lunar energy



Installation Manual

Lunar Maximizer & Maximizer Hub

Revision History

Revision	Description of Change	Effective Date
1	Initial Release	07/09/2025
2	Updated Maximizer	09/22/2025
3	Combine 420W and 650W	11/19/2025
4	Add New Model: 10-00522E	03/25/2026

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Legal Information

A. Contact

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B. Legal Statement

For complete legal information, including copyrights, trademarks, licensing, terms of use, warranties, and customer privacy policy, visit www.lunarenergy.com.

C. Documentation

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D. Specifications

All specifications contained in this document are accurate at the time of publication. Lunar Energy reserves the right to make product modifications at any time without advance notice. For the latest product information, visit www.lunarenergy.com.

E. Copyright

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F. Trademarks



Lunar Energy
Lunar Battery
Lunar Bridge
Lunar Maximizer
Lunar Maximizer Hub

All other trademarks in this document are the property of their respective owners. The unauthorized use of any trademark displayed in this document or on the product is strictly prohibited.

G. Electronics and Battery Disposal

Waste electrical products should not be disposed of with household waste. Proper disposal of electronic equipment is required. Refer to local codes for disposal requirements.

Contact Lunar Energy for further guidance to identify how to properly decommission, dispose, recycle, and/or return hardware to Lunar Energy.

H. Warranty Information

The warranty for Lunar products depends on a reliable internet connection, which allows the system to receive regular over-the-air firmware updates. If a Lunar product is disconnected from the internet for an extended period, its warranty may be limited to five years. Refer to www.lunarenergy.com/warranty for more information.

Important Safety Instructions

SAVE THESE INSTRUCTIONS

This installation document provides instructions for storing, transporting, installing, commissioning and decommissioning the Lunar Battery. These instructions are for qualified installers and service technicians only.
Follow these instructions during installation, maintenance, and operation of the equipment. This section contains safety information that must be observed at all times when working on or using the equipment.

ATTENTION: Read this entire document before installing the equipment. Failure to follow the warnings or instructions in this document can result in electric shock, serious injury, or loss of life, or can damage the equipment, potentially rendering it inoperable.

Lunar Energy assumes no liability for injury or property damage due to installation or service attempted by unqualified individuals, or due to a failure of installers or service technicians to properly follow safety, installation and service instructions.

A. Intended Use

The product is a module-level power electronics device for a solar photovoltaic and battery storage system. It is used in the Lunar Energy Storage System along with a hybrid inverter and microgrid interconnect device. The system is intended for residential use.

The system is intended for use in standard 120/240-volt split-phase, 3-wire electrical distribution systems in the North America region.

The product is suitable for indoor and outdoor use, according to the requirements outlined in this Installation Manual.

The product must be operated with third-party accessory components that are approved by the electrical standards applicable in the jurisdiction of installation.

B. Safety and Advisory Symbols

The following symbols are used in this document to indicate important information:

	**WARNING**: Indicates a hazardous situation where failure to follow instructions or use proper materials may result in **serious injury, loss of life, or destruction of equipment**. Use caution and do not proceed until the indicated conditions or required procedures are fully understood and met.
	**CAUTION**: Indicates a hazardous situation where failure to follow instructions or use proper materials may result in **minor injury or damage to equipment**. Do not proceed until the indicated conditions or required procedures are fully understood and met.
	**NOTE:** Indicates an important step or additional information that highlights best practices or procedures. To avoid damage to equipment and achieve optimum results, follow the instructions carefully.

Les symboles suivants sont utilisés dans ce document pour indiquer des informations importantes:

	**AVERTISSEMENT:** Indique une situation dangereuse dans laquelle le non-respect des instructions ou l'utilisation de matériaux inappropriés peut entraîner **des blessures graves, la mort ou la destruction de l'équipement**. Soyez prudent et ne continuez pas tant que les conditions indiquées ou les procédures requises ne sont pas entièrement comprises et respectées.
	**ATTENTION**: Indique une situation dangereuse dans laquelle le non-respect des instructions ou l'utilisation de matériaux inappropriés peut entraîner **des blessures légères ou des dommages matériels**. Ne continuez pas tant que les conditions indiquées ou les procédures requises ne sont pas entièrement comprises et respectées.
	**NOTE:** Indique une étape importante ou des informations supplémentaires qui **mettent en évidence les meilleures pratiques ou procédures**. Pour éviter d'endommager l'équipement et obtenir des résultats optimaux, suivez attentivement les instructions.

C. Documentation

⚠ **WARNING:** Follow all safety precautions in the owner's manual, installation manual, and other documents included with the equipment.
⚠ **WARNING**: Read all instructions and cautionary markings in this document and on the equipment before installing the equipment. Failure to follow any of the instructions or warnings in this document may result in electric shock, serious injury, or loss of life.
⚠ **AVERTISSEMENT**: Suivez toutes les précautions de sécurité contenues dans le manuel du propriétaire, le manuel d'installation et les autres documents fournis avec l'équipement.
⚠ **AVERTISSEMENT**: Lisez toutes les instructions et mises en garde contenues dans ce document et sur l'équipement avant installation. Le non-respect des instructions ou des avertissements de ce document peut entraîner un choc électrique, des blessures graves, voire la mort.

