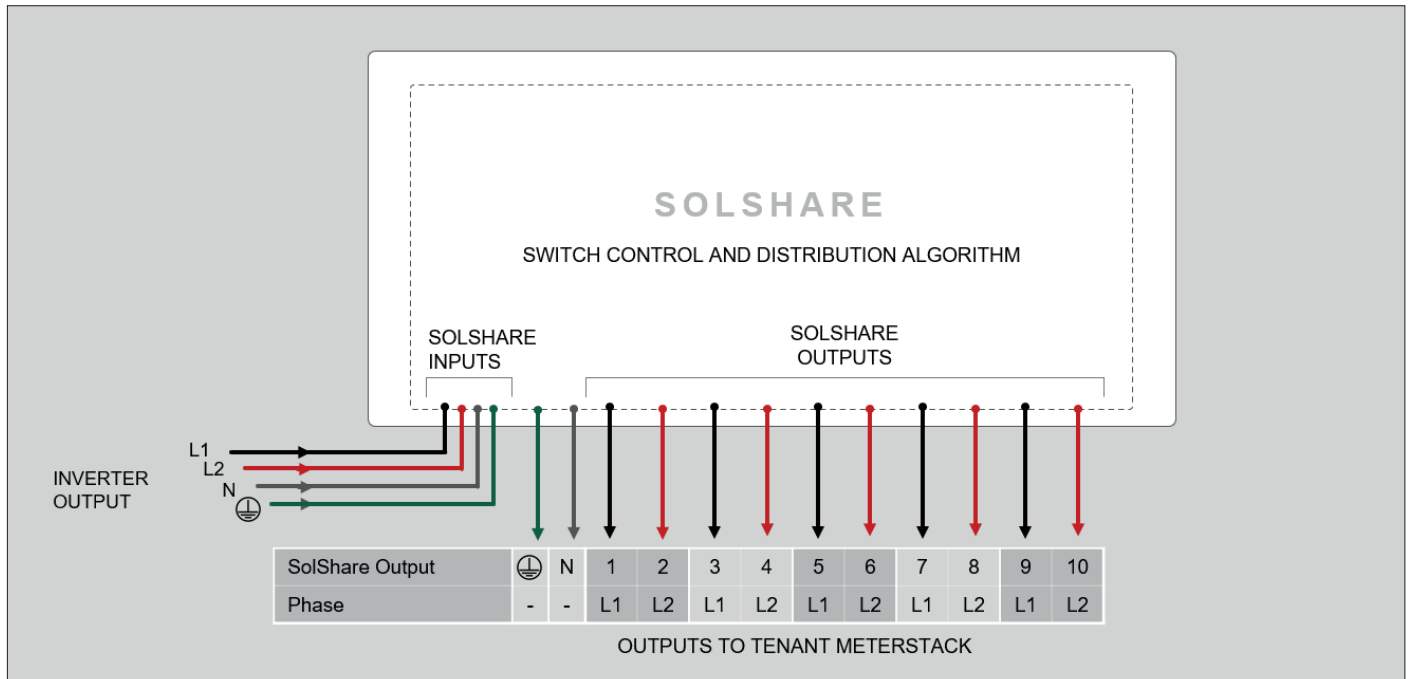
The SolShare receives the solar energy from the connected inverter(s) and distributes it to up to ten connected tenant meters. The distribution is managed by the SolShare's switching control and distribution algorithm that rotates the full supply periodically between the tenant meters, and ensures the correct allocation per tenant.

There are 10 single-phase (120V) SolShare Outputs available for delivering solar energy directly to tenants. These outputs can be connected to a tenant meter in one of two configurations:

- Single-phase (120V), up to 10 tenants connected per SolShare.
- Split-phase (240V), up to 5 tenants connected per SolShare.

Appendix E and Appendix F provide example SolShare System interconnection diagrams for both configurations.

A single SolShare can have tenants connected in 120V and 240V configurations. Refer to your specific system design for each tenant configuration.



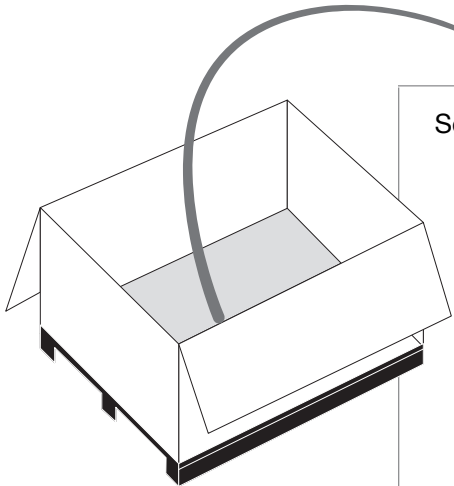
Overview of SolShare distribution functionality, phases and outputs.

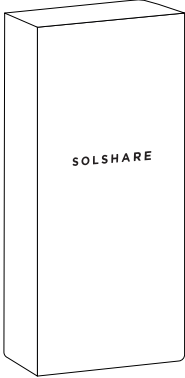
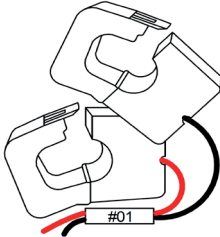
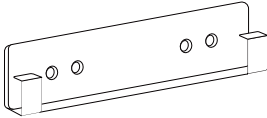
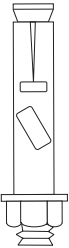

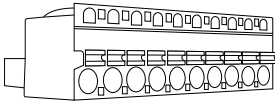
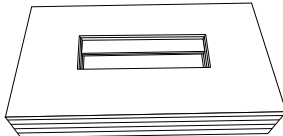


Important:

Knowing the phase of each SolShare Output ('L1' or 'L2') is very important when connecting at the tenant meter stack. For this reason, the SolShare Outputs are labelled with the Output number followed by the Output Phase: '(L1)' or '(L2)'. For example, the first SolShare Output is labelled '1(L1)'.

3. What's in the Box



	<p>SolShare unit</p>  <p>x 1</p>	<p>Split-core current transformer CT pair with approximately 32' tails</p>  <p>x 10 pairs</p>	<p>Mounting bracket</p>  <p>x 2</p>
<p>Fastener</p>  <p>x 4</p>	<p>Locking plate</p>  <p>x 1</p>	<p>CT Connector block</p>  <p>x 4</p>	<p>CT connection aid</p>  <p>x 1</p>



Important:

Make sure the SolShare is intact following transportation and all components have been supplied. If there are any signs of visible damage or if any components have not been supplied, please contact your dealer immediately.

4. Installing the SolShare

4.1 Select the SolShare Installation Location

To minimize the distance of the raceways, conductors, and current transformer (CT) wire run, the SolShare should be mounted as close as possible to the property's meter stack.

To allow for easy installation and maintenance, ensure that there is adequate space surrounding the SolShare and that it is mounted at a convenient height. Please ensure the following mounting requirements are also met when selecting the location of the SolShare.

Do not mount the SolShare on flammable wall material

Do not mount the SolShare near flammable material or gases

Install a shade cover over the SolShare when installed outdoors in direct sunlight or when in the path of debris (e.g. under a tree with falling leaves)

Requirement for installation space

SolShare dimensions:
36.2" x 19.1" x 10.6"
(H x W x D)

SOLSHARE

Alume

Ensure this clearance around the SolShare

20"

6"

6"

Recommended clearance to allow for conduit entry

20"

Mount vertically

90°

Install in an easy to observe and operate location

≈20"

≈45"

Ensure there is adequate space in front of the SolShare for an electrician to work (both for installation and for future service).

Environmental boundaries

Max ambient temperature:
+122°F (50°C)

Min ambient temperature:
-4°F (-20°C)

Relative humidity:
0-90%

Internet communications

A Wi-Fi network must be available at the site to enable commissioning and ongoing monitoring.

Note: Where possible, do not install the SolShare below a conductor tray - this may affect the SolShare's ability to connect reliably with the Wi-Fi at site.

4.2 Securely Mount the SolShare

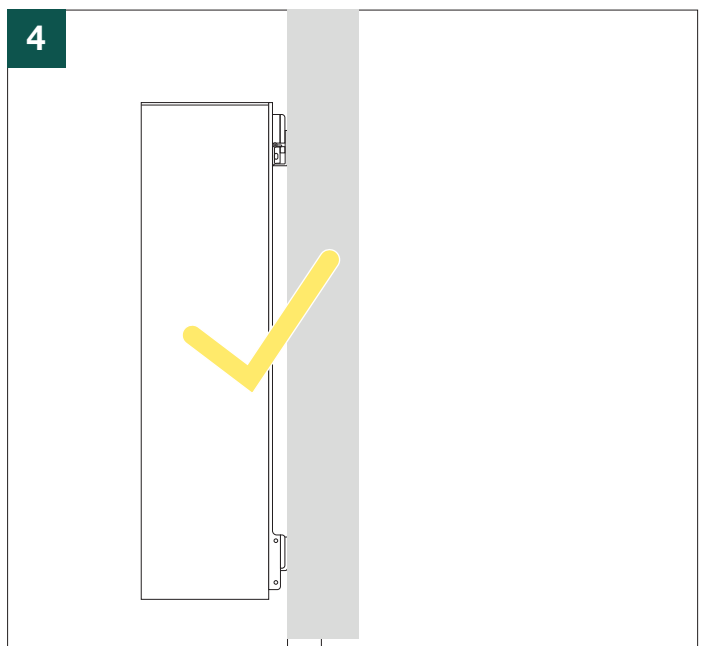
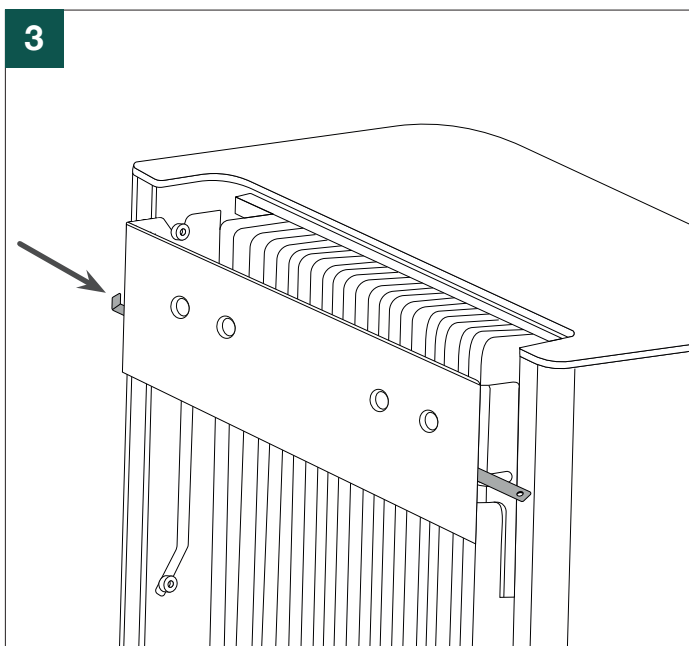
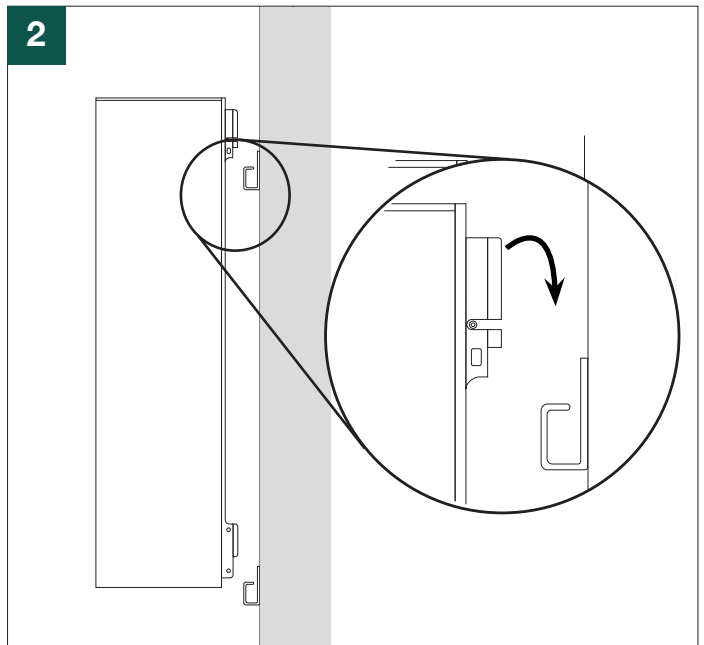
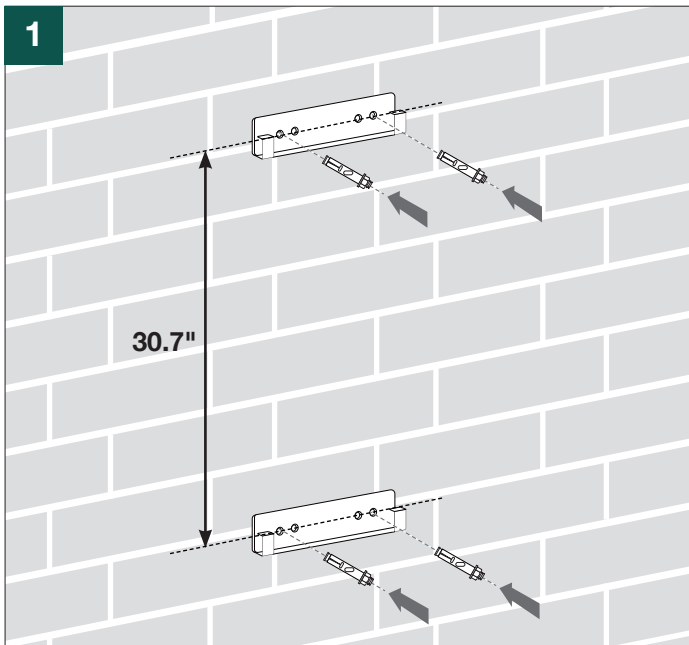
Follow the steps below to mount the brackets and enclosure:

1. Firmly secure the mounting brackets to the chosen wall for installation. It is recommended that the SolShare's brackets are installed into a suitable stone or masonry wall utilizing the provided fasteners. If another wall material has been chosen for installation, please use suitable fasteners with at least 66 lbs. shear force per fastener.
2. Lift the SolShare onto the mounting brackets as directed in the below diagram. Check both top and bottom brackets are secure.
3. Insert the locking bolt through the SolShare top mounting bracket as shown and secure at both ends.
4. Ensure the SolShare is securely fastened to the wall and locked into place.



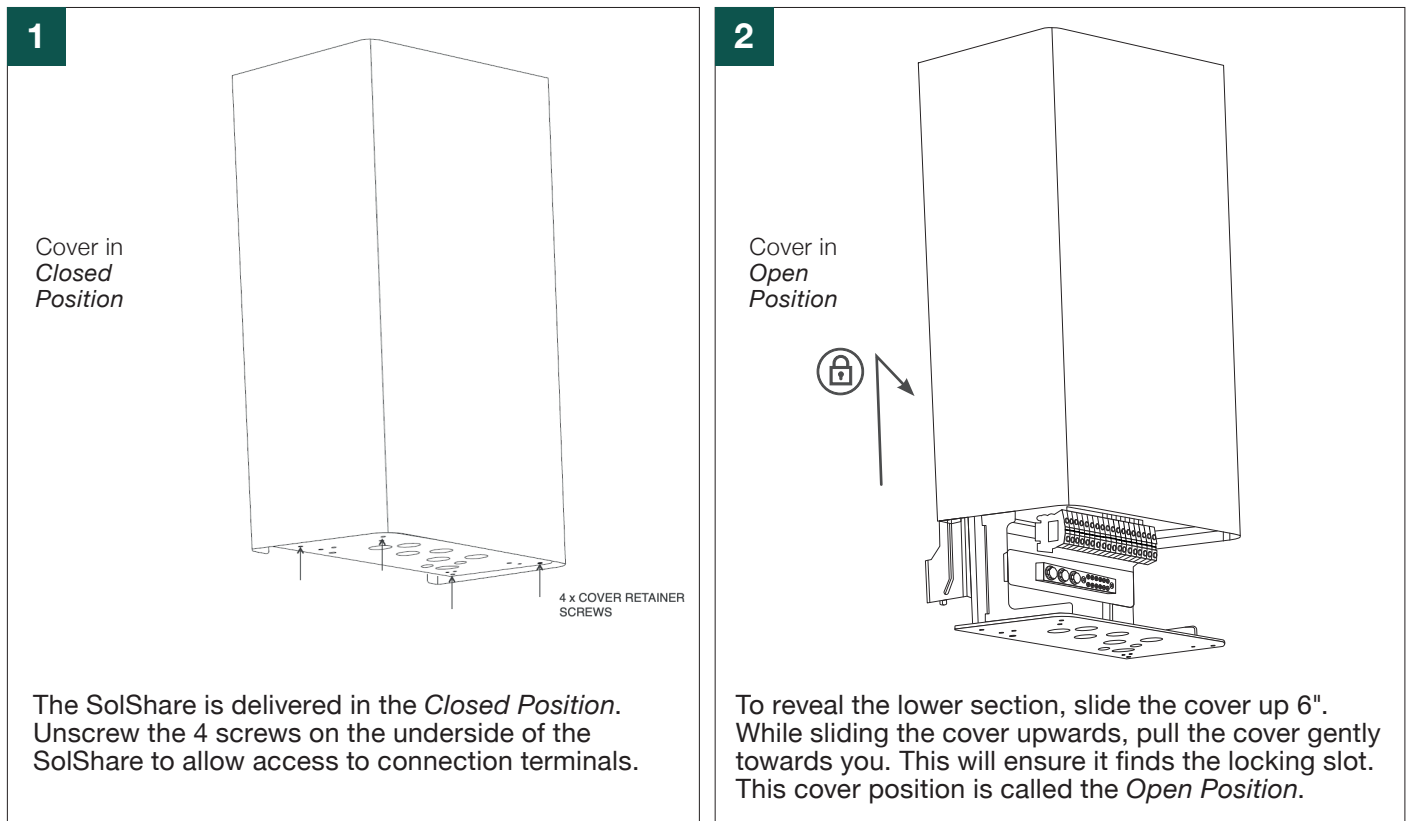
Important:

The mounting wall and fastener selection is at the discretion of the installer. Allume Energy takes no responsibility in the appropriate site selection for the SolShare or the appropriate bracket fastener choice.



