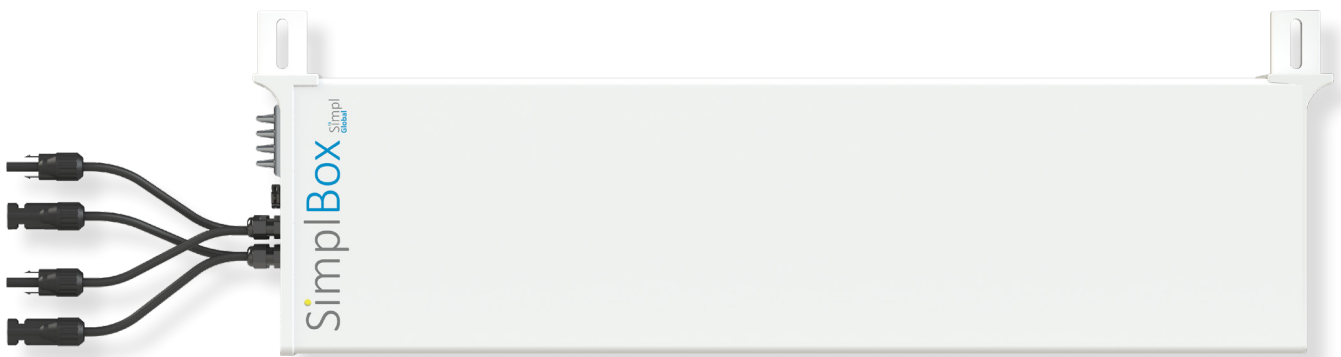


SimplBox

Installation and Setup Guide



The following guide details the steps and procedures to properly install and commission a SimplBox system.

If you require assistance during the installation or commissioning of a SimplBox system, please contact:

Simpl Global Customer Support at
833-mySimpl (697-4675)

SimplBox

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Copyright Information

The statements and information in this document must not be changed without special notification from Simpl Global, Inc.

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833-mySimpl (697-4675)

SimplBox

Installation and Setup Guide

1.0 About this Manual

1.1 Purpose

The purpose of this manual is to provide information, explanations, and guidance for the Installation, operation, and maintenance of SimplBox.

1.2 Audience

This manual is intended for a professional electrician, technician, or otherwise qualified personnel for the purpose of installing, commissioning, and operating SimplBox. All personnel using this manual must be trained and certified, along with being familiar with all local and national electrical and construction codes relating to the installation of this equipment. All persons involved in any way with installing, commissioning, turning on, servicing, and maintaining this equipment must:

- Read this instruction manual thoroughly and follow the instructions to the letter.
- Be suitably qualified.
- Have sound knowledge or working, and dealing, with electrical installations.

This equipment has been manufactured in accordance with state of the art and general safety engineering principles. Nevertheless, incorrect operation or misuse may still endanger:

- The life and well-being of the installer, operator, and third parties.
- The equipment and other tangible assets belonging to the installer, operator, and owner.
- Working efficiency of the equipment.

All the safety instructions, warning signs, and labels on the equipment itself:

- Must be kept in a legible condition.
- Must not be damaged.
- Must not be removed or relocated such that they alter the intent of the warning.
- Must not be covered, hidden, or painted over.

Any malfunction(s) that may impair the safe operation of SimplBox must be remedied immediately, and before, SimplBox is turned on.

1.3 Disclaimer of Liability

Since the use of this manual and the conditions or methods of installation, operation, use, and maintenance of SimplBox is beyond the control of Simpl Global, Inc., Simpl Global does not assume responsibility, and expressly disclaims liability, for loss, damage, or expense, whether direct, indirect, consequential, or incidental, arising out of, or in any way connected with installation, operation, use, or maintenance. Due to the continuous improvements and product updates, the images shown in this manual may not exactly match the unit purchased.

SimplBox

Installation and Setup Guide

1.4 Restrictions on Use

SimplBox shall not be relied upon for use with life support systems, life-saving equipment, or any other medical equipment or devices. Using SimplBox with this particular type of equipment is at your own risk.

SimplBox

Installation and Setup Guide

2.0 Important Safety Information

2.1 General Information

This manual contains important safety instructions that must be followed during the installation, maintenance, and operation of this product.

Read all instructions and safety information contained in this manual before installing or using this product.

All electrical work must be performed in accordance with local, state, and federal electrical and building codes such as the National Electrical Code (NEC) and ANSI/NFPA 70. The Canadian Electrical Code (CEC) must be followed for installations in Canada.

Service personnel cannot, and must not attempt to, access the internal components of SimplBox in the field other than the components detailed in the installation section of this manual.