D. Service Contact Information

For assistance with installation, service, or repairs, you can reach Lunar Energy Installer Support between 8 AM and 7 PM (PST) through the following methods:

- Telephone: 650-535-1969
- Email: installersupport@lunarenergy.com
- Lunar Installation App (live-chat, phone or email)

When reaching out to Lunar Energy Installer Support for service or parts inquiries, please have the product model and serial number, readily available.

E. Safety Rules and General Information

All installations must conform to the laws, regulations, codes and standards applicable in the jurisdiction of installation. Before starting an installation, consult a local building or electrical inspector for local codes, permit and inspection requirements.

Jurisdiction	Code
United States	National Electrical Code (ANSI/NFPA 70)
Canada	Canadian Electrical Code (CSA Z462, CSA C22.1, Part 1)

⚠ **WARNING**: Only qualified electrical personnel should install, troubleshoot, service, or replace the equipment.

⚠ **WARNING**: Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.

⚠ **WARNING**: Turn off all power supplying this equipment before working on or inside the equipment. Always use a properly-rated voltage sensing device to confirm power is off. Replace all devices, covers, and doors before turning on power to the equipment.

⚠ **WARNING**: To protect the equipment and its components from damage when transporting, handle with care. To help prevent damage, leave all equipment in its shipping packaging until it is ready to be installed.

⚠ **WARNING**: Inspect the equipment for damage before installing. Do not install the equipment if it has been damaged in any way.

⚠ **WARNING**: Do not attempt to open, disassemble, repair, tamper with, or modify the equipment. The equipment contains no user-serviceable or field-replaceable parts. Contact the installer who installed the equipment for any repairs.

⚠ **WARNING**: Do not insert foreign objects into any part of the equipment.

⚠ **WARNING**: Do not expose the equipment or any of its components to direct flame.

⚠ **WARNING**: This product is not intended to be used in a critical life support application. Failure to adhere to this warning could result in loss of life or serious injury.

⚠ **WARNING**: Prop 65 Warning for California Residents: This product may contain chemicals known to the State of California to cause cancer, birth defects, and other reproductive harm.

⚠ **CAUTION**: Do not use parts or accessories other than those specified for use with the equipment.

⚠ **CAUTION**: Do not paint any part of the equipment, including any internal or external components or covers.

⚠ **CAUTION**: Do not use solvents to clean the equipment, or expose the equipment to flammable or harsh chemicals or vapors. Do not allow petroleum-based paints, solvents, or sprays to contact nonmetallic parts of the equipment.

⚠ **AVERTISSEMENT**: Seul un électricien qualifié doit installer, dépanner, entretenir ou remplacer l'équipement.

⚠ **AVERTISSEMENT**: Appliquez les équipements de protection individuelle (EPI) appropriés et suivez les procédures de sécurité électrique.

⚠ **AVERTISSEMENT**: Coupez toute alimentation électrique alimentant cet équipement avant de travailler sur ou à l'intérieur de l'équipement. Utilisez toujours un dispositif de détection de tension correctement calibré pour confirmer que l'alimentation est coupée. Remplacez tous les appareils, capots et portes avant de mettre l'équipement sous tension.

⚠ **AVERTISSEMENT**: Pour protéger l'équipement et ses composants contre les dommages liés au transport, manipulez avec précaution. Pour éviter tout dommage, laissez l'équipement dans son emballage d'origine jusqu'à ce qu'il soit prêt à être installé.

⚠ **AVERTISSEMENT**: Inspectez l'équipement pour déceler tout dommage avant installation. N'installez pas l'équipement s'il a été endommagé de quelque manière que ce soit.

⚠ **AVERTISSEMENT**: N'essayez pas d'ouvrir, de démonter, de réparer, de falsifier ou de modifier l'équipement. L'équipement ne contient aucune pièce réparable par l'utilisateur. Contactez l'installateur qui a installé l'équipement pour toute réparation.

⚠ **AVERTISSEMENT**: N'insérez aucun objet étranger dans l'équipement.

⚠ **AVERTISSEMENT**: N'exposez pas l'équipement ou l'un de ses composants à une source de chaleur directe.

⚠ **AVERTISSEMENT**: Ce produit n'est pas destiné à être utilisé dans une application critique de survie. Le non-respect de cet avertissement pourrait entraîner la mort ou des blessures graves.

⚠ **AVERTISSEMENT**: Avertissement Prop 65 pour les résidents de Californie : ce produit peut contenir des produits chimiques connus par l'État de Californie pour provoquer le cancer, des malformations congénitales et d'autres problèmes de reproduction.

⚠ **ATTENTION**: Ne pas utiliser de pièces ou accessoires autres que ceux spécifiés pour être utilisés avec l'équipement.

⚠ **ATTENTION**: Ne peignez aucune partie de l'équipement, y compris les composants ou couvercles internes ou externes.

⚠ **ATTENTION**: N'utilisez pas de solvants pour nettoyer l'équipement et n'exposez pas l'équipement à des produits chimiques ou des vapeurs inflammables ou agressifs. Ne laissez pas les peintures, solvants ou sprays à base de pétrole entrer en contact avec les parties non métalliques de l'équipement.