4.3 Prepare the SolShare for Conduit and Electrical Connections

Lift up the cover into the *Open Position* to reveal the lower section of the box where the electrical connections are made. This is achieved by doing the following:



Caution:

Risk of crush hazard if cover dislodged while in the *Open Position*.

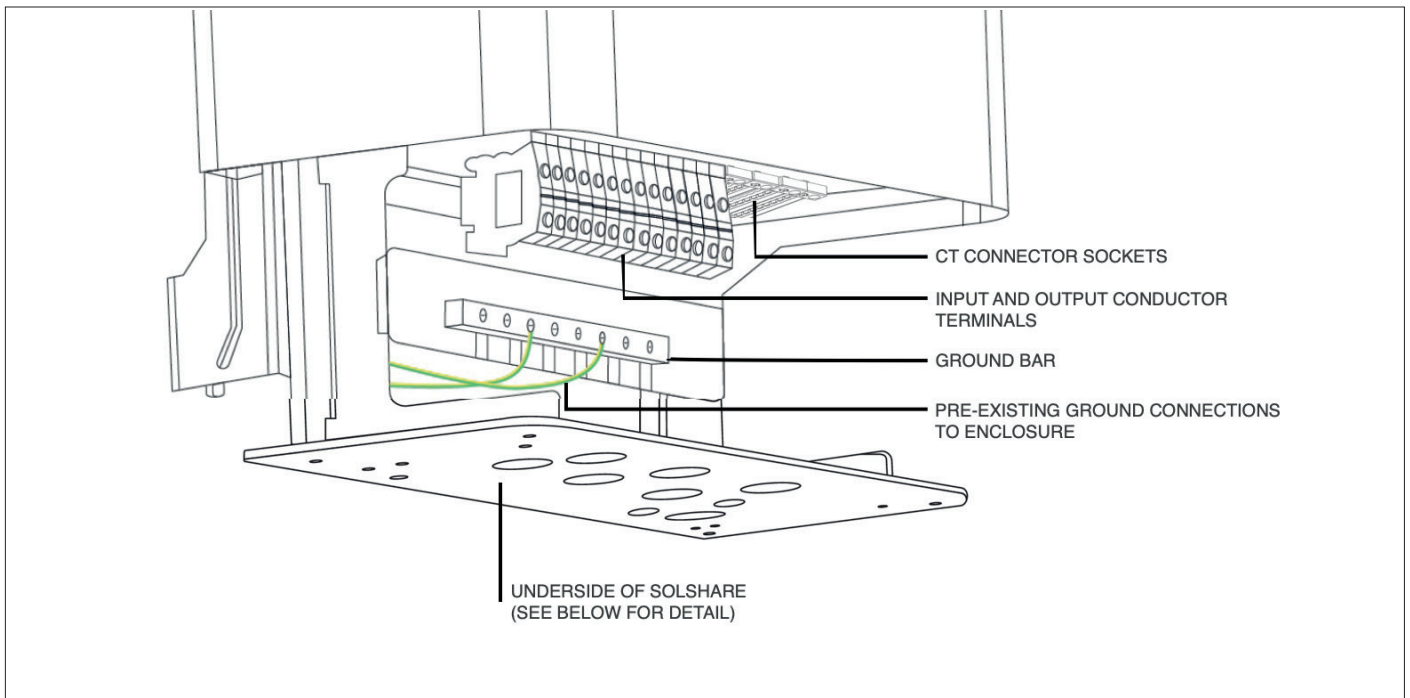


Important:

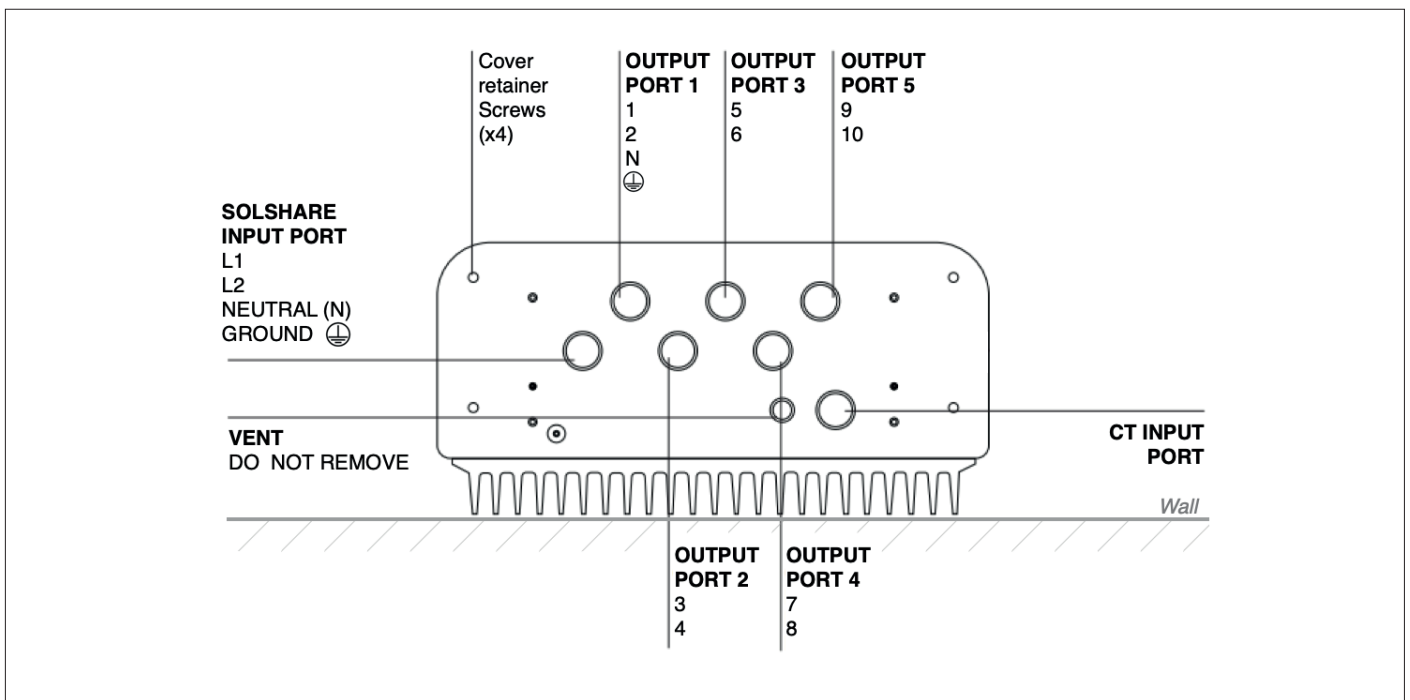
- The cover should lock into place when it's pulled up properly. Before beginning wiring, ensure cover is locked in place by pulling down firmly.
- To bring cover back to the *Closed Position*, lift cover upwards and away from you, then allow to slide down back into place.
- Ensure to retain the 4 cover retention screws for re-assembly at the end of installation.

4.3 Prepare the SolShare for Conduit and Electrical Connections (continued)

The primary SolShare install interfaces are as follows:

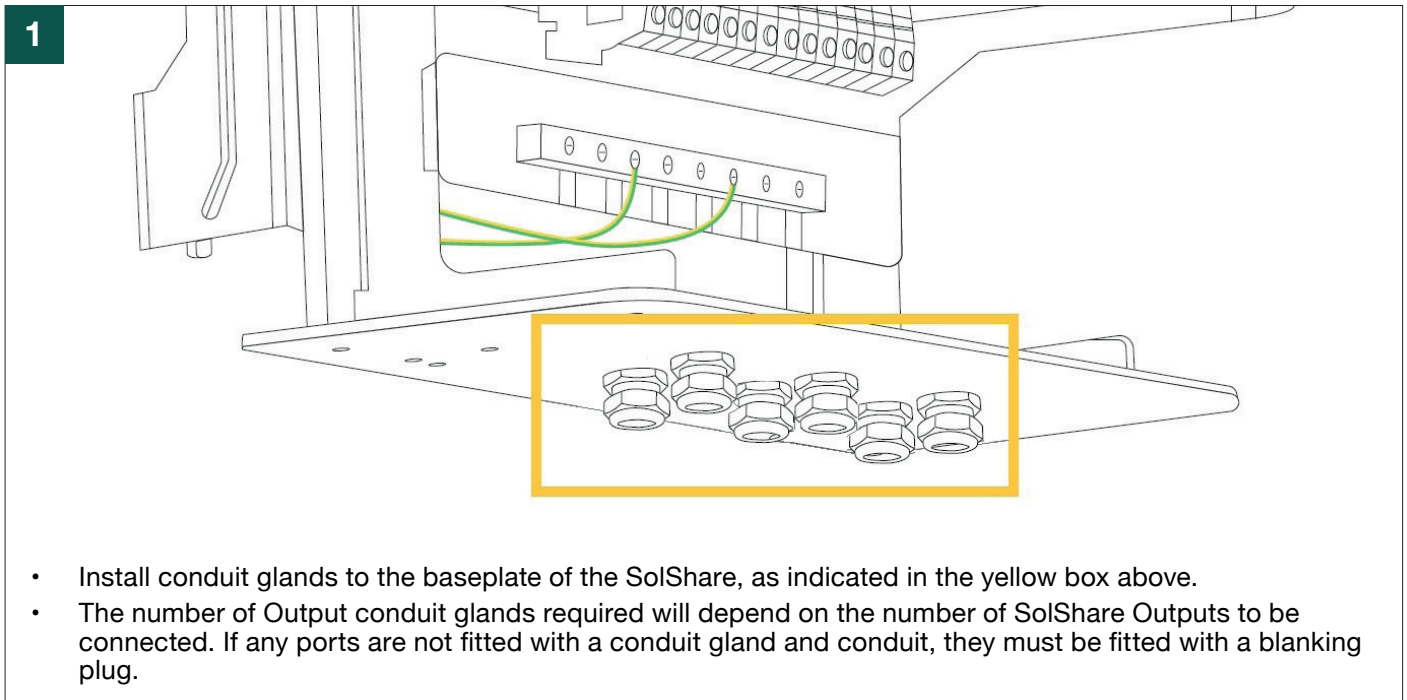


The image below shows the features on the underside of the SolShare, details of the SolShare Input and Output ports, and which port each wire is to be fed through.



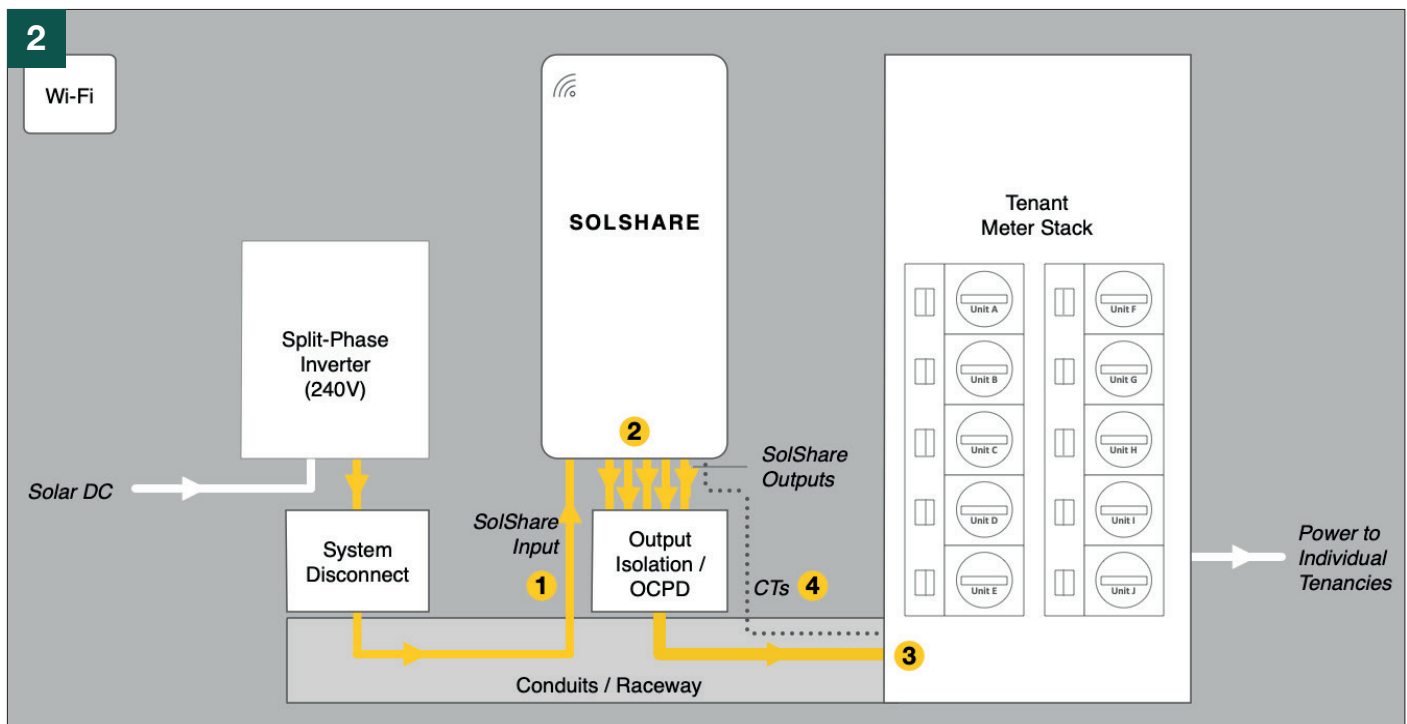
SolShare Output	⊕	N	1	2	3	4	5	6	7	8	9	10
SolShare Output Port		1	2		3		4		5			

4.4 Install Conduit and/or Raceway



Important:

Verify that all ports are fitted with a conduit gland or blanking plug, of the correct size and NTRL listing for rain tight or wet locations. Refer to *Appendix B* for requirements.



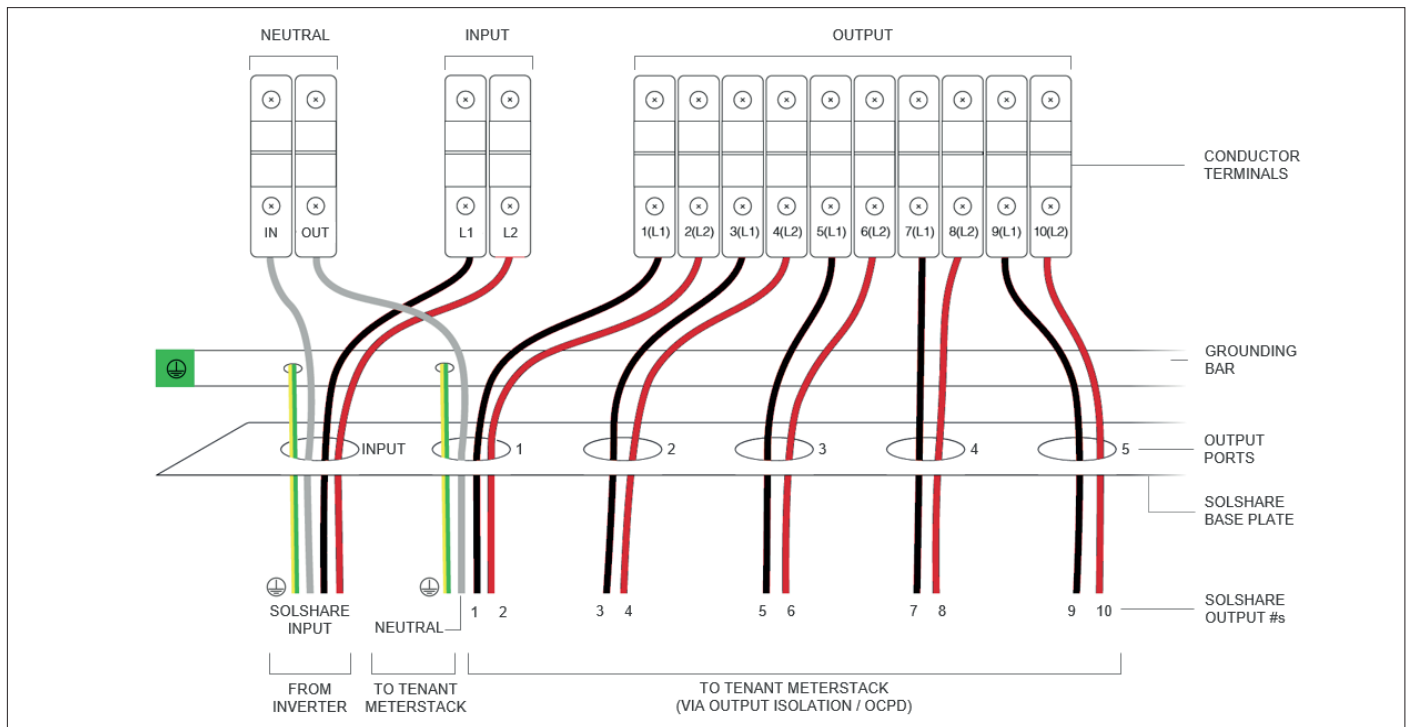
Run conductors and/or raceway between:

1. Inverter and System Disconnect, then to the SolShare Input port.
2. SolShare Output ports and Output Isolation/OCPD (overcurrent protection device(s)).
3. Output Isolation/OCPD and tenant meter stack.
4. Tenant meter stack and SolShare CT Input port.