It is the responsibility of the installer to provide external protection for the AC circuits and conductors of the Utility/Grid circuit(s) and the DC circuits and conductors of the PV circuit(s) in the form of external circuit breaker(s) or fused disconnect(s). Class 1 wiring methods are to be used for field wiring connections to terminals of a Class 2 circuit.

This unit is provided with integral and internal protection against overloads of AC and DC circuits and conductors.

System grounding of SimplBox, in accordance with the NEC, ANSI/NFPA 70, or the CEC, is the responsibility of the installer.

Only copper circuit conductors, with a minimum temperature rating of 90°C (194° F), are to be installed and used with SimplBox.

2.2 Safety Symbols

To reduce the risk of electrical shock, fire, or other safety hazards, the following safety symbols have been placed throughout this manual to indicate dangerous and important safety instructions.

SimplBox

Installation and Setup Guide



WARNING: This symbol indicates that failure to take a specified action could result in physical harm to personnel and damage to equipment and/or property.

AVERTISSEMENT: Ce symbole indique que le non-respect d'une action spécifiée peut causer des dommages physiques au personnel et des dommages à l'équipement et / ou aux biens.



CAUTION: This symbol indicates that failure to take a specified action could result in damage to equipment and/or property.

ATTENTION: Ce symbole indique que le non-respect d'une action spécifiée peut entraîner en cas de dommages matériels et / ou matériels.



INFORMATION: This symbol indicates information that emphasizes or supplements important points of the main text.

INFORMATIONS: Ce symbole indique des informations qui mettent en valeur ou complètent points importants du texte principal.

SimpliBox

Installation and Setup Guide

2.3 Important Safety Instructions and Information



WARNING: Incorrect installation and/or operation can cause serious injury or death to personnel and damage to equipment and/or property. Only qualified personnel are authorized to install and/or maintain a SimpliBox system.

AVERTISSEMENT: Une installation et / ou un fonctionnement incorrects peuvent provoquer des blessures graves ou mort du personnel et dommages à l'équipement et / ou aux biens. Seulement qualifié le personnel est autorisé à installer et / ou à entretenir un système SimpliBox.



WARNING: An electric shock can be fatal to personnel. Never work with live AC or DC circuits! Ensure AC and DC circuits are de-energized before installing a SimpliBox system.

AVERTISSEMENT: Un choc électrique peut être mortel pour le personnel. Ne travaillez jamais avec du courant alternatif en direct ou circuits DC! Assurez-vous que les circuits CA et CC sont hors tension avant d'installer un système SimpliBox.



WARNING: An electric shock or fire can be fatal to personnel. Inadequately sized wiring and/or over-current protection can cause serious injury or death to personnel and damage to equipment and/or property.

AVERTISSEMENT: Un choc électrique ou un incendie peut être mortel pour le personnel. Taille insuffisante le câblage et / ou la protection contre les surintensités peuvent provoquer des blessures graves ou la mort. personnel et dommages matériels et / ou matériels.



WARNING: Inadequate grounding methods/conductors can cause serious injury or death to personnel and damage to equipment and/or property. The grounding system/conductors must be installed per NEC or CEC requirements.

AVERTISSEMENT: Des méthodes / conducteurs de mise à la terre inadéquats peuvent provoquer des blessures graves ou la mort du personnel et les dommages à l'équipement et / ou aux biens. L'échouement le système / les conducteurs doivent être installés conformément aux exigences NEC ou CEC.

SimplBox

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CAUTION: Improper wiring connections may cause damage to SimplBox. Ensure all AC and DC connections are terminated at the proper points of connection. Ensure all terminals are tightened to the proper torque specifications.

ATTENTION: Des connexions de câblage incorrectes peuvent endommager Simpl-Box. Assurez tout Les connexions CA et CC sont terminées aux points de connexion appropriés. Assurez-vous que toutes les bornes sont serrées aux spécifications de couple appropriées.



WARNING: Eye protection (safety glasses or face shield) should be worn when working with or near batteries.

AVERTISSEMENT: Une protection oculaire (lunettes de sécurité ou écran facial) doit être portée travailler avec ou à proximité de batteries.



WARNING: In the event of accidental exposure to battery acid, wash the affected area thoroughly with soap and water. In the event of accidental exposure to the eyes, flood the affected area with running water for at least 15 minutes and seek immediate medical attention.

AVERTISSEMENT: En cas d'exposition accidentelle à l'acide de batterie, lavez le soigneusement avec de l'eau et du savon. En cas d'exposition accidentelle au yeux, inonder la zone affectée avec de l'eau courante pendant au moins 15 minutes et chercher soins médicaux immédiats.



WARNING: Remove all jewelry, such as rings, watches, bracelets, etc., when installing batteries or performing maintenance on batteries.

AVERTISSEMENT: Retirez tous les bijoux, tels que bagues, montres, bracelets, etc., lorsque l'installation de batteries ou l'entretien des batteries.