F. Storage, Installation, and Use

⚠ **WARNING**: Do not store the equipment for more than six (6) months, or permit the electrical feed to the equipment to be disconnected for more than six (6) months, without placing the equipment into a storage condition as approved by Lunar Energy.

⚠ **WARNING**: These service instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that specified in the operating instructions unless you are qualified to do so.

⚠ **WARNING**: Before making any connections, verify that the circuit breaker(s) are in the off position. Double check all wiring before applying power.

⚠ **WARNING**: Before making any connections, verify that the inverter rotary disconnect switch is in the OFF position.

⚠ **WARNING**: Ensure that all wiring is correct and that none of the wires are pinched or damaged.

⚠ **WARNING**: Do not connect this equipment to an electrical system with other power production sources unless directed to do so in these installation instructions.

⚠ **WARNING**: Only use approved devices, fasteners, and wiring as outlined in these instructions.

⚠ **WARNING**: Ensure that the equipment is properly grounded before applying power.

⚠ **WARNING**: Always de-energize the equipment before servicing. It is best practice to de-energize the equipment before disconnecting it.

⚠ **WARNING**: Only perform service on the equipment as detailed in these instructions, or under the instruction of Lunar Energy.

⚠ **WARNING**: Ensure that power coming from any connected equipment is de-energized before servicing or installing.

⚠ **WARNING**: Do not install the equipment or any of its components near heating equipment.

⚠ **WARNING**: Do not immerse the equipment or any of its components in water or other fluids.

⚠ **WARNING**: Do not open or disassemble the equipment, or any of its components, outside of what is instructed in this manual.

⚠ **WARNING**: Do not inflict mechanical damage (such as dropping, deforming, impacting, cutting, or penetrating with a sharp object) on the equipment or otherwise modify it.

⚠ **WARNING**: Do not heat the equipment. Keep it away from sources of ignition and operate it only

within the permissible temperature range.

⚠ **WARNING**: Do not short-circuit the equipment.

⚠ **WARNING**: Do not use equipment in a manner not specified by the manufacturer. Doing so may cause injury or loss of life, or damage to equipment.

⚠ **WARNING**: Do not use equipment if it is defective, appears to be damaged, or fails to operate.

⚠ **WARNING**: Risk of electric shock and fire. Use only with PV modules with a maximum system voltage rating of 600V or higher.

⚠ **WARNING**: When a ground fault is indicated, normally ungrounded conductors may be grounded.

⚠ **CAUTION**: Ensure that all wire connections are tightened to the factory-specified torque value.

✓ **NOTE**: The equipment is intended to operate with a connection to the Internet. Failure to maintain an Internet connection may affect the warranty.

✓ **NOTE**: The Lunar Battery will not operate as intended unless installed with the Lunar Bridge, Lunar Maximizers, and Lunar Maximizer Hub.

⚠ **AVERTISSEMENT**: Ne stockez pas l'équipement pendant plus de six (6) mois, et ne permettez pas que l'alimentation électrique de l'équipement soit déconnectée pendant plus de six (6) mois, sans placer l'équipement dans un état de stockage approuvé par Lunar Energy.

⚠ **AVERTISSEMENT**: Avant d'effectuer des connexions, vérifiez que le(s) disjoncteur(s) est (sont) en position d'arrêt. Vérifiez à nouveau tout le câblage avant de mettre sous tension.

⚠ **AVERTISSEMENT**: Avant d'effectuer des connexions, vérifiez que le sectionneur rotatif de l'onduleur est en position OFF.

⚠ **AVERTISSEMENT**: Assurez-vous que tout le câblage est correct et qu'aucun fil n'est pincé ou endommagé.

⚠ **AVERTISSEMENT**: Ne connectez pas cet équipement à un système électrique avec d'autres sources de production d'énergie, sauf indication contraire dans ces instructions d'installation.

⚠ **AVERTISSEMENT**: Utilisez uniquement des appareils, des fixations et un câblage approuvés, comme indiqué dans ces instructions.

⚠ **AVERTISSEMENT**: Assurez-vous que l'équipement est correctement relié à la terre avant de mettre sous tension.

⚠ **AVERTISSEMENT**: Mettez toujours l’équipement hors tension avant de procéder à l’entretien. Il est recommandé de mettre l'équipement hors tension avant de le débrancher.

⚠ **AVERTISSEMENT**: N'effectuez l'entretien de l'équipement que comme détaillé dans ces instructions ou sous les instructions d’une personne qualifiée par Lunar Energy.

⚠ **AVERTISSEMENT**: Assurez-vous que l’alimentation provenant de tout équipement connecté est hors tension avant l’entretien ou l’installation.

⚠ **AVERTISSEMENT**: N'installez pas l'équipement ou l'un de ses composants à proximité d'un équipement de chauffage.

⚠ **AVERTISSEMENT**: Ne plongez pas l'équipement ou l'un de ses composants dans l'eau ou autres liquides.

⚠ **AVERTISSEMENT**: N'ouvrez pas et ne démontez pas l'équipement, ou l'un de ses composants, en dehors de ce qui est indiqué dans ce manuel.

⚠ **AVERTISSEMENT**: N'infligez pas de dommages mécaniques (tels que chute, déformation, impact, coupure ou pénétration avec un objet pointu) à l'équipement Ne modifiez pas l'équipement de quelque manière que ce soit.