4.5 Wire-Up the SolShare

4.5.1 Layout and Connection Overview

The following sections step through conductor layout and termination within the SolShare. The number of connected Outputs and grounding wires will vary depending on the number of tenants being connected and your system design.



Important:

At a minimum:

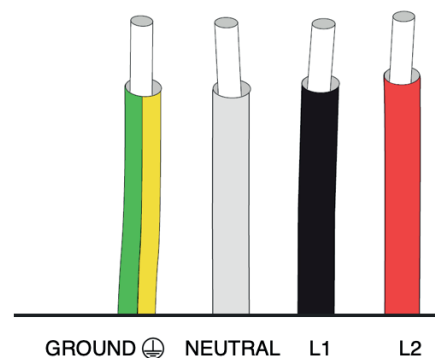
- SolShare Outputs 1 and 2 must be connected to a tenant meter(s).
- Grounding wires for the Input and Output port 1 must be connected.

4.5.2 Measure and Cut the Correct Type and Number of Conductors



Warning:

- No wiring loops of excess conductor length are allowed to be made. Field wiring of all circuits must maintain 1/4" separation from all other circuits.
- All electrical connections including sensor circuits, made between the SolShare and an electrical distribution panel shall be run through conduit or another code compliant raceway.
- Through normal operation, the SolShare may direct all available solar energy to any one tenancy. As a result, all Input and Output conductors must be the same gauge, and sized according to the maximum continuous output current of the inverter(s) and any applicable conductor calculations.



Unless otherwise stated, the above colors are used to indicate wire types within this manual.

4.5.2 Measure and Cut the Correct Type and Number of Conductors (continued)



Important:

Conductor Selection

Careful consideration for the specific system design must be made when selecting conductors. Refer to your system design to ensure correct selection.

SolShare Input and Output Conductors

- All SolShare Input and Output conductors must be the same gauge, and sized according to the maximum continuous output current per the inverter(s) and any applicable conductor calculations.
- It is recommended to:
 - Use different colored conductors for each phase (e.g. black for L1 and red for L2).
 - Label both ends of the conductors with the SolShare Output name and the name of the tenancy meter it is to be connected to.
 - For maintenance and troubleshooting purposes, it is recommended to write the name of the tenant meter corresponding to each SolShare Output on the baseplate of the SolShare (with permanent marker).
- Verify all termination positions are correct (e.g. the SolShare Output is connected to the correct tenant meter/tenant feeder conductor).
- L1 must connect to L1 and L2 must connect to L2. Ensure the two phases, L1 and L2, never come in contact with each other.
- Refer to *Appendix C* for Conductor Terminal Connection Options.

Grounding

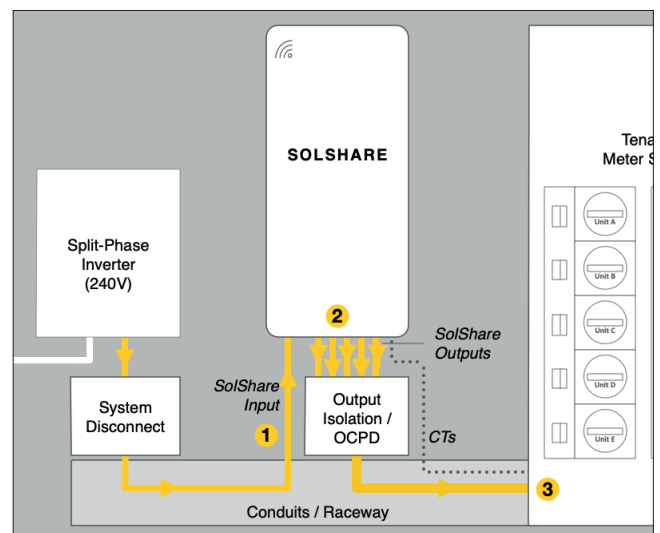
- Grounding wires are to be sized according to the system design.
- Two ground terminations are required as a minimum within the SolShare (see next page).
- Refer to *Appendix D* for Ground Bar Connection Options.

Indicative Wire Gauges for the SolShare

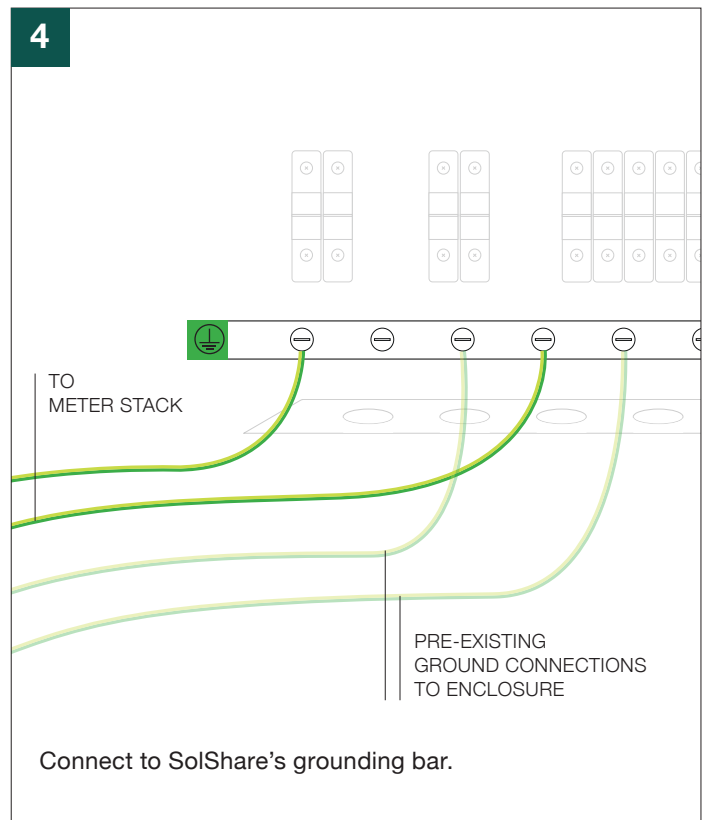
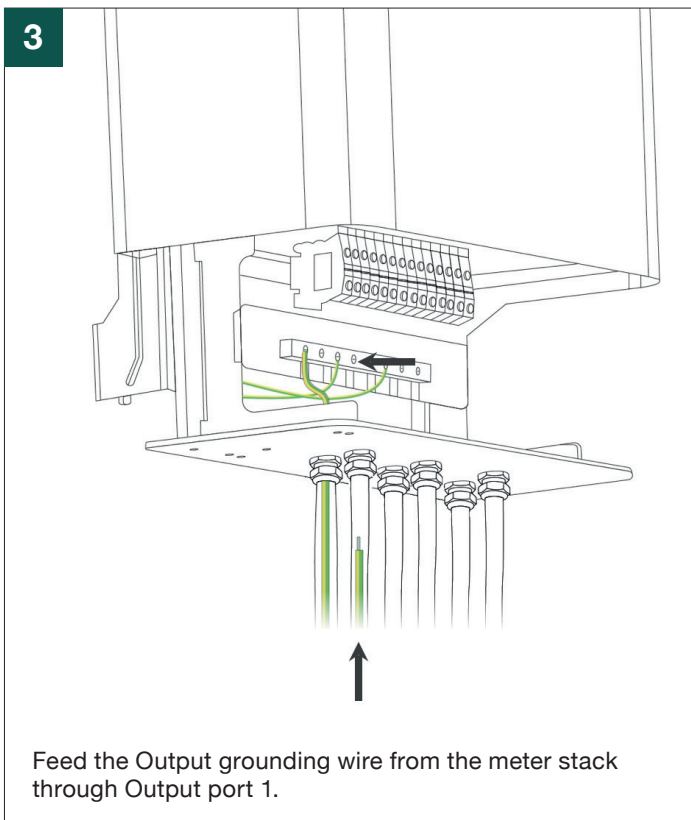
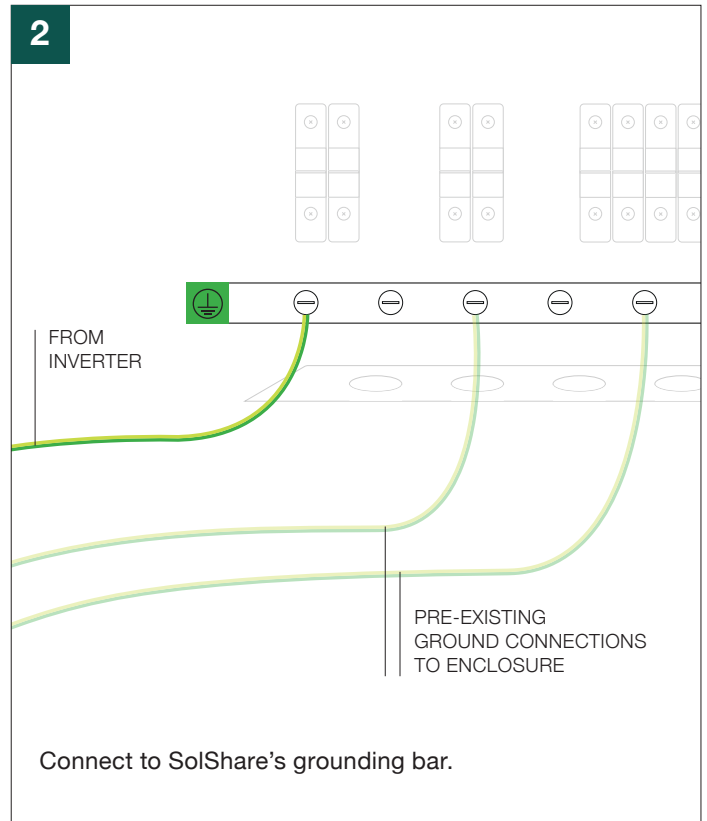
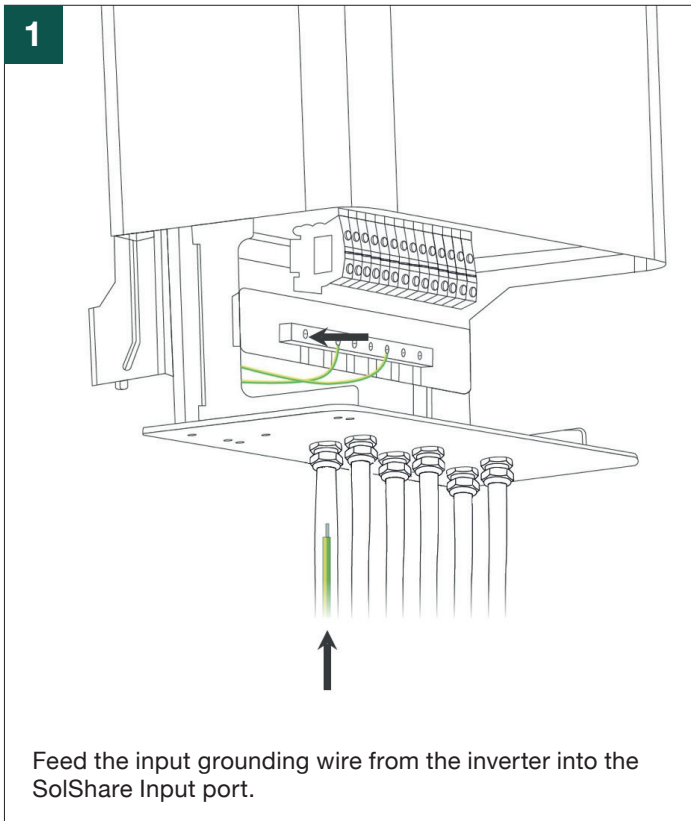
Wire Type	Indicative Size Range	Termination Connection	Additional Information
Inputs and Outputs	10 AWG - 4 AWG, 194 F Cu (6mm ² - 25mm ² , 90C Cu)	Refer to <i>Appendix C</i>	Stripping length: 0.5" Termination tightening torque: 30in-lbs (3.4Nm)
Grounding	10 AWG - 8 AWG, 194 F Cu (6mm ² - 25mm ² , 90C Cu)	Refer to <i>Appendix D</i>	Termination tightening torque: 10AWG: 35in-lbs (4.0Nm) 8 AWG: 40in-lbs (4.5Nm)

1. Measure and cut the SolShare Input wires that connect the Inverter, System Disconnect, and the SolShare.
2. Measure and cut the SolShare Output wires that connect the SolShare to the Output Isolation/OCPD.
3. Measure and cut the SolShare Output wires that connect the Output Isolation/OCPD to the tenant meter stack

Note: The ground and neutral outputs may run directly from the SolShare to the tenant meter stack.



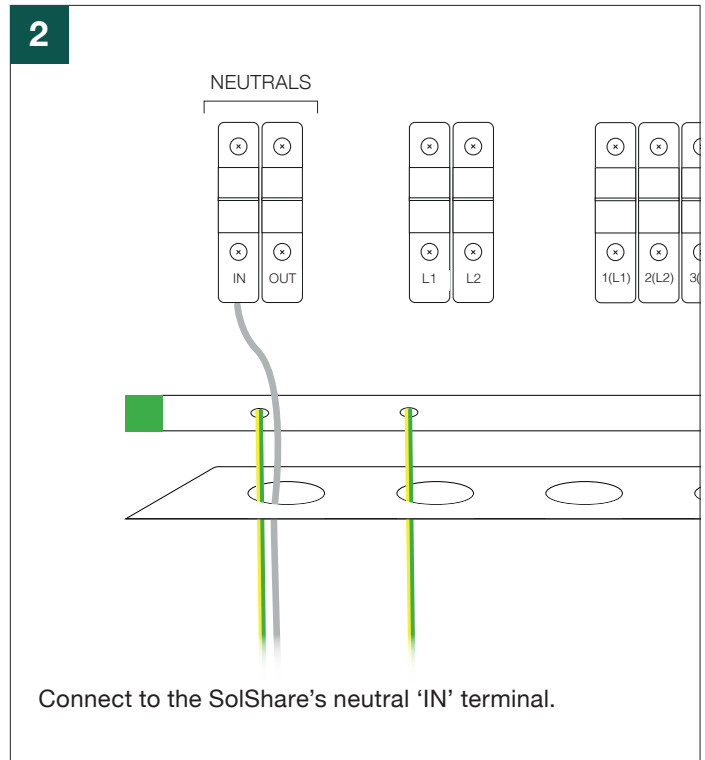
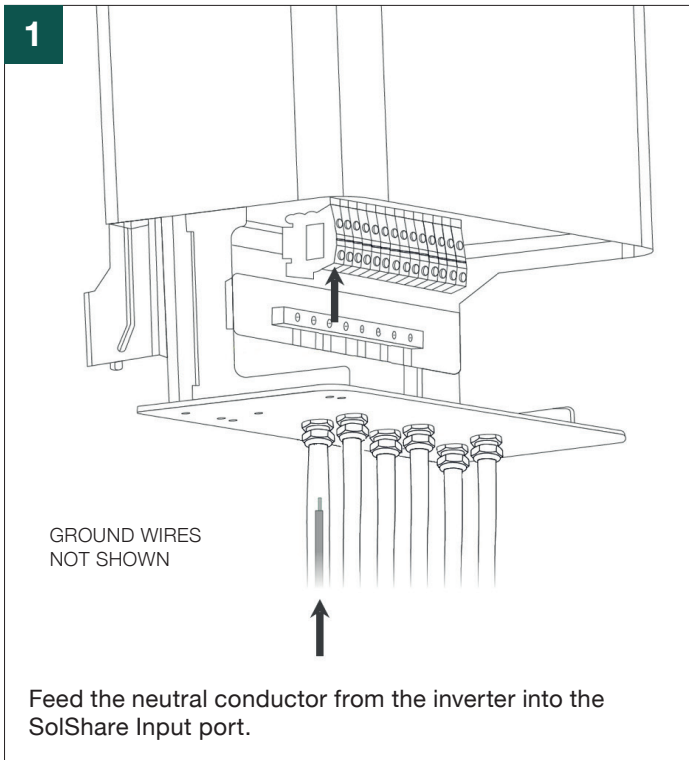
4.5.3 Connect the Grounding Wires