SimplBox

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WARNING: Never work alone. Always have someone near you when working with or near batteries.

AVERTISSEMENT: Ne travaillez jamais seul. Ayez toujours quelqu'un près de vous lorsque vous travaillez avec ou près des batteries.



WARNING: Batteries can be/are heavy. Use proper lifting techniques when working with batteries.

AVERTISSEMENT: Les piles peuvent être / sont lourdes. Utilisez des techniques de levage appropriées lorsque travailler avec des batteries.



WARNING: Use insulated tools to reduce the risk of electrical shock or accidental short circuits. Remove all jewelry, such as rings, watches, bracelets, etc., when working with or around batteries.

AVERTISSEMENT: Utilisez des outils isolés pour réduire le risque de choc électrique ou accidentel des courts-circuits. Retirez tous les bijoux, tels que bagues, montres, bracelets, etc., lorsque travailler avec ou autour des batteries.



WARNING: Always verify proper polarity and voltage before connecting the SimplBox to its peripheral devices.

AVERTISSEMENT: Vérifiez toujours la polarité et la tension appropriées avant de connecter la SimplBox à ses périphériques.



WARNING: To reduce the chance of fire or explosion, do not short-circuit the batteries.

AVERTISSEMENT: Pour réduire les risques d'incendie ou d'explosion, ne court-circuitiez pas batteries.

SimplBox

Installation and Setup Guide



CAUTION: Do not mount or install a SimplBox system where it is subject to direct sunlight or extreme heat as this may cause damage to the batteries or internal components.

ATTENTION: Ne montez pas et n'installez pas un système SimplBox où il est soumis à des la lumière du soleil ou une chaleur extrême car cela peut endommager les batteries ou les Composants.



INFORMATION: Recycle old batteries.

INFORMATION: Recyclez les vieilles piles.



INFORMATION: Simpl Global, Inc. may choose to revoke any and all warranty of a SimplBox system if visible physical damage due to electrical arcing is present on any component associated with the installation process.

INFORMATIONS: Simpl Global, Inc. peut choisir de révoquer toute garantie d'un Système SimplBox si des dommages physiques visibles dus à un arc électrique sont présents sur composant associé au processus d'installation.



WARNING: Ensure proper wiring methods are implemented and are in accordance with NEC, ANSI/NFPA 70, and CEC requirements.

AVERTISSEMENT: Assurez-vous que les méthodes de câblage appropriées sont mises en œuvre et conformément aux exigences NEC, ANSI / NFPA 70 et CEC.



CAUTION: When installing outdoors, only outdoor rated conduit and conduit connectors are to be used, and are not supplied by Simpl Global, Inc.

ATTENTION: Lors de l'installation à l'extérieur, seuls les conduits et conduits extérieurs les connecteurs doivent être utilisés et ne sont pas fournis par Simpl Global, Inc.

SimplBox

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CAUTION: Verify that the mounting location of SimplBox is structurally sound and is capable of supporting the weight of SimplBox. Structural calculations and designs should be acquired from a structural engineer. Simpl Global, Inc. does not, and will not, provide any structural calculations in regards to SimplBox installations.

ATTENTION: Vérifiez que l'emplacement de montage de SimplBox est structurellement sain et capable de supporter le poids de SimplBox. Calculs et conceptions structurelles doit être acquis auprès d'un ingénieur en structure. Simpl Global, Inc. ne le fait pas et ne non, fournir des calculs structurels concernant les installations SimplBox.



CAUTION: The NEMA 3R rating of SimplBox is only ensured when SimplBox is properly mounted and installed securely to a rail suitable for supporting the weight of SimplBox.

ATTENTION: La cote NEMA 3R de SimplBox n'est garantie que lorsque SimplBox est correctement monté et installé en toute sécurité sur un rail adapté pour supporter le poids de SimplBox.



WARNING: SimplBox **MUST** be installed with a UL Listed microinverter or power optimizer system with a manual disconnect. This disconnect will serve as the manual disconnect for both the inverter system and the battery system.

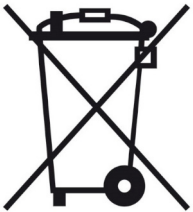
AVERTISSEMENT: SimplBox **DOIT** être installé avec un micro-onduleur répertorié UL ou un système d'optimisation de puissance avec déconnexion manuelle. Cette déconnexion servira de déconnexion manuelle à la fois pour le système onduleur et le système de batterie.

SimplBox

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2.4 End of Life Safety Information

After determining a SimplBox system is non-functioning with a Simpl Global customer service representative, refer to your local codes for disposal requirements.



ELECTRONIC DEVICE: Do not throw away. Waste electrical products should not be disposed of with household waste.