⚠ **AVERTISSEMENT**: Ne chauffez pas l’équipement. Tenez-le à l'écart des sources de chaleur et faites-le fonctionner uniquement dans la plage de température autorisée.

⚠ **AVERTISSEMENT**: Ne court-circuitez pas l'équipement.

⚠ **AVERTISSEMENT**: N'utilisez pas l'équipement d'une manière non spécifiée par le fabricant. Cela pourrait provoquer des blessures, voire la mort, ou endommager l'équipement.

⚠ **AVERTISSEMENT**: N'utilisez pas l'équipement s'il est défectueux, s'il semble endommagé ou s'il ne fonctionne pas.

⚠ **AVERTISSEMENT**: Risque de choc électrique et d'incendie. Utiliser uniquement avec des modules PhotoVoltaïques avec une tension nominale maximale du système de 600 V ou plus.

⚠ **ATTENTION**: Assurez-vous que toutes les connexions filaires sont serrées au couple spécifié en usine.

✓ **NOTE**: L'équipement est destiné à fonctionner avec une connexion à Internet. Le fait de ne pas maintenir une connexion Internet peut affecter la garantie.

✓ **NOTE**: La batterie Lunar ne fonctionnera pas comme prévu à moins d'être installée avec le Lunar Bridge, les Lunar Maximizers et le Lunar Maximizer Hub.

G. Environmental Conditions

⚠ **WARNING**: Do not expose the equipment to ambient temperatures outside of the storage and operating conditions outlined in this document.
⚠ **WARNING**: The equipment is certified for indoor and outdoor installation. However, the equipment should be installed in a location that prevents damage from flooding, directed water flow, or pressurized water. Ensure that no water sources are above or near the equipment, including downspouts or large sprinklers.
⚠ **CAUTION**: To ensure proper ventilation, do not allow debris to accumulate on or around the equipment.

⚠ **AVERTISSEMENT**: N'exposez pas l'équipement à des températures en dehors des conditions de stockage et de fonctionnement décrites dans ce document.
⚠ **AVERTISSEMENT**: L'équipement est certifié pour une installation intérieure et extérieure. Cependant, l'équipement doit être installé dans un endroit qui évite les dommages dus aux inondations. Assurez-vous qu'aucune source d'eau ne se trouve au-dessus ou à proximité de l'équipement, y compris les descentes pluviales, les arroseurs ou les robinets.
⚠ **ATTENTION**: Pour garantir une ventilation adéquate, ne laissez pas les débris s’accumuler sur ou autour de l’équipement.

H. Warning Symbols

These symbols used in labels on the product indicate important safety information:

	**CAUTION**: Indicates caution is necessary when operating the device or the control near the symbol.
	**RISK OF ELECTRIC SHOCK**: Indicates components that present risk of electric shock.
	**GROUNDING TERMINAL**: Indicates location of grounding connection on the equipment.
	**REFER TO INSTRUCTIONS**: Indicates that the user should refer to operating or installation instructions before proceeding.

O	**OFF**: Indicates the OFF position
I	**ON**: Indicates the ON position

Ces symboles utilisés sur les étiquettes du produit indiquent des informations de sécurité importantes:

	**ATTENTION**: Indique qu'une ATTENTION est nécessaire lors de l'utilisation de l'appareil ou de la commande à proximité du symbole.
	**RISQUE DE CHOC ELECTRIQUE**: Indique les composants présentant un risque de choc électrique.
	**BORNE DE MISE À LA TERRE**: Indique l'emplacement de la connexion à la terre sur l'équipement.
	**RÉFÉREZ-VOUS AUX INSTRUCTIONS**: Indique que l'utilisateur doit se référer aux instructions d'utilisation ou d'installation avant de procéder.
O	**HORS TENSION** : Indique la position HORS TENSION
I	**EN MARCHE** : Indique la position EN MARCHE

I. Qualified Personnel

This manual and the procedures described within are intended for use by qualified installers and service technicians only. Qualified personnel must have the following skills and experience:

- Knowledge of the principles and operation of on-grid and off-grid (backup) electrical systems.
- Knowledge of the risks associated with installing and using electrical devices and acceptable mitigation methods.
- Knowledge of installation of electrical devices.
- Knowledge of and adherence to all applicable safety precautions and best practices.

Regulatory Statements

A. Compliance Summary

The product is listed to the applicable product standards shown in the following table for the indicated jurisdictions.

North America	
Safety	Maximizer: UL 1741, CSA C22.2 No. 107.1 Maximizer Hub: UL 1741, CSA C22.2 No. 290
Environmental	Maximizer: FCC Part 15 Class B Maximizer Hub: FCC Part 15 Class B

B. Compliance Statements

1. 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 device 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.

> ⚠ **CAUTION**: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF Exposure Information:

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.

2. **ISED Notice:**

This device complies with Innovation, Science and Economic Development Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: this device may not cause interference, and this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: l'appareil ne doit pas produire de brouillage, et l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

ISED Radiation Exposure Statement

This device complies with RSS-102 radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the ISED radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.