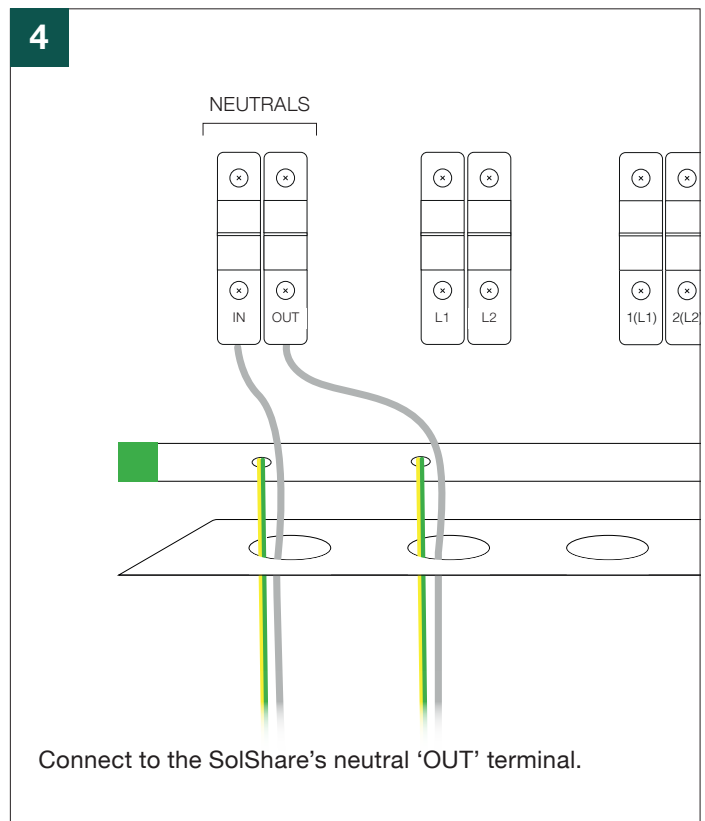
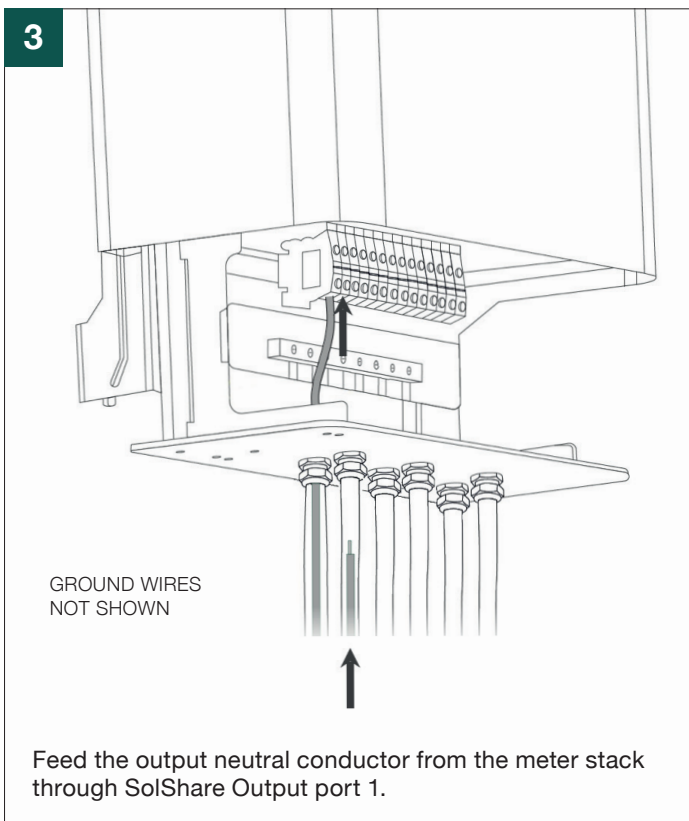
Important:

Though the SolShare only utilizes one ground connection from the meter stack, any conductive auxiliary raceway containing live conductors is required to be grounded.

4.5.4 Connect the Neutral Conductors



Warning:
All Input and Output conductors must be the same gauge.

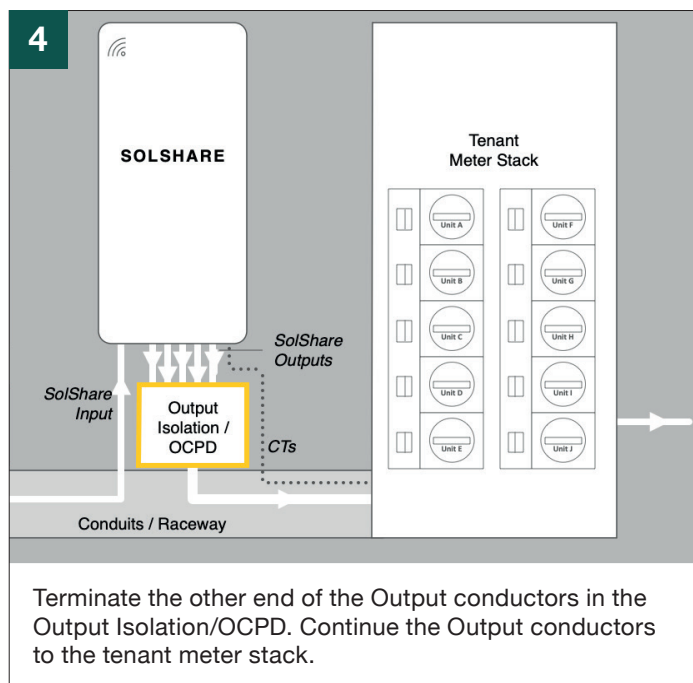
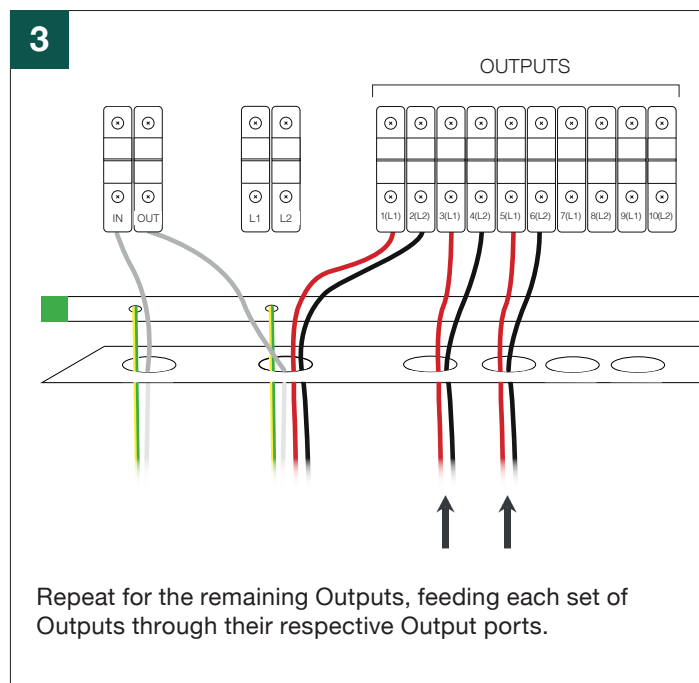
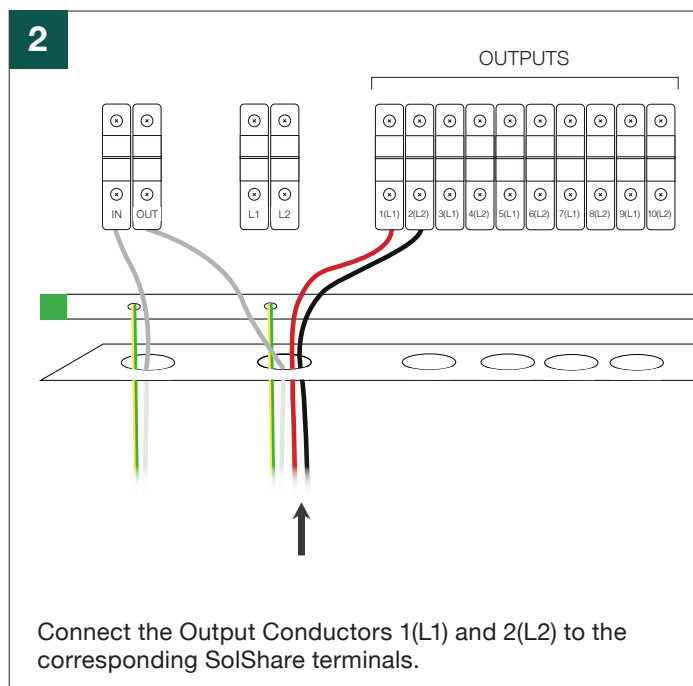
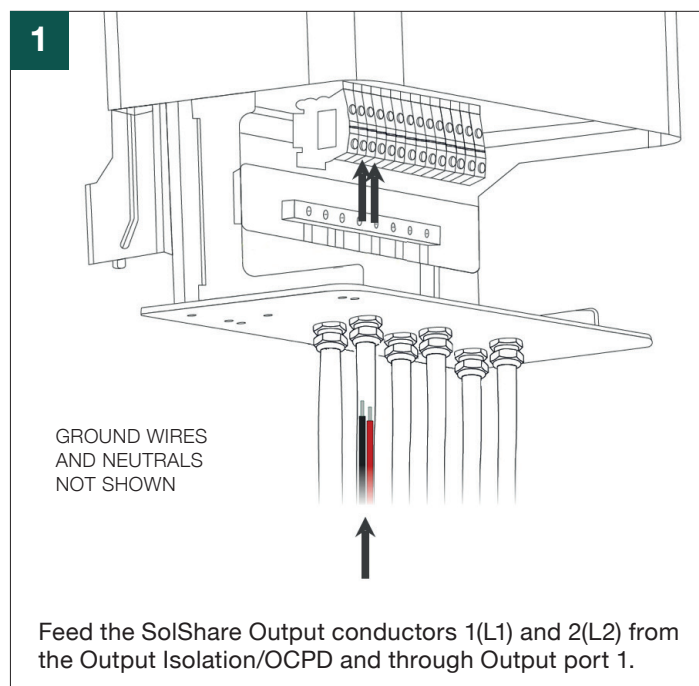


Warning:

- Only one neutral output should be wired from SolShare to meter stack.
- Neutral bonding to ground must take place only at the meter stack.

4.5.5 Connect the SolShare Output Conductors

It is recommended that the Commissioning Document is completed at this time. *Please refer to Appendix A for Commission Notes Document.*



Warning:

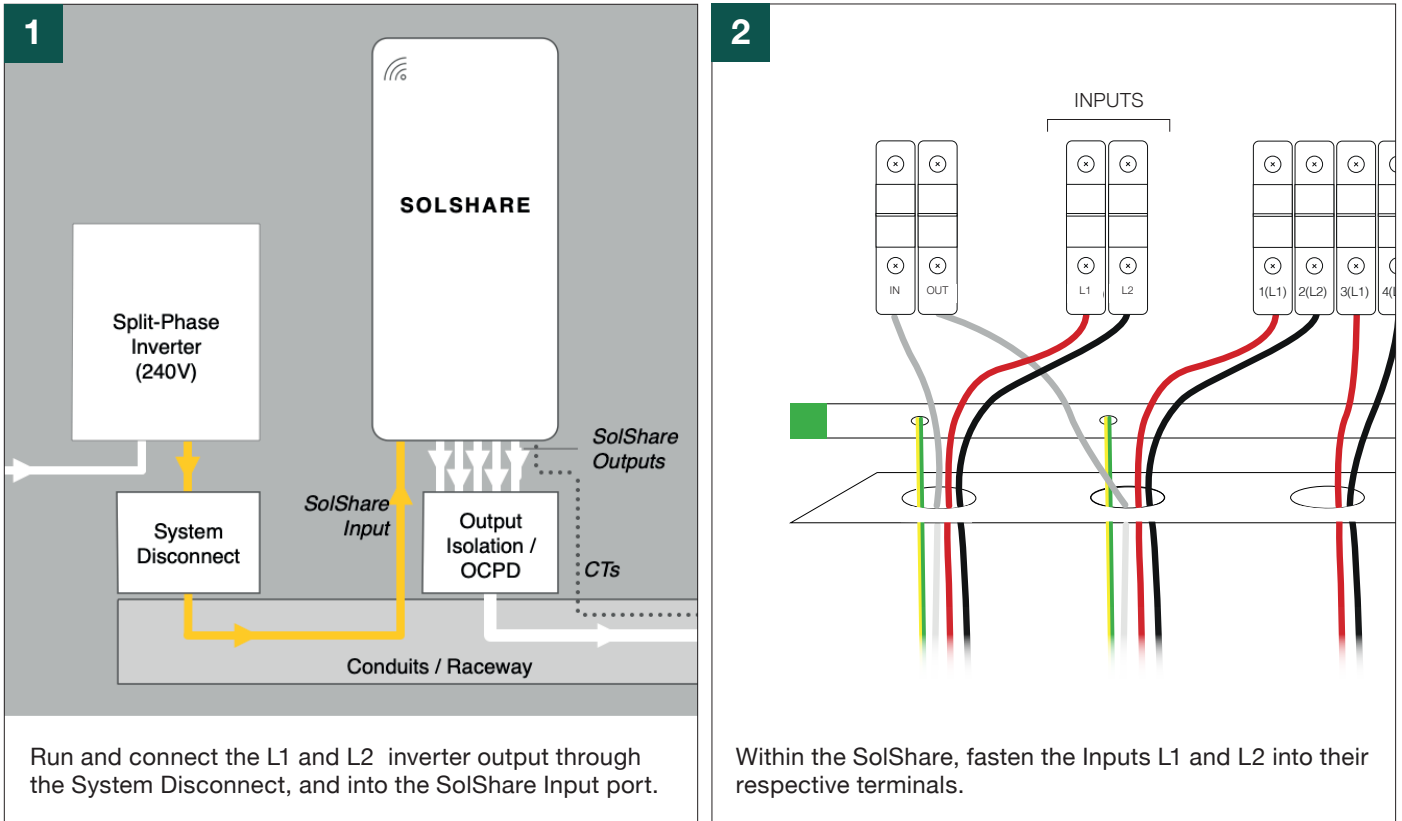
- Overcurrent protection and disconnection means is required for all SolShare Output conductors.
- L1 must connect to L1, and L2 must connect to L2. Ensure the two phases, L1 and L2, never come in contact with each other.



Important:

- Label both ends of each conductor with the SolShare Output number and the name of the tenancy meter it is to be connected to.
- Recommended: write the name of the tenant meter corresponding to each SolShare Output on the baseplate of the SolShare to provide future traceability.

4.5.6 Connect the SolShare Input Conductors (Inverter Output)



4.6 Connect the SolShare Outputs to the Tenant Load Center Feeder Conductors



Warning:

If apartments do not have a secondary 'main breaker' in their load center (see Appendix E) then an additional overcurrent protection device will need to be installed downstream of the point of the solar energy system's interconnection. This can be achieved by the addition of an overcurrent protection device between the solar tap and the tenant load center, or by the addition of a secondary main breaker within the tenant load center.

4.6.1 Connecting Ground and Neutral to the Tenant Meter Stack

Terminate the SolShare output ground and neutral conductors at the tenant meter stack.



Warning: Ground

- One ground termination from the SolShare to the tenant meter stack is required as a minimum, however:
 - **IF** conductive conduit/raceway is used to carry live conductors (e.g. a SolShare Output) then each conductive conduit/raceway shall be grounded.

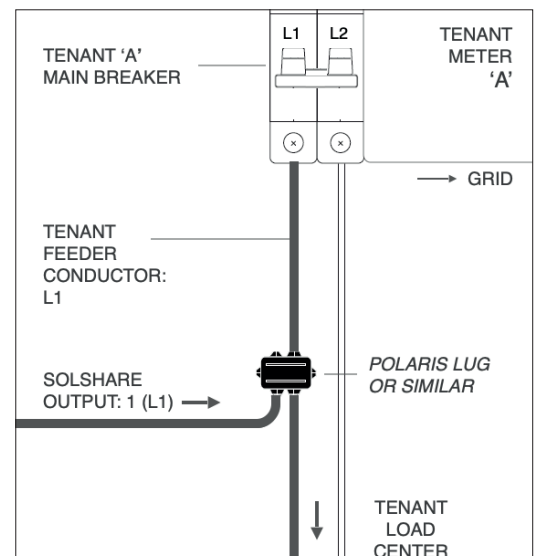
Neutral

- Only one neutral output per SolShare is to be connected to the meter stack.
- The neutral for the SolShare must be wired directly to the main neutral bar within the meter stack, if able to do so.
- The neutral shall not be connected to an individual tenancy's neutral, unless it is the only option.

4.6.2 Connect the SolShare Outputs to the Tenant Feeder Conductors

The SolShare Outputs are typically connected to a tenant meter as load-side taps on the tenant's feeder conductors.

1. Identify the SolShare Output and the tenant meter it is to connect to. Check against your system diagram. (This is where labelling both ends of the conductors with the SolShare Output and tenancy meter name at the beginning helps).
2. Select the tenant feeder conductor that matches the phase of the SolShare Output being connected. For example, SolShare Output 1(L1) must connect to the L1 tenant feeder conductor.
3. Apply the tap to the tenant feeder conductor between the tenant main breaker and the tenant load center.
4. Update the Commissioning Notes (*Appendix A*).
5. Repeat for all SolShare Outputs.