DISPOSITIF ÉLECTRONIQUE: ne pas jeter. Les déchets de produits électriques ne doivent pas être jetés avec les ordures ménagères.



WARNING: Risk of fire or explosion. Only qualified personnel, using personal protective equipment (PPE) should transport or handle the SimplBox system.

AVERTISSEMENT: Risque d'incendie ou d'explosion. Seul du personnel qualifié, utilisant des l'équipement de protection (EPI) doit transporter ou manipuler le système SimplBox.

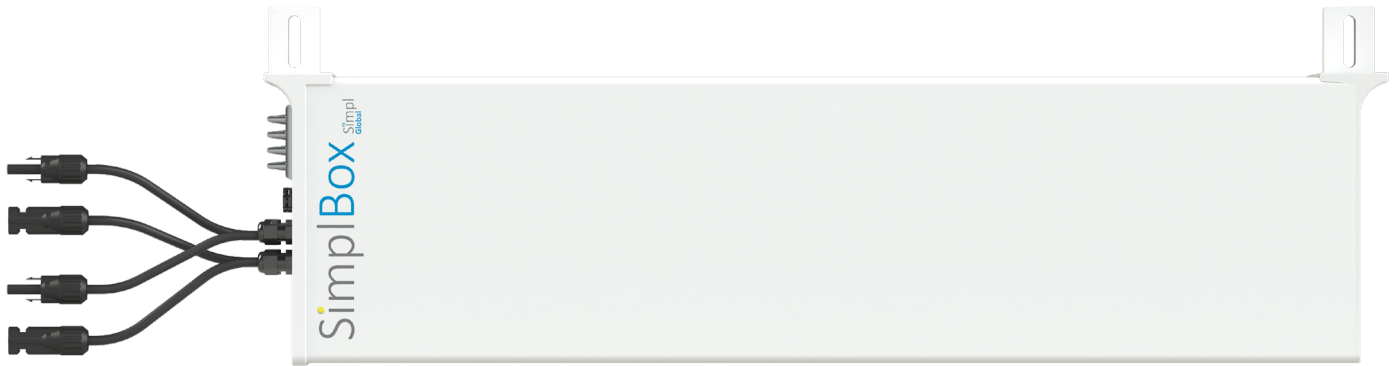


WARNING: Risk of fire or explosion. Do not dispose of SimplBox or SimplBox batteries by crushing, disassembling, or by burning in a fire. The SimplBox system can explode.

AVERTISSEMENT: Risque d'incendie ou d'explosion. Ne jetez pas les batteries Simpl-Box ou SimplBox par écrasement, démontage ou brûlure au feu. Le système Simpl-Box peut exploser.

SimplBox

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3.0 Introduction

3.1 Product Overview

SimplBox is an energy storage system designed to be installed underneath individual solar panels. SimplBox optimizes the financial value of the energy generated by a solar panel by storing the right portion of this energy for use later when electricity is more expensive.

Key Differentiators

- Easy installation directly under the solar panel
- Does not take up any additional space
- Same unit works with all solar panels with a wide variety of voltage ranges from 30-cell to 96-cell
- Compatible with Sunpower X-, E- and P-Series
- 25% more efficient than comparable units in the marketplace using Simpl's patent-pending technology control system.
- Patent-pending, fault-tolerant, and self-healing mesh networking as the basis of the control system
- Lithium Iron Phosphate (LFP) battery cells for ultimate in safety and durability
- SimplWeb, remote, web-based controls allowing for continuously adjusting system algorithms and controls to optimize savings
- Potted construction with no mechanical relays or electrolytic capacitors provides state-of-the-art reliability.
- Batteries are kept cool by using an engineered, non-metallic, insulated material which is certified to UL 94 standards with highest resistance to flammability. Battery casing is sealed at IP67 rating.
- 10-year standard battery warranty with available 20-year warranty

Applications

- Demand shaving
- Time-of-Use (TOU) arbitrage
- Solar self-supply
- Micro-grid
- Backup power
- Utility ancillary services