Cet appareil est conforme aux limites d'exposition aux rayonnements de la CNR-102 définies pour un environnement non contrôlé. Afin d'éviter la possibilité de dépasser les limites d'exposition aux fréquences radio de la CNR-102, la proximité humaine à l'antenne ne doit pas être inférieure à 20 cm (8 pouces) pendant le fonctionnement normal.

3. Signage

   Where NFPA 855 signage is required, the installer shall provide it.

System Specifications

Maximizer	650W Maximizer	420W Maximizer
Model Number	10-00522D 10-00522E	10-005220
Rated Input Power (DC)	650 W	420 W
Maximum Input Open Circuit Voltage (Voc)*	75 Vdc	60 Vdc
MPPT Operating Voltage	20 - 60 Vdc	
Maximum Input Short Circuit Current (Isc)	20 A	
Maximum Input Operating Current (Imp)	16 A	
Maximum Continuous Output Power (DC)	650 W	420 W
Maximum Output Current	16 A	
Operating Output Voltage Range	20 - 60 Vdc	
Minimum - Maximum Maximizers per Series String	9 - 24	9 - 20
Maximum Quantity of Parallel Strings	3 strings (Different string lengths allowed)	
Maximum Operating Output Current of up to 3 Parallel Strings	37.5 A	
Maximum number of Maximizers per ESS	72	60

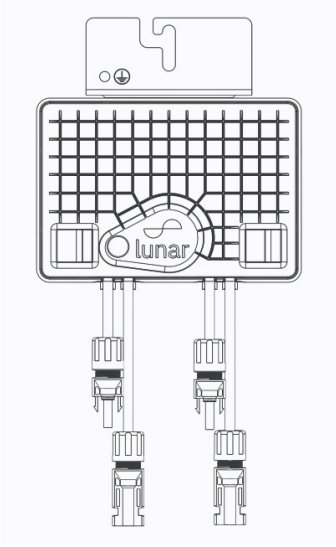
*at site specific cold temperature

Maximizer Environmental

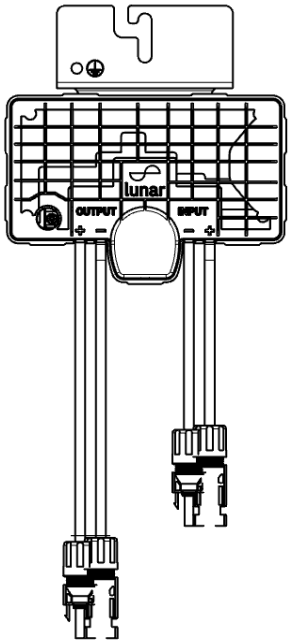
Operating Temperature	-40°F to 185 °F (-40°C to 85°C)
Ingress Rating	NEMA 4X, IP68
Maximum Elevation	9843 ft (3000m)
Relative Humidity	100%

Maximizer Mechanical

Dimensions (L x W x D)	10-005220, 10-00522D: 6.9” x 6.7” x 1.7” (176 mm x 169 mm x 43 mm) 10-00522E: 6.7”x 6.7’’ x 1.7’’ (169 mm x 169mm x 43mm)
Mass	10-005220, 10-00522D: 2 lb (936 g) 10-00522E: 1.6lbs (725 g)
Mounting	Rail or panel mount
PV Connector	Staubli MC4



10-005220, 10-00522D



10-00522E

Maximizer Compliance

Certifications	UL 1741, CSA C22.2.107
Emissions	FCC Part 15 Class B

Maximizer Hub

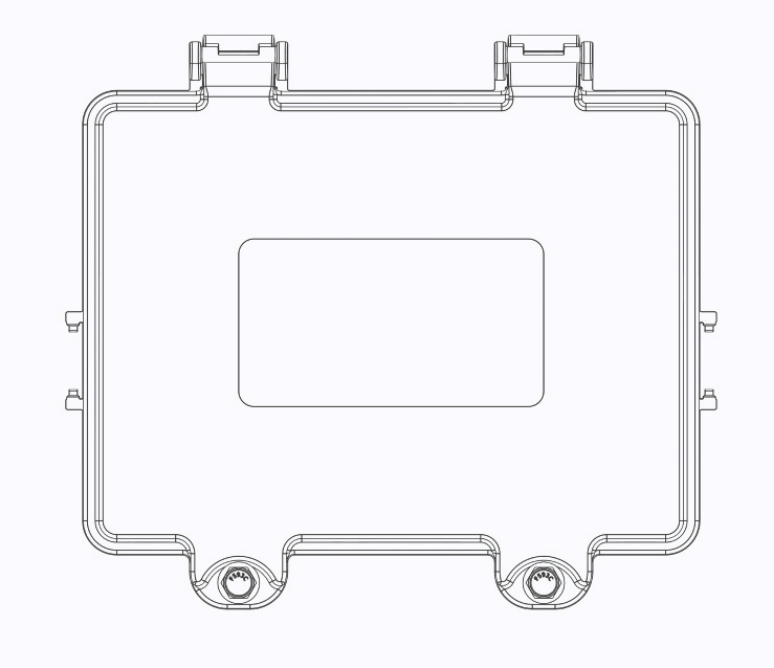
Part Number / Model Number	10-002842
Lunar Maximizer Hub, Box with mounting hardware	90-004034
Operating Voltage	25 Vdc - 450 Vdc
DC Inputs	3 DC PV strings
Maximum Current Per Terminal	40A
Maximum Sum of Short Circuit Current	50 A