E.g. Tenant Meter A - 120V for Output 1(L1)



Important:

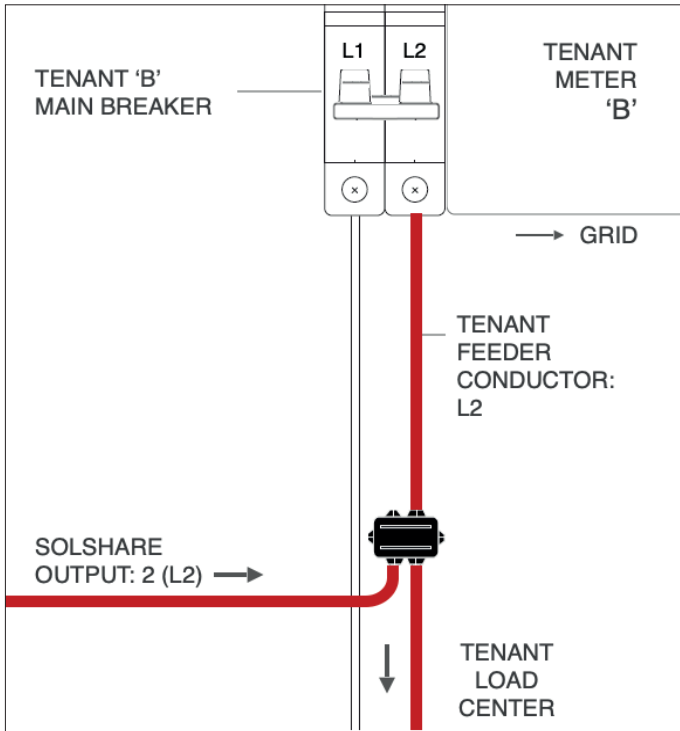
The '(L1)' or '(L2)' in the SolShare Output name determines which tenant feeder conductor phase the SolShare Output must be connected to.

4.6.2 Connect the SolShare Outputs to the Tenant Feeder Conductors (continued)

The SolShare Outputs can be connected to a tenant meter in a 120V or 240V configuration. The configuration for each tenant will depend on your system design.

120V Tenant Meter Connection

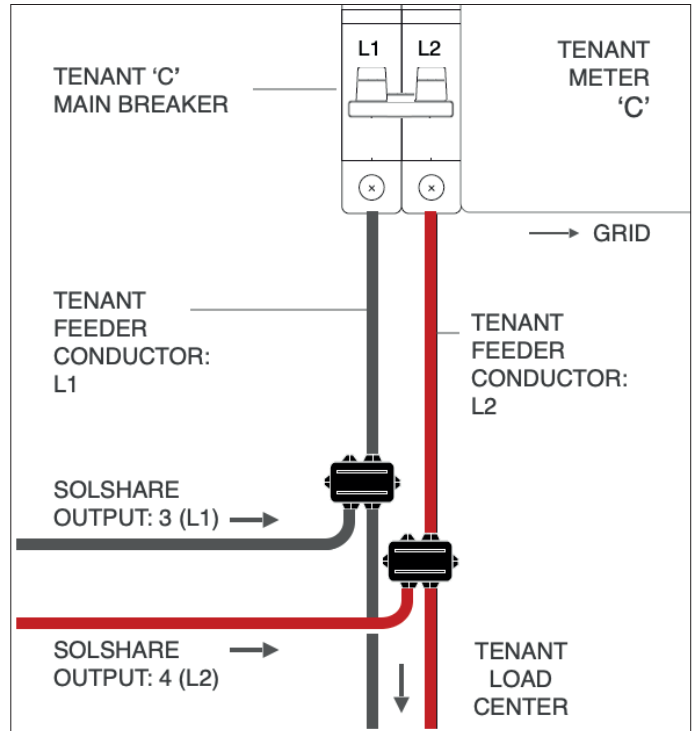
For a 120V connection, a single SolShare Output is connected to a single tenant meter. Note: Ensure the SolShare Output is connected to the correct tenant feeder conductor (this will alternate between L1 or L2 depending on the phase of the SolShare Output). Refer to the Tenant Meter A and Tenant Meter B example images.



E.g. Tenant Meter B - 120V for Output 2(L2)

240V Tenant Meter Connection

For a 240V connection, a pair of SolShare Outputs are connected to a single tenant meter.



E.g. Tenant Meter C - 240V for Outputs 3(L1) and 4(L2)



Caution:

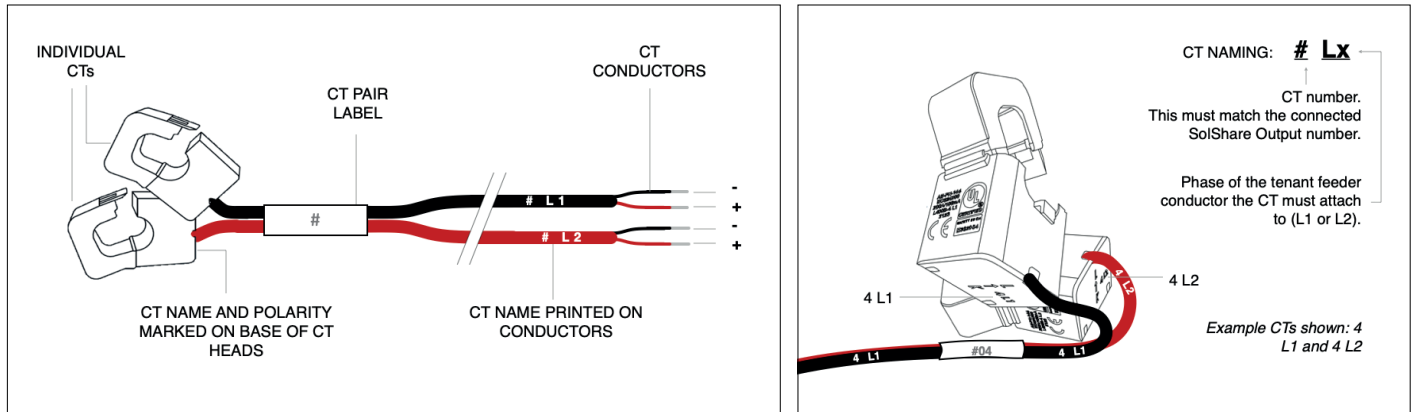
The SolShare Outputs connected in a 240V configuration must be paired according to the table below.

Solshare Output	1 (L1)	2 (L2)	3 (L1)	4 (L2)	5 (L1)	6 (L2)	7 (L1)	8 (L2)	9 (L1)	10 (L2)
240V configuration	240V PAIR		240V PAIR		240V PAIR		240V PAIR		240V PAIR	

4.7 Install the Current Transformers (CTs)

Proper installation of the CTs on the tenant feeder conductors ensures the correct delivery of solar to each tenant, and is required for successful commissioning.

The CTs are pre-labelled with the CT number (#) and tenant feeder conductor phase the CT must be connected to ('L1' or 'L2'):

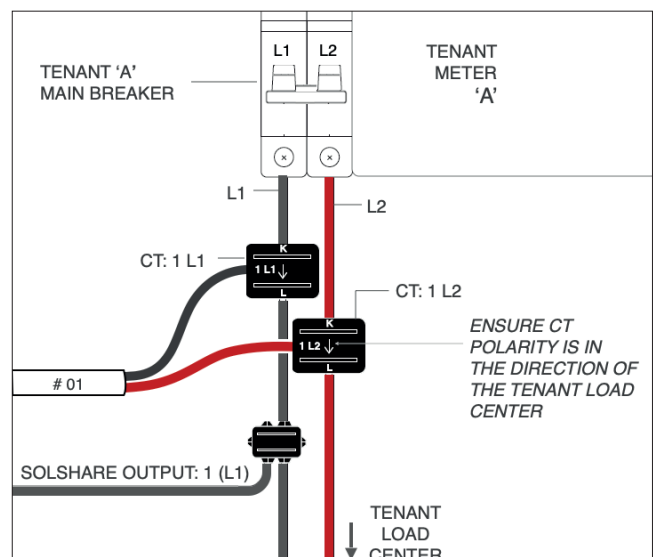


Important:

- Two CTs are required for each connected tenant meter, irrespective of whether one (120V) or two (240V) SolShare Outputs are connect to the tenant.
- The CT number must match the SolShare Output number connected to the tenant meter.
- The 'L1' CT must be connected to the 'L1' tenant feeder. The 'L2' CT must be connect to the 'L2' tenant feeder.

4.7.1 Clip the CTs to the Tenant Feeder Conductors

1. Select the two CTs that match the SolShare output number(s) connected to the tenant meter.
2. Select the 'L1' CT and position it around the 'L1' tenant feeder conductors, between the main breaker and the SolShare tap.
3. Confirm the CT head is oriented correctly by ensuring the arrow on the base of the CT head matches the current flow direction to the tenant load center.
4. Clip the CT head around the tenant feeder conductor.
5. Repeat for the 'L2' CT and the 'L2' tenant feeder conductor.
6. Repeat the process for all tenant meters connected to the SolShare.



E.g. Tenant Meter A - 120V for SolShare Output 1(L1)

4.7.1 Clip the CTs to the Tenant Feeder Conductors (continued)

Select the Correct CTs for 120V configuration

Refer to *Appendix F* for the 120V CT Installation Reference Diagram.

SolShare Output Connected to Tenant	1 (L1)		2 (L2)		3 (L1)		4 (L2)		5 (L1)	
CT #s to Connect to Tenant	1 L1	1 L2	2 L1	2 L2	3 L1	3 L2	4 L1	4 L2	5 L1	5 L2

SolShare Output Connected to Tenant	6 (L2)		7 (L1)		8 (L2)		9 (L1)		10 (L2)	
CT #s to Connect to Tenant	6 L1	6 L2	7 L1	7 L2	8 L1	8 L2	9 L1	9 L2	10 L1	10 L2

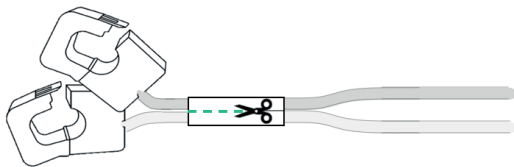
Select the Correct CTs for 240V configuration

Refer to *Appendix G* for the 240V CT Installation Reference Diagram.

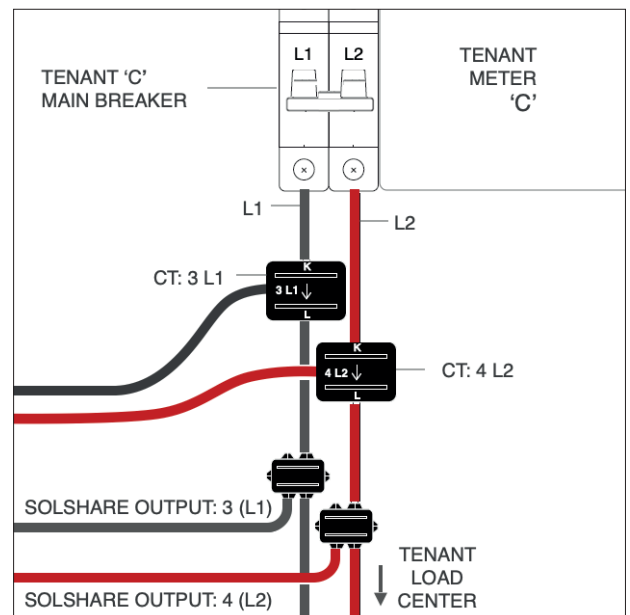
SolShare Output Connected to Tenant	1 (L1)	2 (L2)	3 (L1)	4 (L2)	5 (L1)	6 (L2)	7 (L1)	8 (L2)	9 (L1)	10 (L2)
CT #s to Connect to Tenant	1 L1	2 L2	3 L1	4 L2	5 L1	6 L2	7 L1	8 L2	9 L1	10 L2

To select the individual CTs that match the connected SolShare output numbers and SolShare Output/tenant feeder conductor phases for the 240V configuration:

- Separate the selected CTs from their CT pairs by carefully removing the white 'CT pair label':



- The left over CTs from the pairs will not be needed (consider holding on to them as spares, or re-using them elsewhere).



E.g. Tenant Meter C - 240V for SolShare Outputs 3(L1) and 4(L2)

4.7.2 Run the CT Conductors to the SolShare

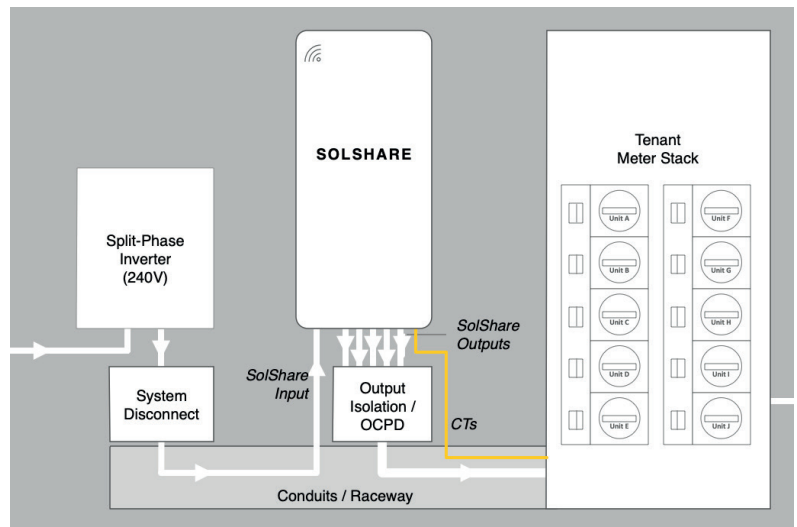
Feed the CT conductors from the tenant meter stack, through the CT conduit, and into the SolShare CT input port.



Important:

If you are extending CT conductors, this can be done for each CT separately up to the limits described in the advisory on the CT box. The following parts are recommended:

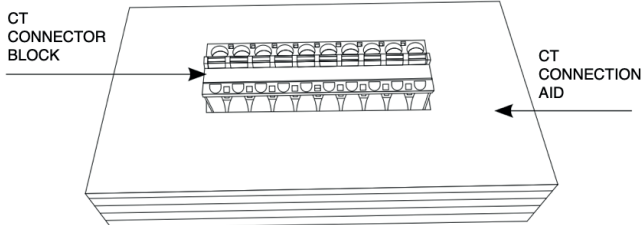
1. Butt splice connector (appropriate size for conductor).
2. Shielded, twisted pair cable, minimum 24 AWG size, rated for at least 400V or separately sheathed and compliant with any other relevant local codes and standards.



4.7.3 Terminate the Connected CTs in the SolShare

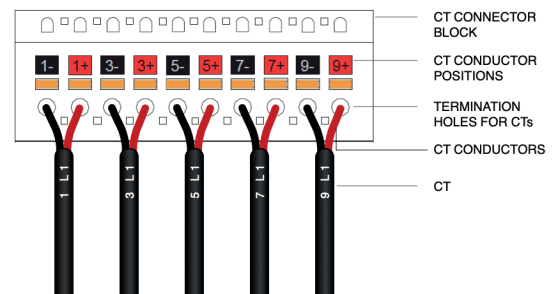
How to Terminate the CTs

1



- Insert a CT Connector block into the CT connection aid.
- Determine whether L1 or L2 are going to be terminated in the selected connector block.

2

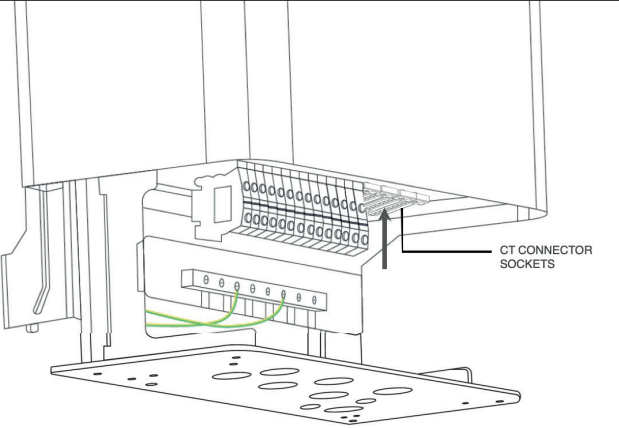


- Terminate the CT conductors according to the CT conductor labels:
 - Push the orange tab(s) in and hold.
 - Feed the CT conductor(s) into the correct terminal hole(s).
 - Release the orange tab(s).
 - Confirm each conductor is secure by giving it a gentle tug.
- Repeat for all CTs and all connector blocks.

4.7.3 Terminate the Connected CTs in the SolShare (continued)

How to Terminate the CTs

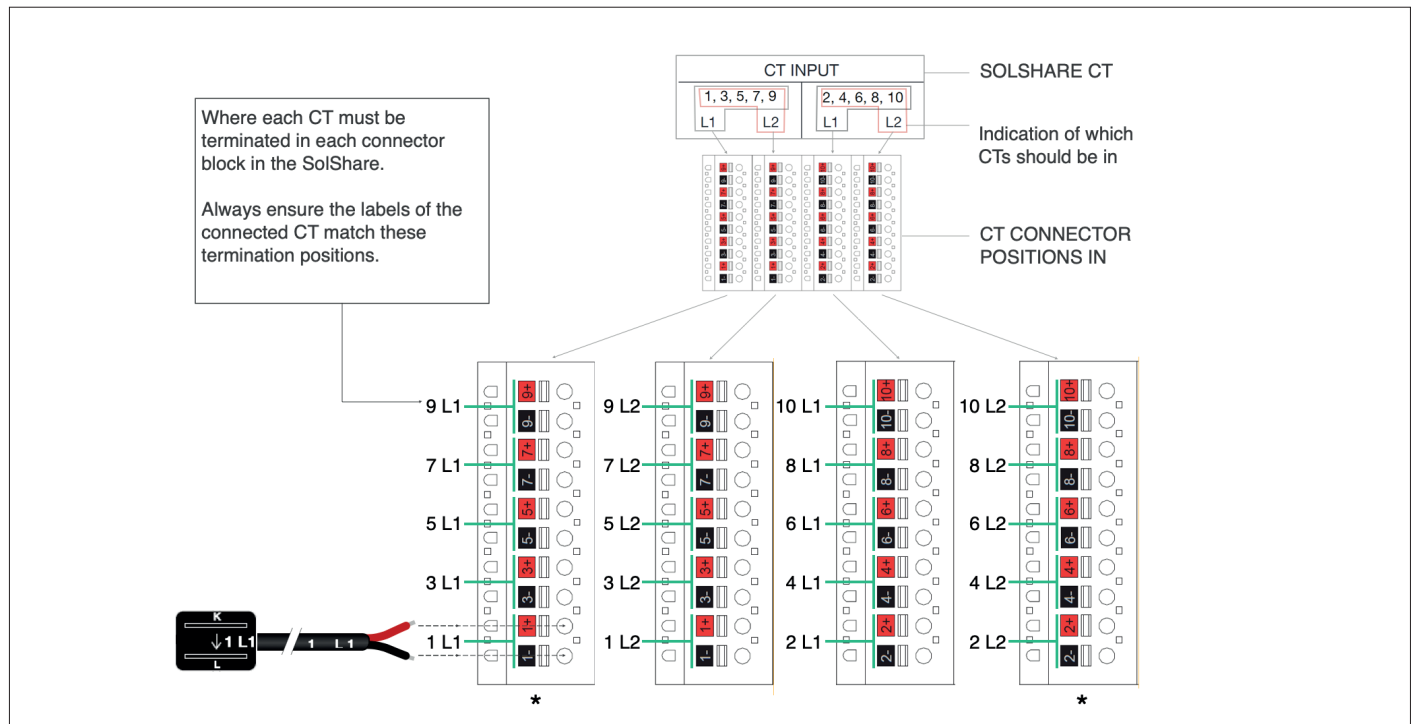
3



- Insert the connector blocks into the CT connector sockets within the SolShare, positioning them according to the 'CT input' label.
- Confirm only black CTs are terminated in the first (left) connector block, red CTs in the second, black in the third, red in the fourth.