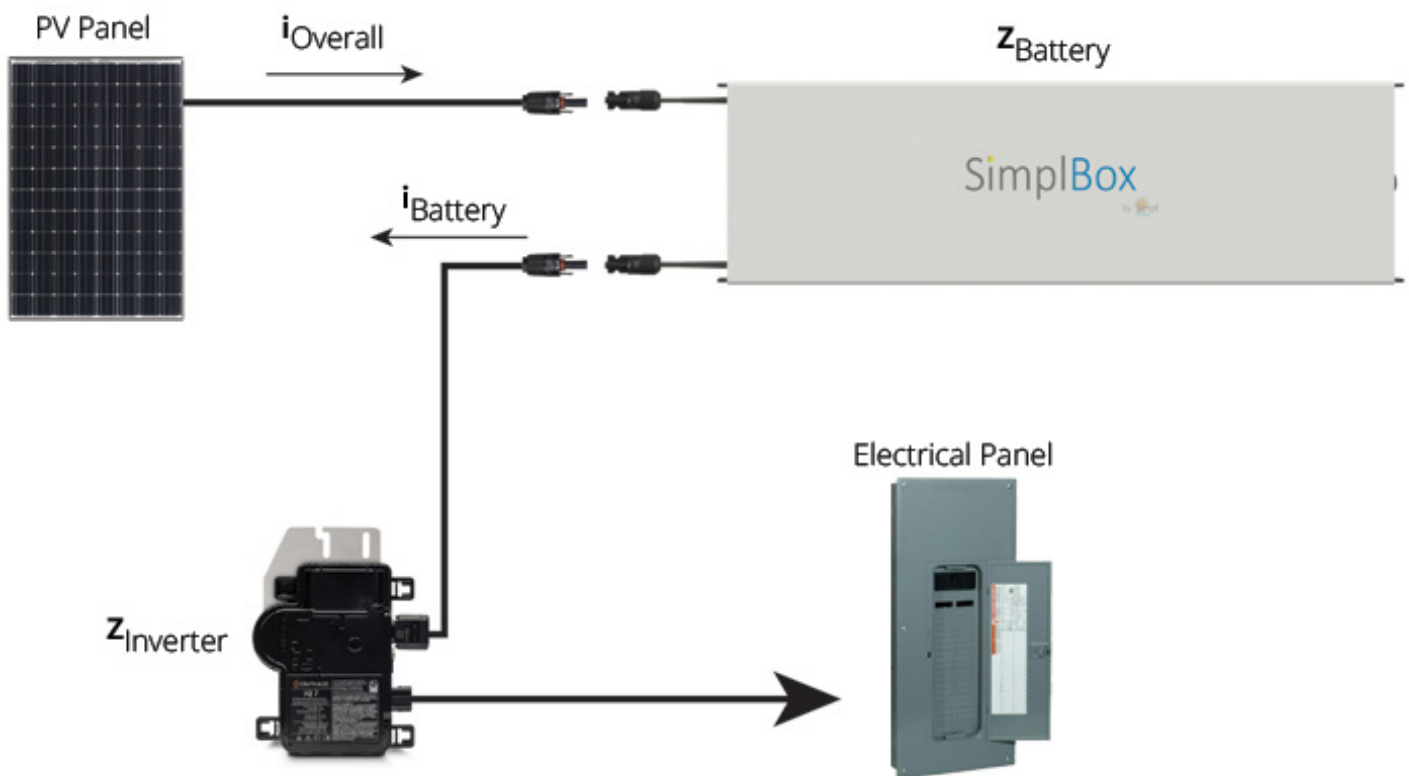
SimplBox

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System Configuration

Once a SimplBox is attached to a solar panel, it uses its mesh networked core to wake up and automatically connect to the Simpl's web-hosted database, SimplWeb. Simpl's partners have access to SimplWeb via a carefully-designed API and can extract relevant data or develop a custom application for their customers.

Basic System Diagram



SimplBox

Installation and Setup Guide

SimplBox Specifications

Max Input/Output Power	500W
Input Voltage Range	25 to 59.9V
Max Input Current	10A
Output Voltage Range	23.0 to 59.9V
Max Output Current	10A
Short circuit current	15A
Operating Temp Range	-20°C to 45°C
Ingress Protection	NEMA Type 4
Max Battery Power	300W
Battery Chemistry	Lithium Iron Phosphate
Communication Protocol	Wi-Fi Mesh/4G

4.0 Installation

SimplBox is an energy storage system that intercepts the connection between a micro-inverter or power optimizer and a solar panel. Due to this fact, the system is easy to install and very similar to common micro-inverter installations.

The steps are as follows:

1. Prepare for the Installation
 - a. Site Preparation
 - b. Tools and Hardware Required
2. Unpacking and Inspection
3. SimplBox Installation
 - a. SimplBox Mounting
 - b. SimplBox Grounding

4.1 Prepare for the Installation

Before the installation process of your SimplBox system begins, take the time to read through the entire Installation section of this manual. The more thoroughly you prepare and plan in the beginning, the smoother the installation process will be. Familiarize yourself with the installation process and help reduce or eliminate any time-consuming or costly mistakes.

SimplBox

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INFORMATION: Installations should be performed by qualified personnel, such as a licensed or certified electrician. It is the installer's responsibility to determine which building, electrical, and safety codes apply and to ensure that all applicable installation requirements are met or followed.