Terminal Wire Size Range	8 AWG - 20 AWG (Red / Black) 6 AWG - 16 AWG (Ground)
Internal Wire Communications	Mesh Wi-Fi to Maximizers, PLC to Inverter
Warranty	25 years

Maximizer Hub Environmental	
Operating Temperature	-40°F to 185 °F (-40°C to 85°C)
Ingress Rating	NEMA 3R
Maximum Elevation	9843 ft (3000m)
Relative Humidity	100%

Maximizer Hub Mechanical

Dimensions (L x W x D)	11” x 12” x 4” (280 mm x 305 mm x 102 mm)
Mass	2.3 lbs (936 g)
Mounting Location	Rail or comp shingle flashing



Maximizer Hub Compliance

Certifications	UL 1741 CAN/CSA C22.2 No.107.1 CSA C22.2

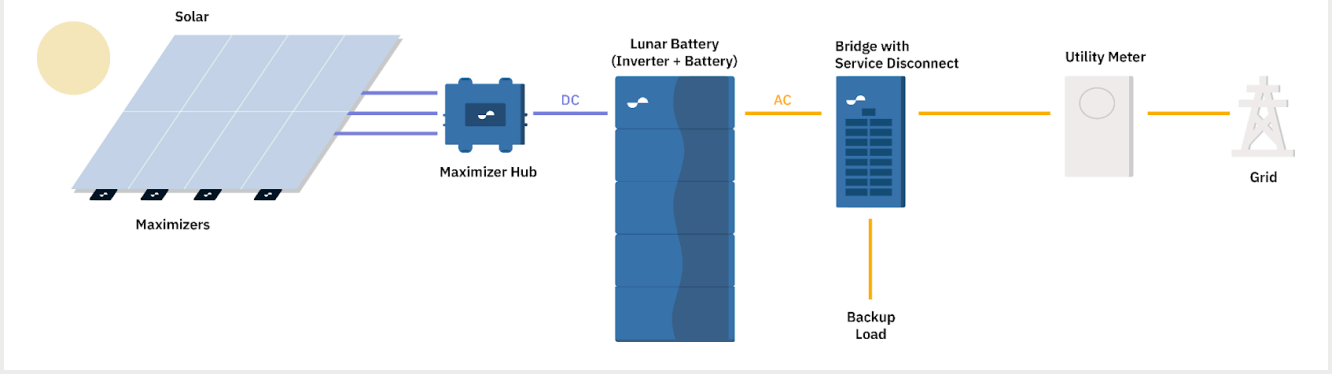
System Overview

The Lunar Maximizer and Maximizer Hub are components of Lunar Energy's integrated solar battery and energy storage system. The system comprises a smart hybrid inverter, a modular battery system, a microgrid interconnect device, and module-level power electronics that enable control of solar generation, energy storage, and loads.

Maximizers are DC-to-DC charge controllers that connect to individual solar modules within the system. They optimize solar module performance by tracking each module's maximum power point and mitigating voltage mismatches in real time.

The Maximizer Hub is a junction box containing wiring terminals for PV connections and control circuitry for communication with the Maximizers and the Inverter.

Whole Home: Lunar System with Service Disconnect at Lunar Bridge



A. Maximizer and Maximizer Hub Configurations

1. Each Maximizer must be connected to 1 PV module only.
2. A maximum of 3 Maximizer PV strings can be connected to a single Lunar Battery.
3. A maximum of 3 Maximizer PV strings can be combined in parallel.
4. A maximum of 1 Maximizer Hub is allowed per Lunar Battery.
5. A minimum of 1 Maximizer Hub per Lunar Battery is recommended, but not required. Confirm with Lunar Energy if the Maximizers are able to communicate to the Inverter without the Maximizer Hub.
6. Maximizer strings are not required to pass through the Maximizer Hub.
7. Maximizers are connected to each other in series strings, with each series string requiring a minimum of 9 Maximizers and allowing a maximum of 24 Maximizers.
8. Maximizer series strings can be connected in parallel, with up to 3 strings in parallel.

9. Parallel strings can have unequal series string lengths and different numbers of Maximizers, provided they meet the above rules.
10. A maximum of 3 total series strings can be connected to the Lunar Battery inverter, regardless of if/how they connect to Maximizer Hubs, how they connect to the Lunar Battery, or how they are combined together in parallel.
11. For more detailed guidance, please refer to Lunar System PV Installation and Troubleshooting Guide