Where to Terminate the CTs

The connected CTs must be terminated in the SolShare in the following positions to ensure proper operation and solar distribution.



Important:

- Each connector block must have only 'L1' or 'L2' CTs connected. Never both.
- If all tenants are connected in 240V configurations, only the first and last connector blocks (*) will have CTs.

5. Commissioning the SolShare

5.1 Preparing the SolShare for Commissioning



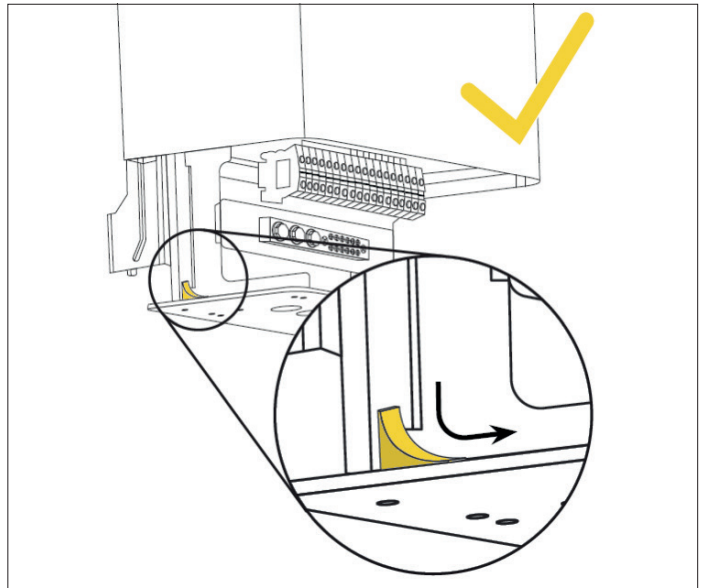
Warning:

When closing the cover of the SolShare, ensure the white seals are oriented correctly. This will ensure an appropriate seal for the Type 4 rating of the SolShare. See the graphics to the right showing correct orientation of the seals.



Important:

- Before commissioning, re-check all CTs and output conductors are connected as per their labels.
- Record connection information on commissioning notes page (*Appendix A*), you will need to enter this while commissioning the unit after the cover is closed.

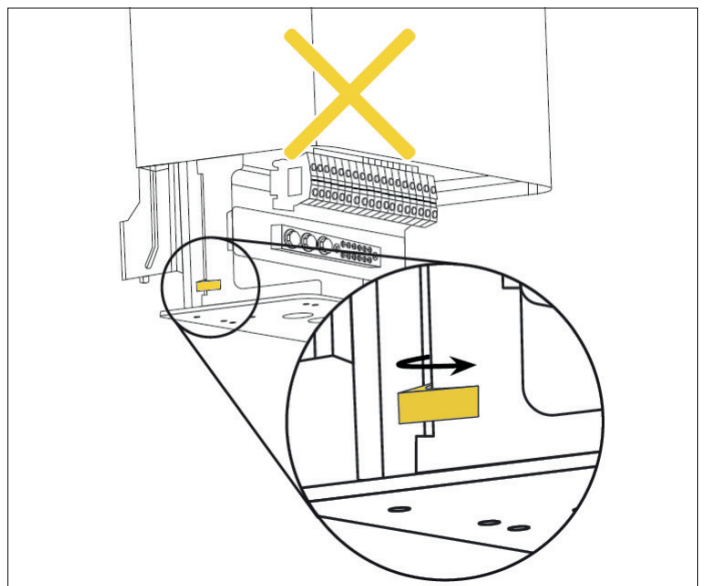


To power on the SolShare

1. Pull down cover of SolShare into the *Closed Position*, ensuring the seals are oriented correctly. Fasten shut by replacing the 4 screws on the underside of the SolShare, that were removed in section 4.3.

Maximum torque for cover fasteners is 13.3 in-lbs (1.5Nm)

2. Switch on the SolShare Output Isolation Device(s).
3. Switch on System Disconnect located between inverter(s) and SolShare.
4. Ensure tenant's main breakers are switched on.
5. Switch on inverter(s).



5.2 Connect the SolShare to Wi-Fi

1. Once the SolShare has a utility connection to 1(L1) and 2(L2), the device will be energized and a communication link to the Wi-Fi network will be produced by the SolShare for approximately 5 minutes.
2. Using a laptop or phone (your device), connect your device to the SolShare's Wi-Fi network (this will appear as SolShare: 2P_100_XXXX where XXXX is the last 4 digits of the SolShare serial number). You will have 30 minutes to complete the Wi-Fi connection process.
3. Open an internet browser on your device and enter **192.168.4.1** into the address bar.
4. Once the page loads in the browser, enter the SSID (Wi-Fi network name) and password of the Wi-Fi network that you want the SolShare to connect to.
5. The SolShare will attempt to connect to the Wi-Fi credentials provided. If you are having troubles with this process or need more detail, consult Appendix H *Connecting the SolShare to a Wi-Fi Network*.
6. Once a successful Wi-Fi connection has been made, reconnect your device to the internet in preparation for the commissioning steps.

For more information about which Wi-Fi network the SolShare is connected to, consult the commissioning app at <https://commissioning.allumeenergy.com/wifi-status>.

5.3. Commissioning the SolShare



Important:

Before attempting the step below, ensure that the SolShare is connected to a Wi-Fi network.

1. To commission the SolShare, scan the QR code on the right side of the SolShare or go to <https://commissioning.allumeenergy.com> to access the SolShare Commissioning App.
2. Follow the steps in the Commissioning App to commission each SolShare. The *Commissioning App Guide* provides more information on the commissioning process.



Important:

The SolShare requires a fully operational inverter to complete commissioning. During the SolShare commissioning process, you will be prompted to commission the inverter. Please make sure the inverter is ready to be commissioned prior to starting the SolShare commissioning process.

If you experience issues with the commissioning process contact Allume Technical Support:

US

Tel: (213) 347-4293

Email: support@allumeenergy.com

Appendix A: Commissioning Notes

To be completed during installation and data entered into Commissioning App

Installer name: Company:

Serial Number: 2P_100_

Installation Address:

State: Postal/Zipcode: Country:

SolShare Tenant Connections

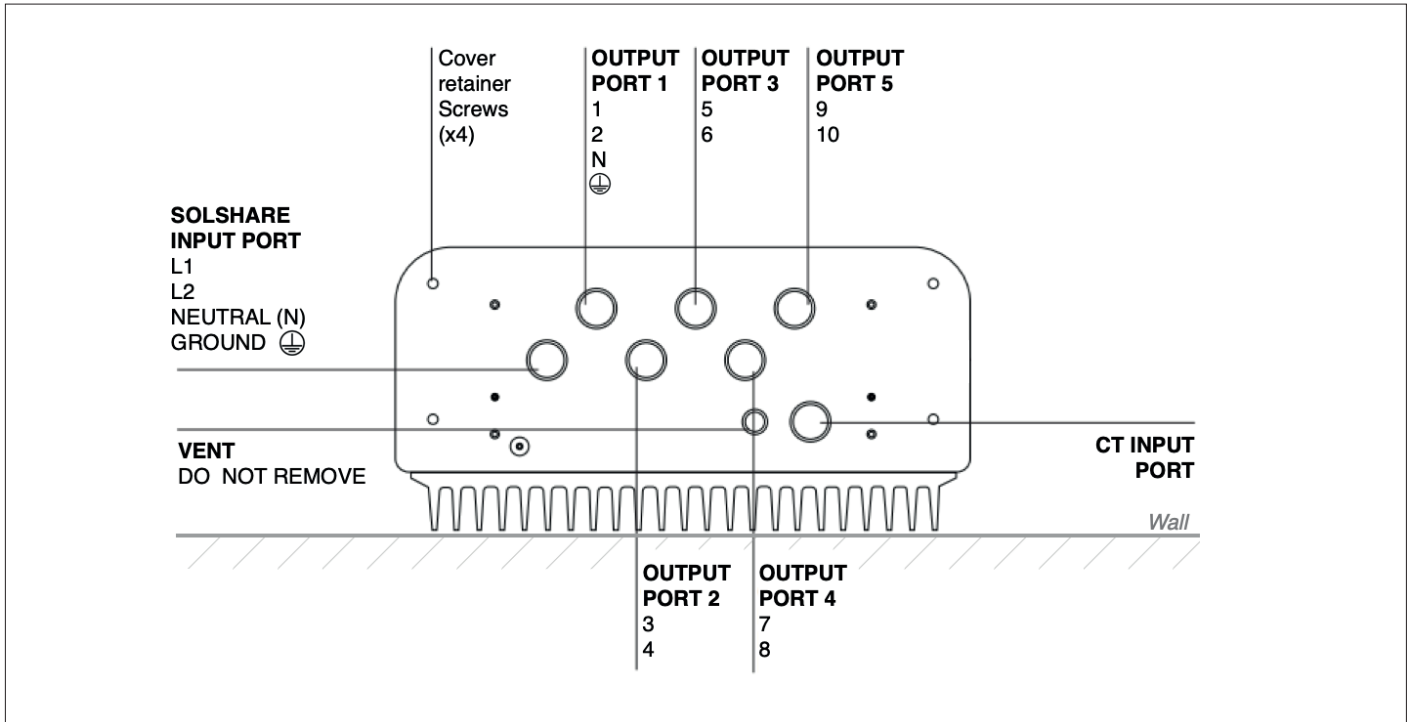
Record the name of the tenant connected to each SolShare Output, according to whether they are connected in a 120V or 240V configuration.

This information will be used to set up the SolShare in the Commissioning App and is important for the correct operation and management of the SolShare.

SolShare Output	Connected Tenant (e.g., Apartment 1, Unit B, Common Light & Power, No Connection)	
	120V Connection	240V Connection
1 (L1)
2 (L2)
3 (L1)
4 (L2)
5 (L1)
6 (L2)
7 (L1)
8 (L2)
9 (L1)
10 (L2)

Appendix B: Conduit Gland and Plug Selection Requirements

All Inputs and Output ports on the SolShare must be fitted with properly specified conduit glands and/or if the ports are not used, fitted with properly specified blanking plugs. Refer to the table below for the requirements of these components.



Parameter	Specification
SolShare base panel thickness	1/6"
Hole diameter (SolShare Input Port, Output Ports, CT Input Ports)	1.4" (suitable for 1" conduit)
Flammability rating, minimum	UL94HB
Temperature rating, minimum	194°F (90°C)
Enclosure rating, minimum	UL Category 4 - Liquid Tight

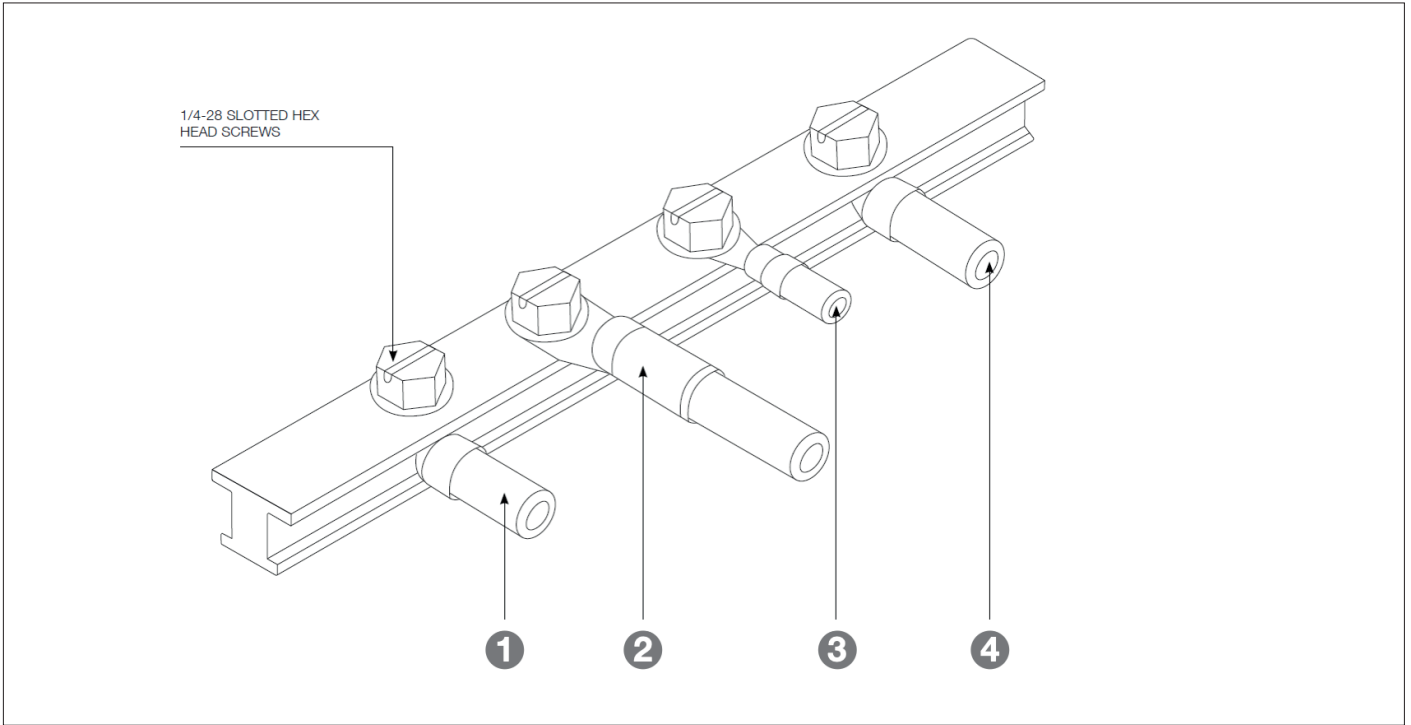
Appendix C: Conductor Terminal Connection Options

Options for terminating the conductors into the SolShare terminals are provided below. The conductors and connection method(s) must be selected based on your specific system design.

Connection Data	Imperial (US)	Metric
Tightening Torque	30 in-lbs	3.4Nm
Conductor Cross Section Stranded, Maximum	2 AWG	35mm ²
Conductor Cross Section Stranded with Ferrule/Lug, Maximum	2 AWG	35mm ²
Stripping Length	0.5"	14mm

Appendix D: Ground Bar Connection Options

Options for terminating the ground wires to the ground bar are provided below. The grounding wire gauge and connection method(s) must be selected based on your specific system design.