INFORMATION: Les installations doivent être effectuées par du personnel qualifié, tel qu'un électricien agréé ou certifié. Il est de la responsabilité de l'installateur de déterminer les codes du bâtiment, de l'électricité et de la sécurité s'appliquent et pour s'assurer que tous les exigences d'installation sont respectées ou respectées.



CAUTION: Review the "Important Safety Information" prior to any installation procedures.

ATTENTION: Consultez les «Informations de sécurité importantes» avant toute procédure d'installation.



CAUTION: The simplified diagrams shown in this manual are provided to assist in planning and designing an installation. They are not intended to override or restrict any national or local building or electrical codes. These diagrams should not be the determining factor as to whether or not the installation is code compliant. Code compliance is the responsibility of the electrician and on-site inspector.

ATTENTION: Les schémas simplifiés montrés dans ce manuel sont fournis pour aider dans la planification et la conception d'une installation. Ils ne sont pas destinés à remplacer ou restreindre les codes du bâtiment ou électriques nationaux ou locaux. Ces diagrammes devraient ne pas être le facteur déterminant pour savoir si l'installation est ou non du code conforme. La conformité au code est la responsabilité de l'électricien et sur place inspecteur.

4.2 Site Preparation

SimplBox is designed to be installed under a solar panel. Before installing SimplBox, locate the center of each solar panel on the solar racking rail. The width of a SimplBox and microinverter comfortably positioned side by side should be centered within the panel footprint. Do not position SimplBox between solar panels as that may block the location of the solar panel mid-clamps or end-clamps.

SimplBox

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4.3 Tools and Hardware Required

In addition to solar panels, solar racking, microinverters and its associated hardware, you will need to provide the following:

- Electrical multi-meter / voltage tester
- Sockets, wrenches for mounting hardware
- Torque wrench
- MC4 Removal tool
- (2) Microinverter mounting bolts per SimplBox

4.4 Unpacking and Inspection

Each SimplBox is completely assembled and tested at the factory prior to shipping. Various events may happen during transport that could damage the system. Inspect the system and packaging thoroughly for any damage to the system. If there is damage to the SimplBox housing, connectors, or visible corrosion, leaking, etc. do not install the unit and contact Simpl Global for instructions.

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INFORMATION: The two MC4 connectors on SimplBox that connect to a solar panel will be connected together when the unit arrives. DO NOT unconnect these connectors from each other until they are ready to be connected to a solar panel. Unconnecting these connectors prior to being ready to connect them to a solar panel may damage the unit and void warranty.

MC4 Microinverter/Power Optimizer / Inverter Connectors

SimplBox

MC4 Solar Panel Connectors

Solar connectors are shorted together in during shipping.

Keep shorted until you are ready to connect to the solar panel.

4.5 SimplBox Grounding

SimplBox does not require any type of external grounding equipment such as bare copper wire or bonding washers. All live parts inside of SimplBox are protected by the units plastic enclosure or double insulated parts. All other equipment such as microinverters, solar modules, solar rails, etc. **MUST** be grounded as specified by the manufacturer.