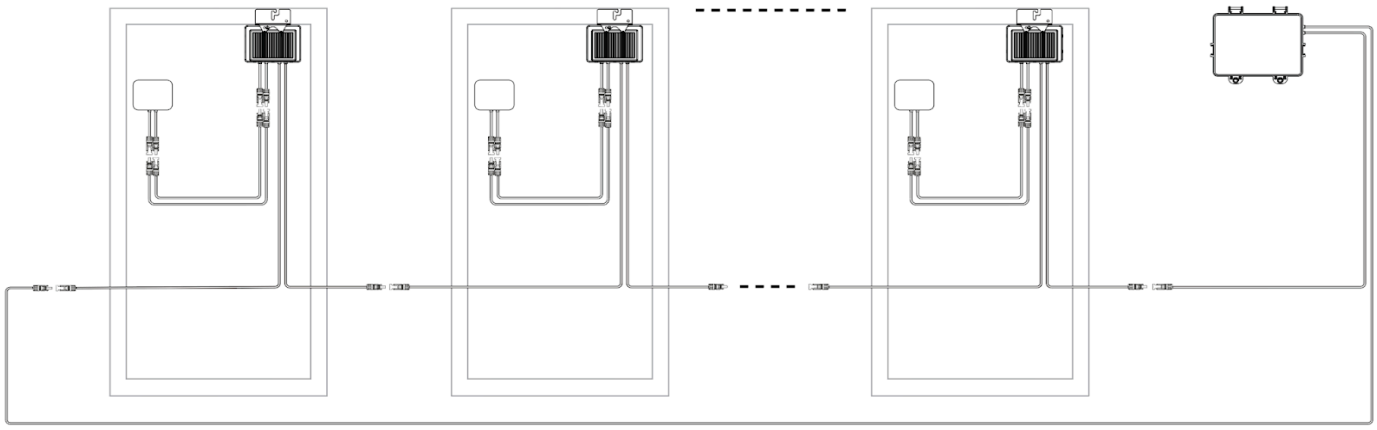


Figure 3. Single series string example (Maximizer mounted to module frame shown)

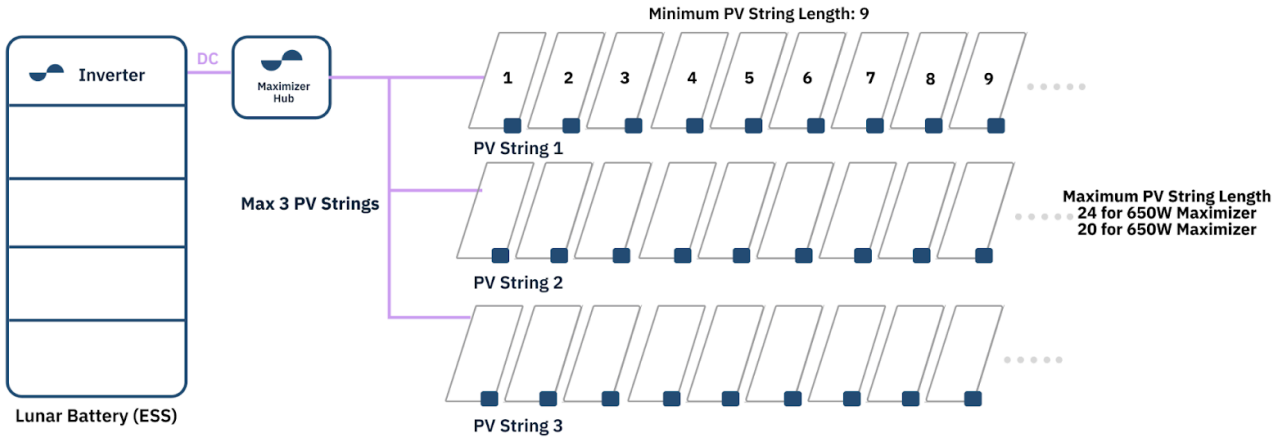


Figure 4. Example stringing configuration of Lunar Energy Maximizers with Maximizer Hub

B. Maximizer and Maximizer Hub Communications

The Maximizers communicate wirelessly with each other and with the Maximizer Hub over a 2.4 GHz Wi-Fi mesh network. Therefore each Maximizer only needs to be in the communication range of a single Maximizer (or Maximizer Hub) to communicate with the Lunar Energy System.

The Maximizer Hub communicates with the Lunar Battery inverter over wired Power Line Communication (PLC) using the DC circuit.

The following table shows the estimated maximum wireless communication range of the Lunar Maximizer and Maximizer Hub under typical conditions.

Wifi Mesh Communication Range (point to point)		
Metal Roof	**Any other roof**	**Free Air**
30 ft (9 m)	60 ft (18m)	100 ft (30m)

The Maximizer Hub is capable of communicating with the Lunar Battery inverter over wired PLC up to 200 feet (60m).

✓ **NOTE:** Mesh communications are not required for the system to accomplish Rapid Shutdown or module-level and string-level power maximization. Mesh communications are only required for telemetry and Firmware updates.

C. Rapid Shutdown

Maximizers automatically enter their Rapid Shutdown state when the Lunar Battery Rapid Shutdown Initiation Device is switched to the OFF position. They will remain in this shutdown mode until the Rapid Shutdown Initiation Device is switched back to the ON position.

See Lunar Battery Installation Manual to confirm requirements for the Rapid Shutdown Initiation Device (RSID).

Install Maximizers

The Lunar Maximizer is compatible with rail-based and rail-less solar panel systems.

⚠ CAUTION: Maximizers must be grounded according to local code requirements and according to the grounding and bonding requirements in this document.

⚠ CAUTION: To ensure adequate cooling, Maximizers cannot be mounted in a secondary enclosure. Maximizers must be installed to allow for adequate air flow. See the clearance requirements in this document.