Ground Wire Connector Options

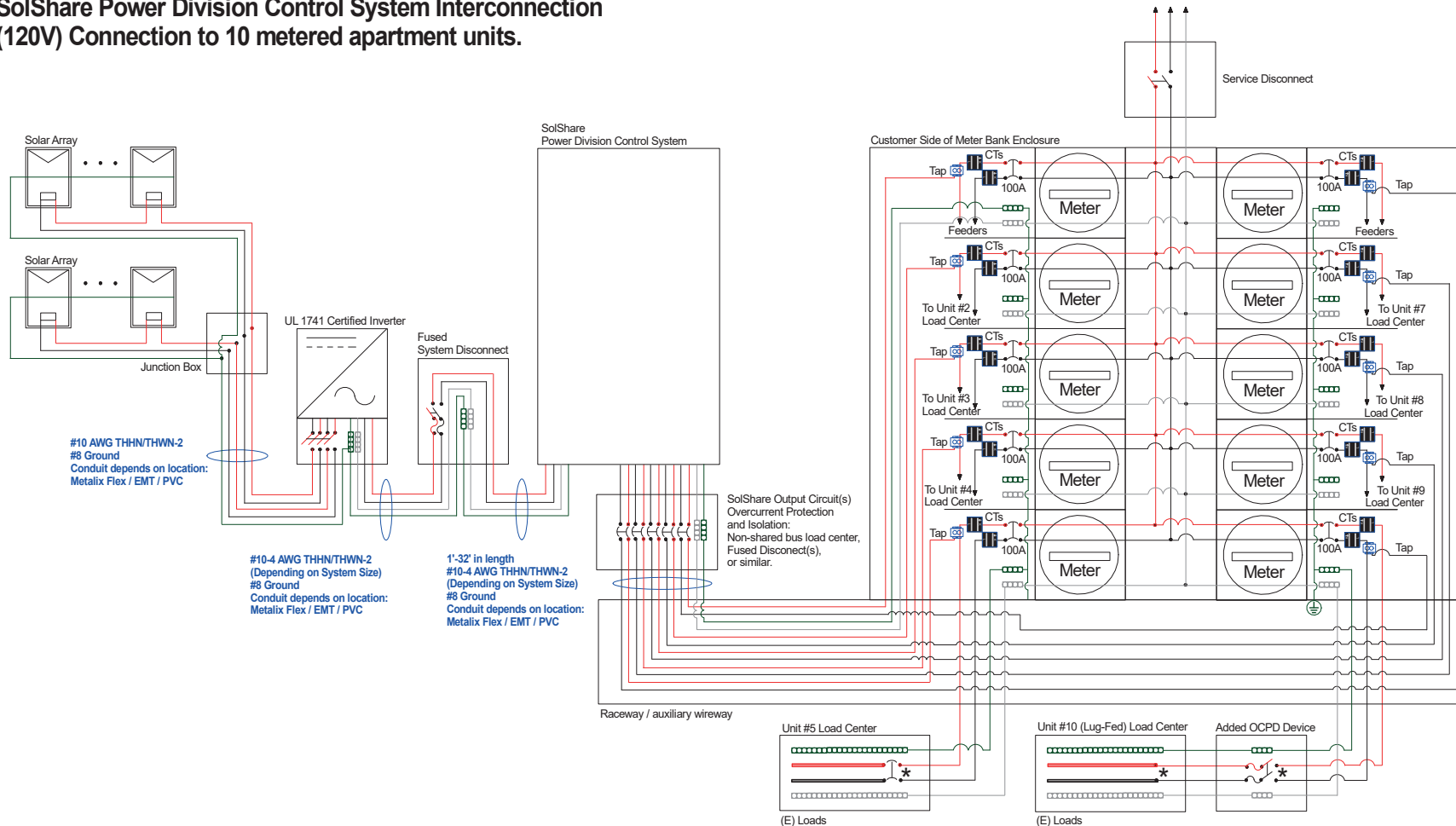
Ref	Ground Wire Connector Options	Suitable Wire Gauge(s)
1	Ferrules, Minimum Pin Depth of 12mm	#14 to #6 AWG
2	Compression Connectors, Maximum Width of 0.55"	Up to #4 AWG
3	Ring Terminals, 1/4" Stud Hole, Maximum Width of 0.5"	#22 to #4 AWG
4	Bare Stripped Copper Wire	#14 to #4 AWG

Grounding Bar Termination Tightening Torque

Wire Gauge	Tightening Torque, in-lbs (Nm)
14 AWG - 10 AWG	35 (4.0)
8 AWG	40 (4.5)
6 AWG - 4 AWG	50 (5.6)

Appendix E: Example SolShare System Interconnection Diagram (120V)

SolShare Power Division Control System Interconnection (120V) Connection to 10 metered apartment units.

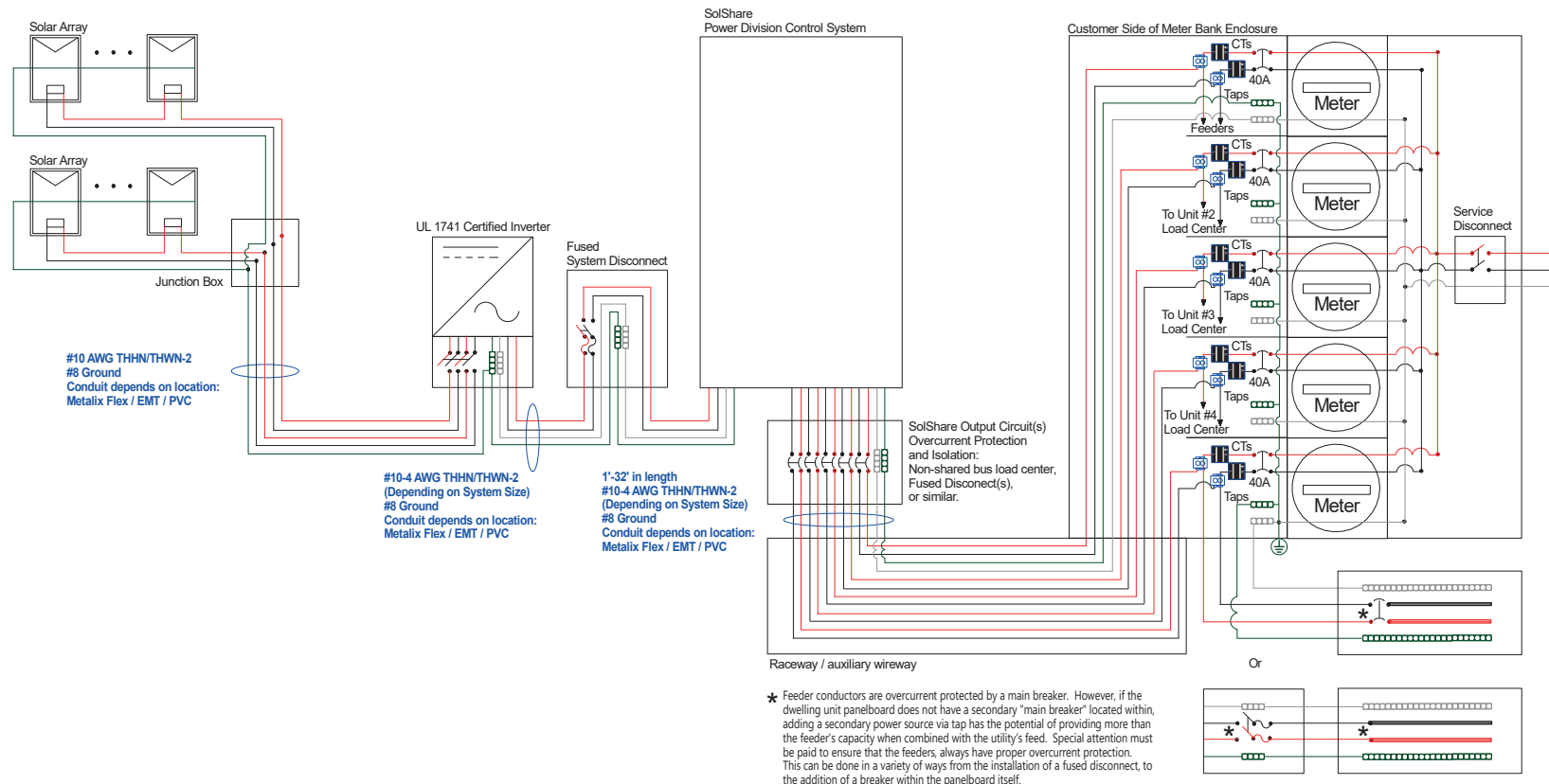


MULTI - LINE DIAGRAM

* Feeder conductors are overcurrent protected by a main breaker. However, if the dwelling unit panelboard does not have a secondary "main breaker" located within, adding a secondary power source via tap has the potential of providing more than the feeder's capacity when combined with the utility's feed. Special attention must be paid to ensure that the feeders, always have proper overcurrent protection. This can be done in a variety of ways from the installation of a fused disconnect, to the addition of a breaker within the panelboard itself.

Appendix F: Example SolShare System Interconnection Diagram (240V)

SolShare Power Division Control System Interconnection (240V) Connection to 5 metered apartment units.



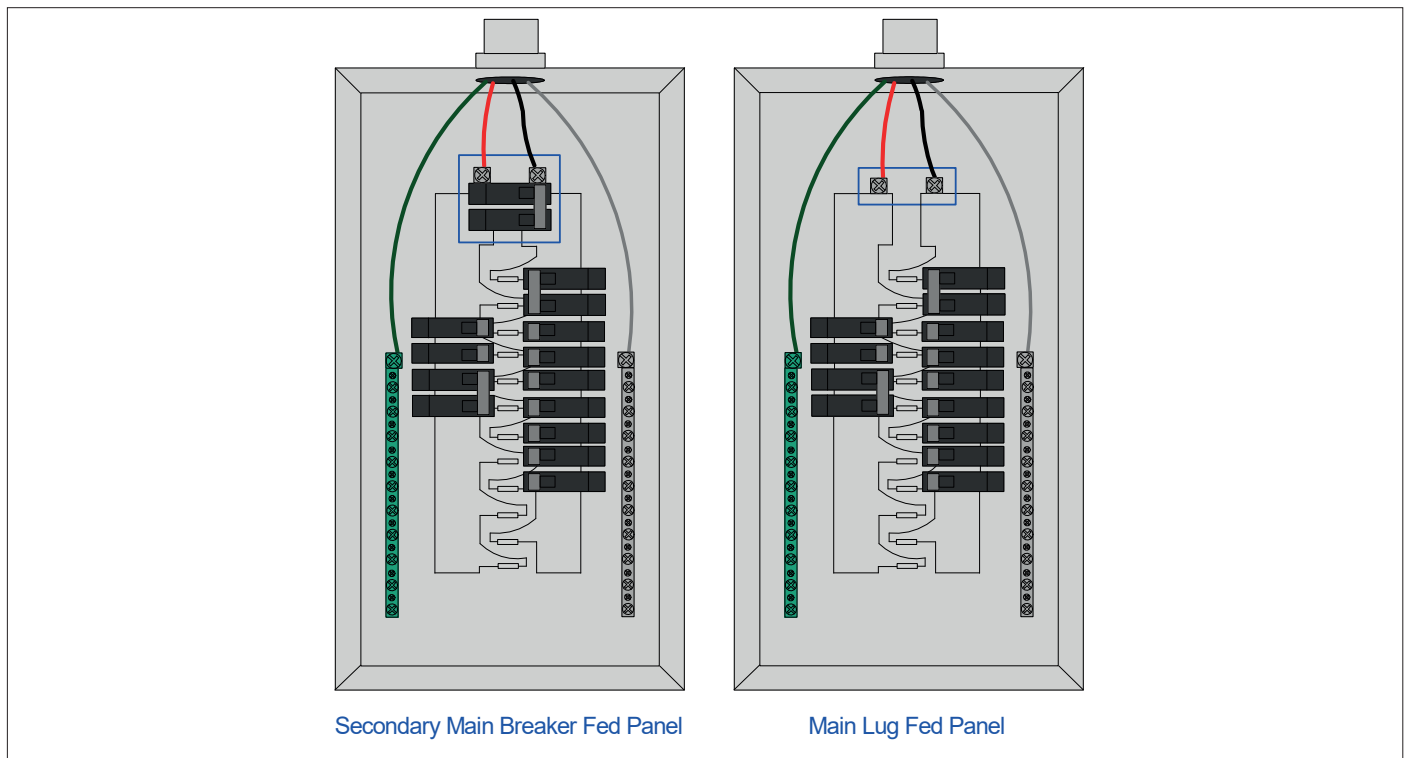
MULTI - LINE DIAGRAM

Appendix G: Lug Fed Dwelling Load Center Considerations

Lug Fed Dwelling Load Center

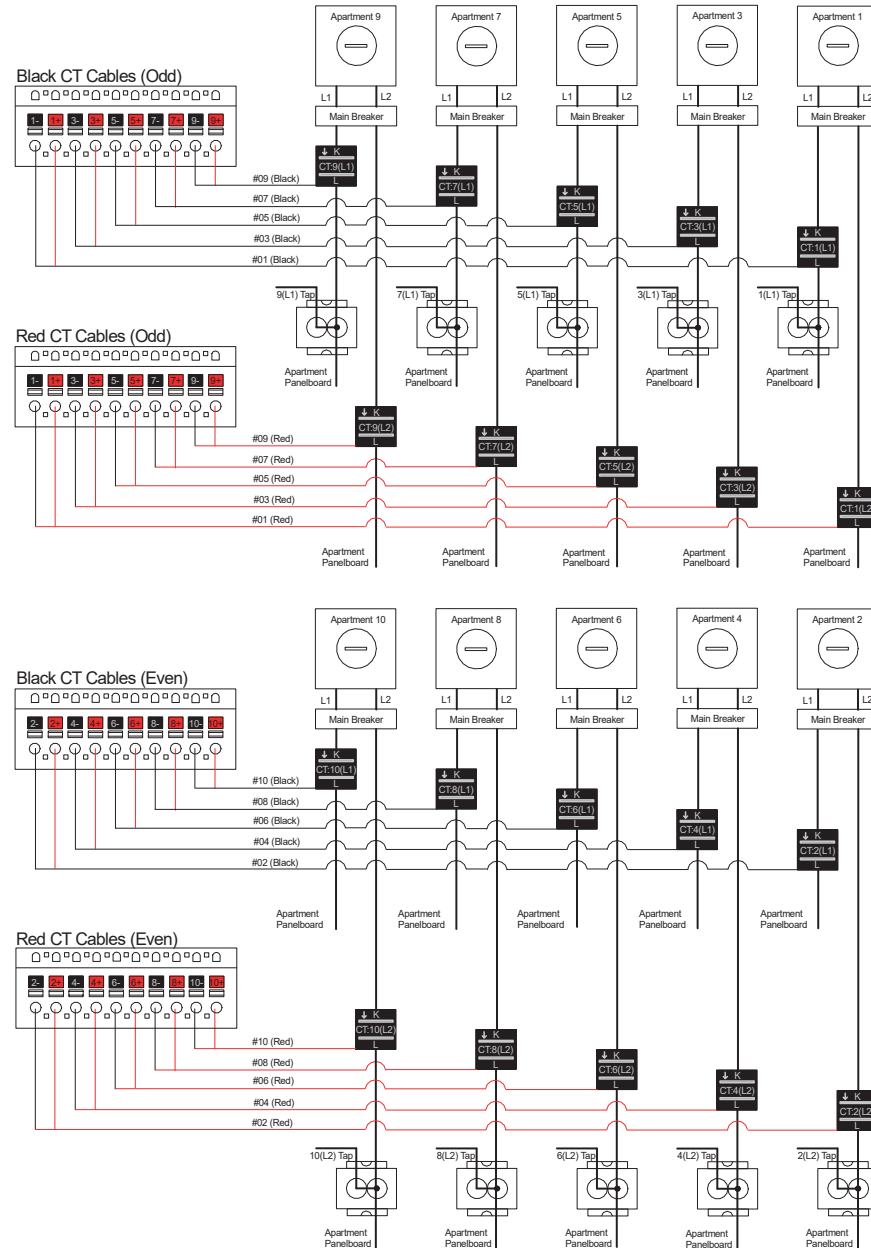
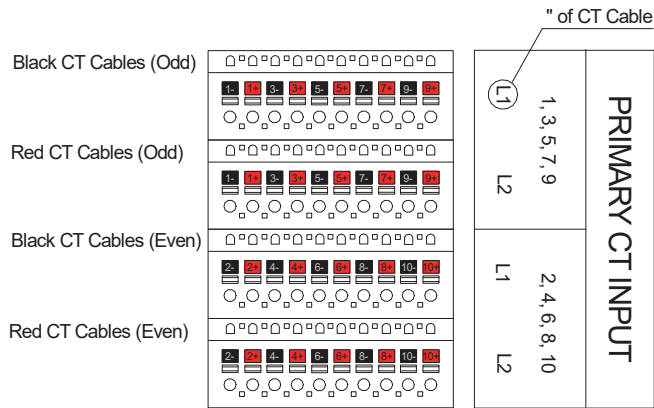
Feeder conductors are overcurrent protected by a main breaker. However, if the tenant's load center does not have a secondary "main breaker" located within, adding a secondary power source via tap has the potential of providing more than the feeder's capacity when combined with the utility's feed.

Special attention must be paid to ensure that the feeder conductors always have proper overcurrent protection. This can be done in a variety of ways from the installation of a fused disconnect, to the addition of a breaker within the tenant's load center itself. The diagrams below show an example of both a "Secondary Main Breaker Fed Panel" and a "Main Lug Fed Panel". Note that the right diagram shows no overcurrent protection for the incoming combined power sources.