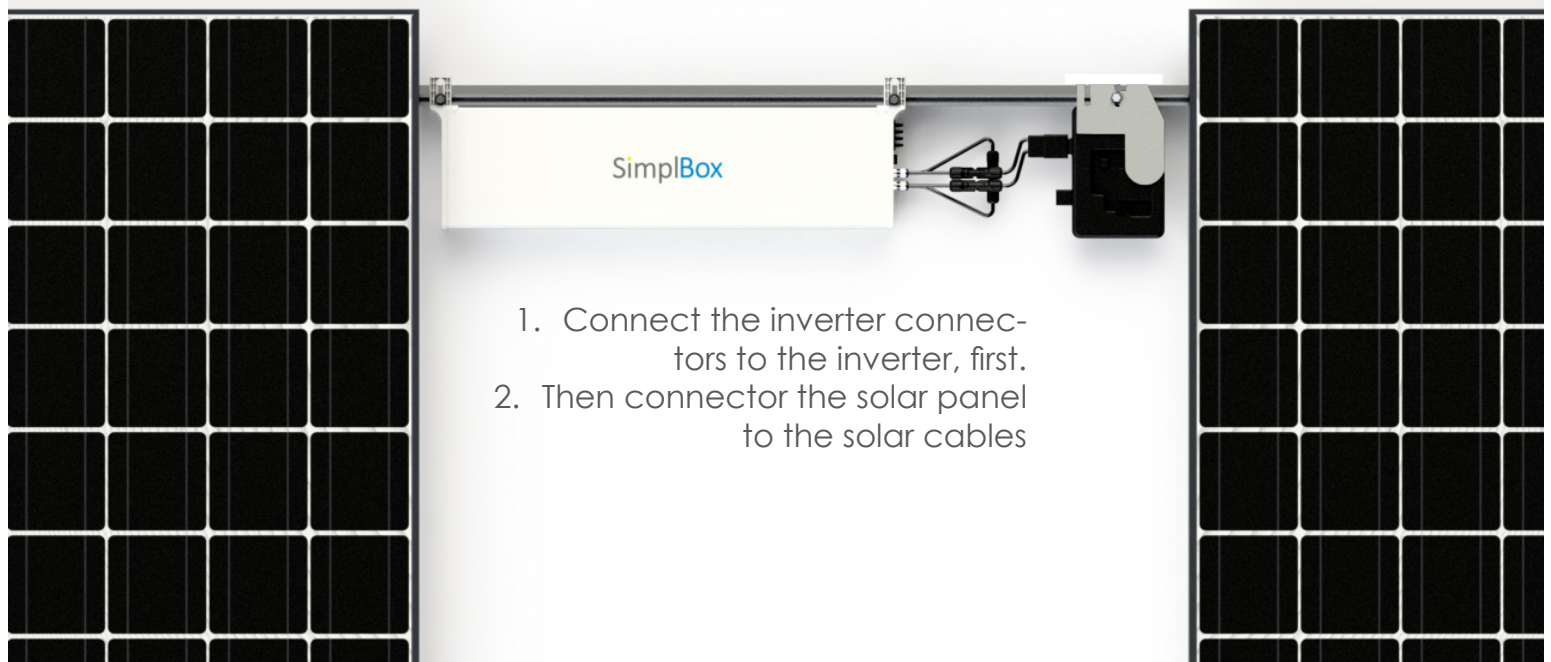
SimplBox

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4.6 SimplBox Installation

SimplBox should be mounted on the solar racking system after the rails have been secured to the roof but before the solar panels are mounted to the rail. The installation should follow the steps below.

1. Secure the solar rails to the roof.
2. Mark out the locations where SimplBox and the microinverter or power optimizer will be located under each solar panel. They should be located near the center of each solar panel, in a position that will not interfere with the solar panel mounting hardware, such as mid-clamps and end-clamps.
3. Mount SimplBox and the microinverter or power optimizer to the solar rail. See section 4.6.
4. Connect SimplBox to the microinverter or power optimizer via the supplied MC4 connectors.
5. Position the solar panel and connect it to SimplBox via the supplied MC4 connectors. The connectors on SimplBox that connect to the solar panel will arrive connected together. **DO NOT** unconnect them from each other until they are ready to be connected to the solar panel. Unconnecting these connectors from each other prematurely may damage the unit and void warranty.

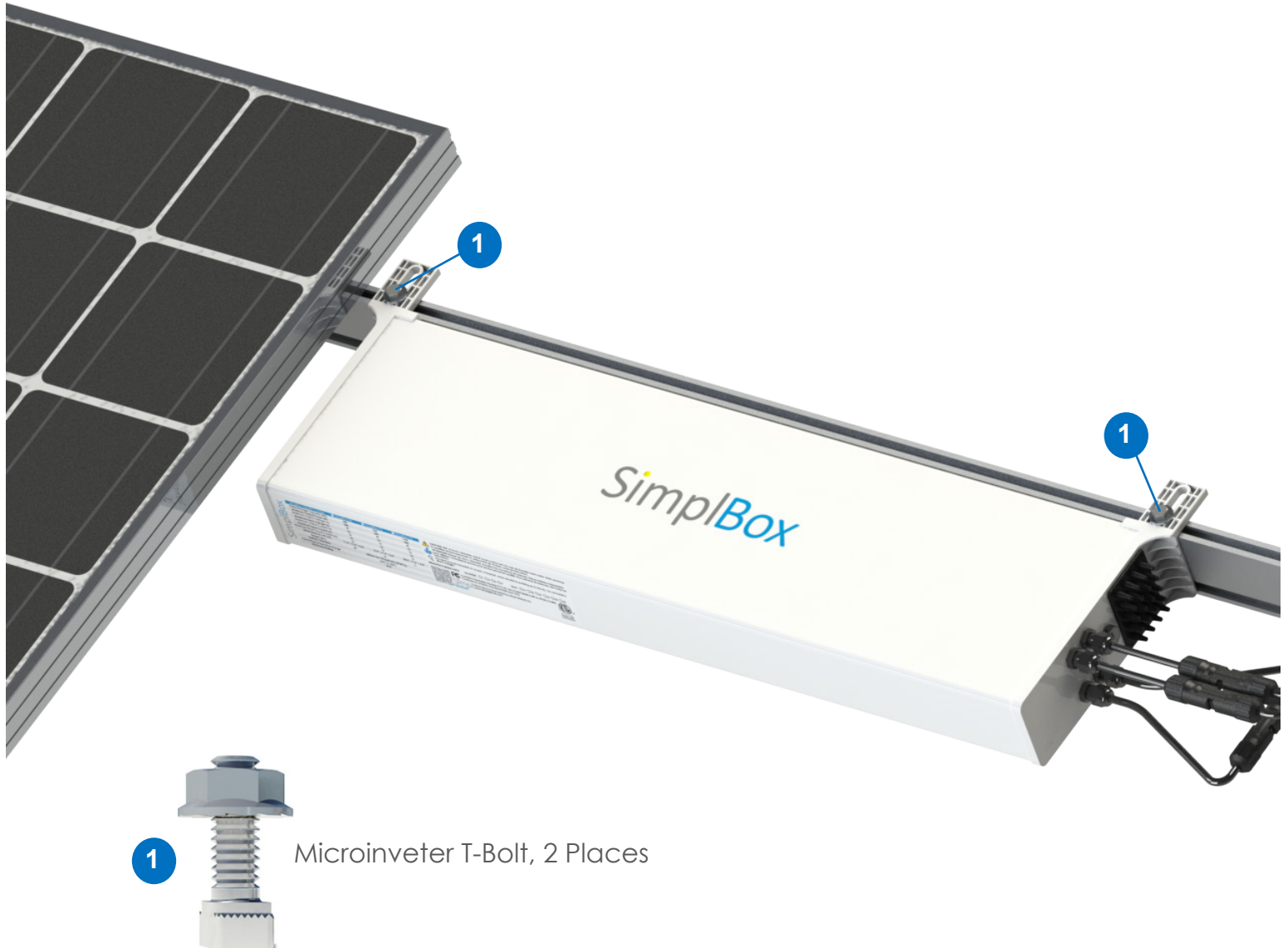


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4.7 SimplBox Mounting

SimplBox can be mounted to a solar rail with the same hardware used to mount the microinverter or power optimizer to the solar rail. This hardware usually consists of 1/4" or 5/16" T-bolts and is supplied by the solar rail manufacturer. Each SimplBox will require (2) of these T-bolts and should be connected to the rail using the manufacturer's recommended torque specifications.



SimplBox

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5.0 Operation

After the system has been installed and energized the units will automatically turn on and connect to Simpl Global's web-hosted data base, SimplWeb. Final commissioning of the system can be completed using the SimplWeb data base.

5.1 Turning SimplBox On

SimplBox does not have a power switch. The MC4 solar connectors are shorted together during shipping. To turn SimplBox on simply unshort the solar MC4's and connect them to a solar panel.

5.2 Turning SimplBox Off

To turn SimplBox off, disconnect the solar MC4s from the solar panel

1. Short them together.
2. Go to the SimplWeb interface
3. Select the specific SimplBox by clicking on the radio button next to its serial number
4. Press off on the green power button.

The screenshot shows the SimplWeb interface. At the top, there's a header with the 'Simpl.' logo and a user profile 'Farid Dibachi'. Below this, there are several control buttons: 'Reset', 'Factory', 'Turn Off' (circled in red), 'Hibernate', and 'Locator'. To the right of these buttons, there are status indicators for 'SOC %', 'Solar (W)', 'Battery (W)', and 'Inverter (W)'. Below these, there's a table of SimplBox units. The first unit is selected, indicated by a radio button being circled in red. The table has columns for 'Select', 'Status', 'Unit', 'Serial #', 'St.', 'SOC', 'cRatio', 'packV', 'CellDV', 'Vpv', 'Solar (W)', 'Battery (W)', 'Inverter (W)', 'Heatsink (F)', and a link icon.

Select	Status	Unit	Serial #	St.	SOC	cRatio	packV	CellDV	Vpv	Solar (W)	Battery (W)	Inverter (W)	Heatsink (F)	
☒	✓	1	simpl-000045	1	100.0	99.99	60.06	0.0039	25.4	207.46	0.00	198.61	115.7	-29 🔗
☐	✓	2	simpl-000082	1	99.5	99.99	60.09	0.0072	32.0	291.17	0.00	275.22	129.8	-51 🔗

SimplBox Subsystems

SimplBox

Installation and Setup Guide

6.0 Maintenance

Simplbox's enclosure is fully sealed so none of its internal components can not be serviced in the field. If a unit becomes defective or inoperable, the unit should be shipped back to Simpl Global, Inc. for repairs. Under no circumstances should anyone other than Simpl Global, Inc. try to access the internal components of SimplBox.

7.0 Means of System Disconnect

SimplBox **MUST** be installed with a UL Listed microinverter or power optimizer system with a manual disconnect. This disconnect will serve as the manual disconnect for both the inverter system and the battery system.

Compliance

SimplBox Battery Cells conform to UL 1642
SimplBox Enclosure conforms to UL 94 5VA



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Simpl.