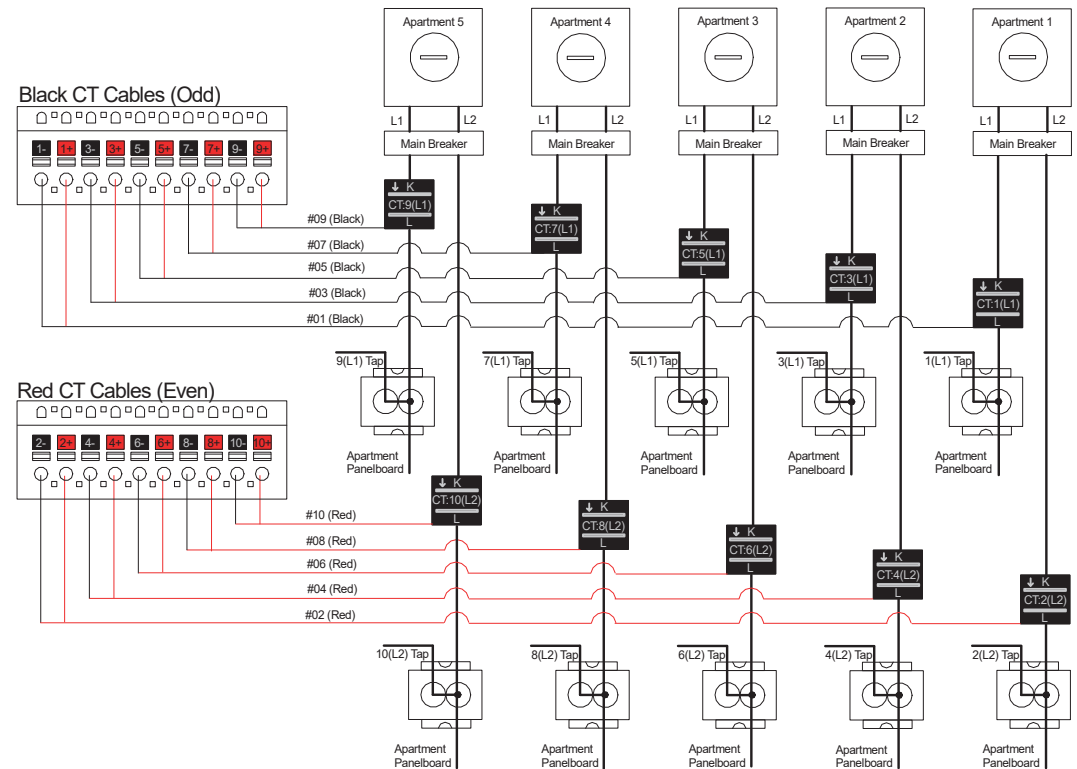
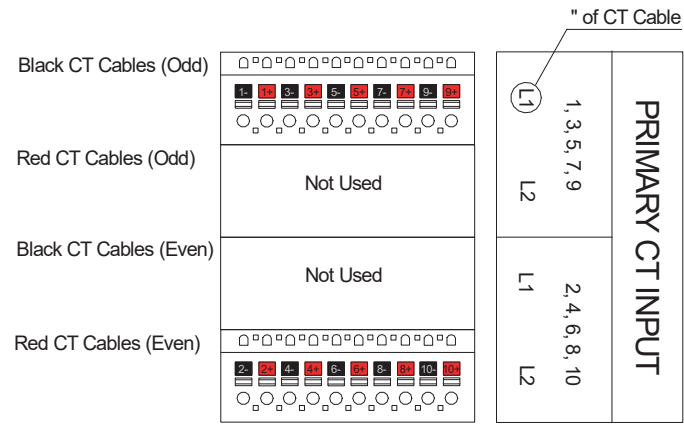


If the tenant load center is 'lug fed' then an additional over current protection device will need to be installed. This can be achieved by adding a main breaker to the load panel, or by adding a breaker anywhere between the solar tap and the load center.

Appendix H: Example CT Installation Diagram (120V)



Appendix I: Example CT Installation Diagram (240V)



Appendix J: Connecting the SolShare to a Wi-Fi Network - Detail and Troubleshooting

Version C1

SCOPE AND DISCLAIMER

This document is applicable for: REF SolShare-2P-100-2 units.

With Serial Numbers: 2P-100-0001 to 2P-100-0119

The SolShare requires a 2.4GHz Wi-Fi internet connection to allow for commissioning, energy data transmission, fault reporting, software updates, and ongoing product support. This document is intended to provide guidance on how to connect the SolShare product to an existing 2.4GHz Wi-Fi network. It's important to note that every installation may vary due to site variables such as signal strength, gateway brand, or method of Wi-Fi network supply. Please feel free to reach out to our technical customer support office should you have any questions while establishing a connection between the SolShare and the existing network.

Technical Customer Support:

1 (800) 211- 8056 Toll Free

support@allumeenergy.com.au

This document does not override any local codes and standards. It is the responsibility of the installer to ensure the solar installation meets the relevant requirements and is installed in a safe manner.

KEY WI-FI REQUIREMENTS

- A permanent and stable internet connection.
- Wi-Fi network frequency of 2.4GHz.
- The Wi-Fi gateway has a permanent power source not reliant on the system being energized.
- Expect data usage not to exceed 200MB/month.
- A network with the Internet protocol version 4 (IPv4)

REQUIRED TOOLS AND INFORMATION

- A smart device in the form of a phone, tablet, or laptop with Wi-Fi connectivity.
- The Wi-Fi credentials (Wi-Fi name and password) that the SolShare will be connected to.

INSTRUCTIONS

If you are setting up the Wi-Fi credentials on a SolShare for the first time as part of the installation/commissioning process, verify that you have followed all steps mentioned within the SolShare Installation Manual up to the "Commissioning the SolShare" section.

If so, please follow the steps on the following pages to set-up or change the Wi-Fi credentials for the network that each SolShare should connect to.

POWER CYCLE THE SOLSHARE

- STEP 1** Disconnect the SolShare from utility grid power by switching **OFF** all disconnects.
- STEP 2** Wait 5 seconds.
- STEP 3** Reconnect the SolShare to utility grid power by switching **ON** all disconnects.

Note: The next steps must be completed within 5 minutes of the above power cycle.

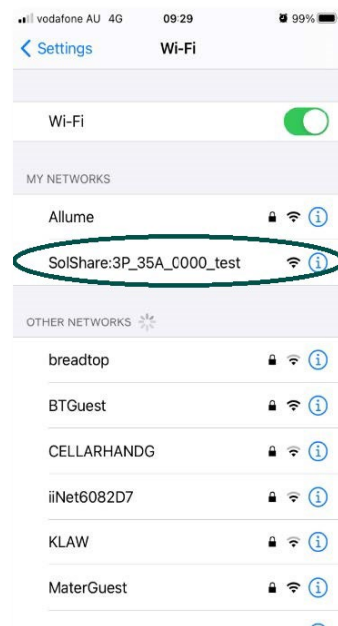
CONFIGURE NEW WI-FI NETWORK SETTINGS

STEP 1

Using a smart device, look at the list of available Wi-Fi networks. After a minute, the SolShare's service set identifier (SSID), which matches the individual SolShare's serial number, will appear as an available Wi-Fi network.

Connect your smart device to this SolShare network.

Your device may provide an alert stating, "No internet connection through this network". This is normal. Click accept and continue.



STEP 2

Open an internet browser on the same device that is connected to the SolShare's Wi-Fi network and navigate to:

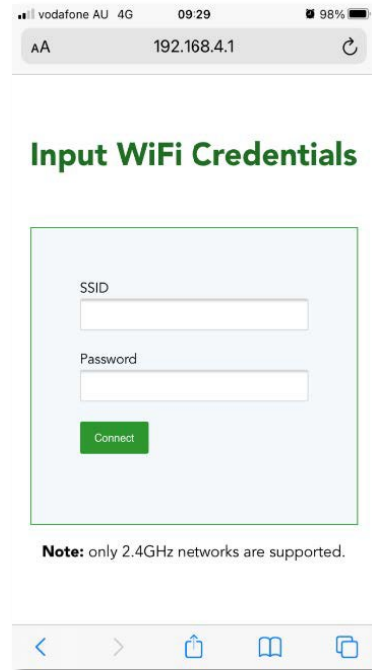
192.168.4.1



STEP 3

When presented with the page to the right, enter the new details of the new Wi-Fi network that you want the SolShare to connect to.

Click the green “Connect” button.



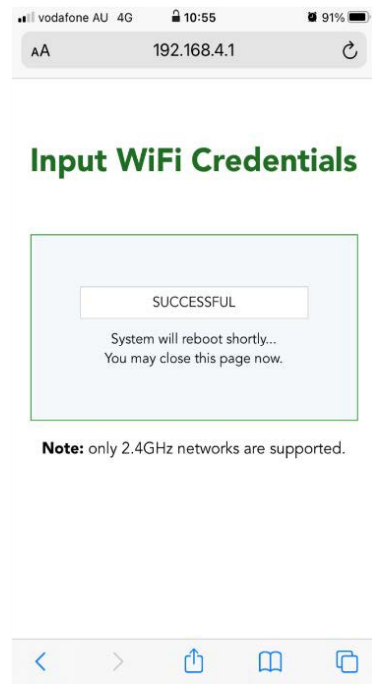
STEP 4

After the SolShare confirms that it will connect to this new Wi-Fi network, the smart device’s screen will match the image on the right.

The SolShare will then reboot and connect to the new Wi-Fi network upon start up.

Once this occurs, you’re free to disconnect your smart device from the SolShare’s Wi-Fi network.

If this screen does not appear, please go to the troubleshooting section on the next page.

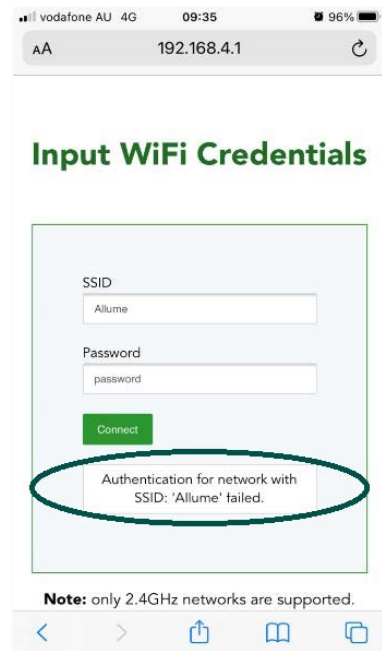


TROUBLESHOOTING

INCORRECT WI-FI CREDENTIALS

If “Authentication for network with SSID: “<SSID>” failed” is displayed as shown, this means that an incorrect set of Wi-Fi credentials (i.e. SSID or password have been entered incorrectly) was entered.

Repeat the Instructions above with the correct Wi-Fi credentials.



TROUBLESHOOTING

NO CONFIRMATION

It is possible that the Wi-Fi change was successful, however, the smart device that was used switched to a different Wi-Fi network that is not the SolShare's Wi-Fi network. This may result in the successful confirmation not being reported on the screen.

To check this, connect a smart device to the internet and navigate to the Commissioning App in your browser.

<https://commissioning.allumeenergy.com.au/welcome>.

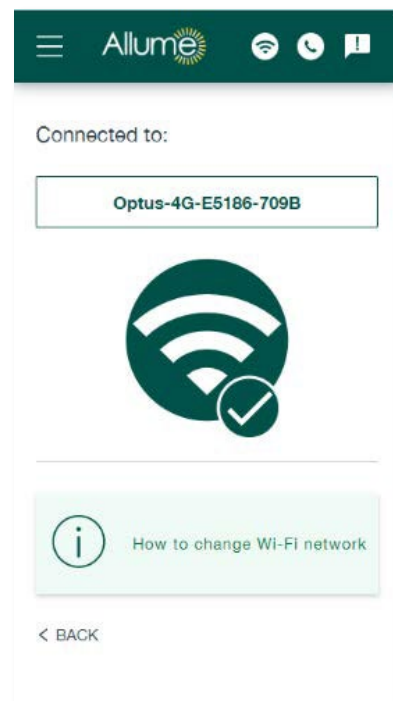
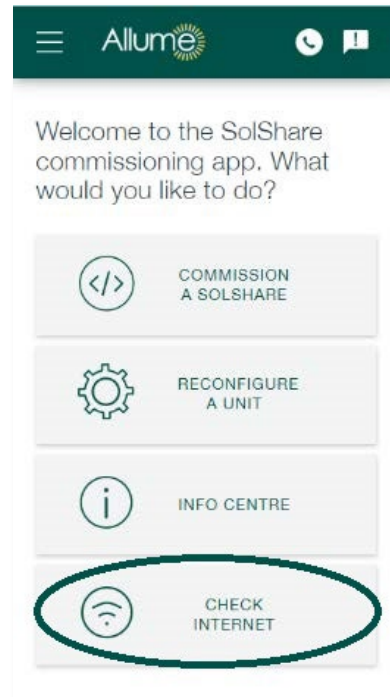
Select the "Check Internet" option as shown.

Note: For the check, the device can be the same that was used in the instructions section provided that it is now connected to the internet and not the SolShare network.

After several minutes, the commissioning app should display the new network as shown.

If the Commissioning App does not show that the SolShare is connected to a Wi-Fi network, then repeat the Instructions steps again.

Note: If more than 5 minutes has passed since the Solshare has been power-cycled, you may need to follow the instructions in Step 1 prior to repeating the instructions in Step 2.



FAQS

- **How close does the Wi-Fi gateway have to be?**

This will depend on the selected gateway, but for best results, install the gateway within the same equipment room or within line of sight of the SolShare. In most cases, if a smart device can connect to the network in that location, the SolShare will be able, too.

- **Can an ethernet connection be utilized?**

No, the SolShare relies on a Wi-Fi connection.

- **Can a Wi-Fi extender be utilized?**

Yes, provided that the above requirements are met.

- **Can a personal smart device's hotspot be utilized to commission the SolShare?**

Yes, however, once the device leaves the site post commissioning, the SolShare will no longer have access to that Wi-Fi network. Though commissioned, the SolShare will not be able to transmit energy data, fault report, or update software.

- **Can the SolShare be connected to the same Wi-Fi network as other equipment?**

Yes, the same network can be utilized by many devices. More than one SolShare can share a network.

- **Can a 4G Wi-Fi gateway be utilized?**

Yes, depending on the location, sometimes utilizing a 4G Wi-Fi gateway is the only practical option. In this case, it's important to verify the provider's signal strength at the SolShare's location, beforehand. This can usually be achieved by simply walking to the location and checking your own smart device's 4G signal strength. If the network strength is poor, installing a 4G Wi-Fi gateway with an external antenna may help. If the strength is still poor, installing the gateway at a better location and then utilizing a Wi-Fi extender may be the best option.

Since many of the gateways aren't outdoor rated, it will have to be installed either indoors, or outdoors within a weatherproof box. If a box is used, the box should not be made of metal due to potential shielding of the signal and not placed in direct sunlight due to chance of overheating. It is recommended to install the gateway near the SolShare and with a consistent power supply that will remain active if the solar electrical system and SolShare is deenergized for service.

- **Are there any network/firewall requirements?**

The 4G network provider must provide a network with internet protocol version 4 (IPv4). Networks with only IPv6 are not currently supported.

Ensure that the following ports are open in both directions:

- Port 9993 UDP
- Port 1883 TCP
- Port 8883 TCP
- Port 8888 TCP
- Port 80 TCP
- Ports 5001-5005 TCP

Please communicate these requirements to any IT or network administrators, if applicable.

Feel free to reach out to our technical customer support office should you have any questions while establishing a connection between the SolShare and the existing network.

Technical Customer Support:

1 (800) 211- 8056 Toll Free

support@allumeenergy.com.au



SolShare 100 Product Datasheet

Allume's SolShare is the world's first power division control system (PDCS). A behind-the-meter hardware solution that allows multiple grid-connected meters to be fed from the inverter output of one solar electric system. The SolShare opens the solar market to multifamily buildings.

The SolShare 100 has a maximum input and output capacity of 16.4kW AC, and can be interconnected with up to 10 meters, making it primarily suitable for multifamily residential sites.

The behind-the-meter solution requires no change to smart meter infrastructure and is intuitively designed to make the installation process as simple as possible for solar installers.

The SolShare unit is installed between the inverter and each participating multifamily unit's feeder tap.

The SolShare receives the output of any single phase, 240V solar inverter and provides that power to each connected meter's unit.

This interconnection is made as a load-side tap on each unit's feeder conductors at a central location, such as the meter stack/bank.



Multi-meter solar delivery



Complete solar & usage monitoring



Suitable for environments with Net Metering (NEM)



Ongoing Wi-Fi Connection required for datalogging and firmware updates

Technical Data

General Specifications

Parameter	Value
Dimensions	19.1" x 36.2" x 10.6" (W x H x D)
Weight	84 lbs.
Max number of connections per SolShare	Up to 10 (connected at 120V) or up to 5 (connected at 240V)
Install Environment	Type 4 (outdoor*)
Operating temperature range	-4°F (-20°C) to 122°F (50°C)
Metering accuracy of each SolShare output	± 0.5%
Communication	Wi-Fi Only, 2.4GHz

Electrical Specifications

Parameter	Value (at 25°C)
Max input and output nominal current (per output)	72 A (240 VAC)
Voltage Range	228 – 252 VAC (L-L); 114 – 126VAC (L-N)
Max AC input and output power at 120V (L-N) / 240V (L-L)	16.4 kW AC
Number of input circuits	1
Number of output circuits	10
Mains frequency range	50 – 60 Hz
Short-circuit current rating	30 kA
AC short circuit protection	Yes
Terminal conductor size for field wiring	2 AWG Cu - 8AWG Cu

Safety Certification

Compliance
UL1741, FCC Part 15 Class B

Accessories

20 x Current Transformers (each cable length is ~32')

Installation Requirements

1. Input must come from a single phase, grid connected inverter
2. Each interconnected feeder conductor must have an ampere capacity greater than the per line max solar system output
3. Output connection minimum: Minimum output connections to power the SolShare: 1(L1) and 2(L2)
4. Meter bank/co-located smart meters and main switches
5. Conductor access between SolShare unit and central main switchboard
6. Installation must be carried out by a qualified person who has also completed the Allume SolShare training modules
7. System shall be installed in compliance with local codes and standards
8. *Outdoor rated, not in direct sunlight



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Appendix L: FCC Compliance Statement

SoIShare 2P-100

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This product contains the radio transceiver modules below:

Radio Transceiver	FCC ID
Pyboard Wi-Fi Transceiver	2AT9I-PYBD

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



Document Library

For most up to date versions of all documents (including this Installation Manual), scan this QR code or go to <https://allumeenergy.com/document-library/>

This manual is intended for installations within the **United States**. Specifications are subject to changes without advanced notification.

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