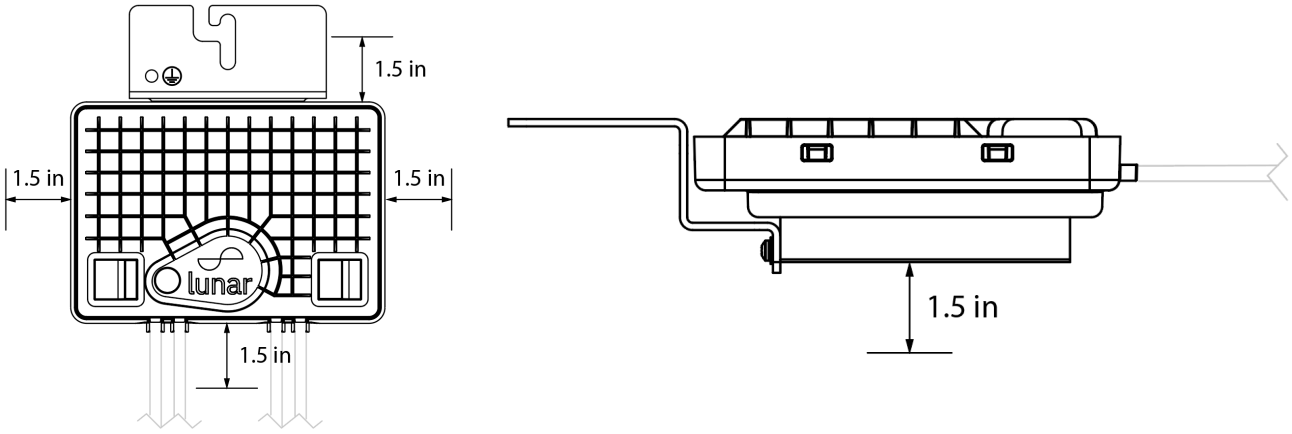
⚠ CAUTION: Do not install Maximizers upside down.

✓ NOTE: The Lunar Maximizer and Lunar Maximizer Hub can only be used with the Lunar Battery, and not with any other solar inverter.

✓ NOTE: (Canada Only) Modules with arrays greater than 30V must not be installed in readily accessible locations.

A. Clearance Requirements

Maximizers must be installed such that they have a minimum of 1.5 inch (40 mm) of clearance on all sides (excluding the mounting flange and wires).



B. Mounting Maximizers in Rail-Based or Rail-Less Solar Racking Systems

Lunar Maximizers may only be mounted using a UL 2703-certified solar racking system, that includes the Lunar Maximizer on the racking manufacturer's UL 2703 certification file.

Approved mounting hardware include:

1. SnapNrack™ MLPE Frame Attachment Kit
2. SnapNrack™ MLPE Rail Attachment Kit
3. Enstall, Ironridge, and Ecofasten MLPE mounting hardware

Attach the Maximizer mounting flange to the racking system according to the racking system manufacturer's instructions.

For instructions on installing the SnapNrack™ MLPE Frame or Rail Attachment Kit, refer to the SnapNrack™ installation manuals at https://snapnrack.com/resources/.

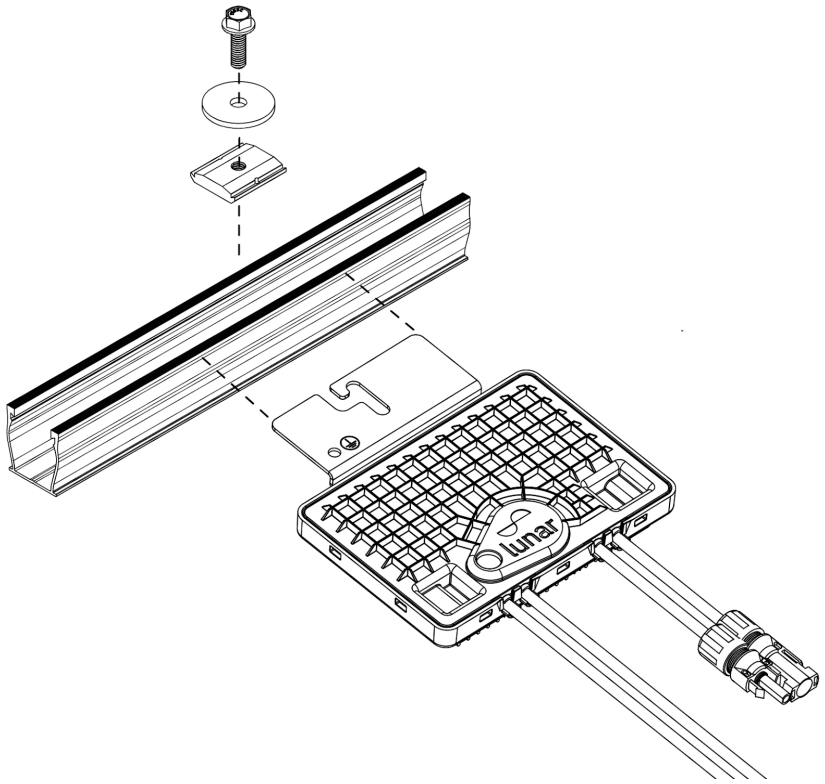


Figure 6. Example installation of a Maximizer in a rail-based system (exploded view).

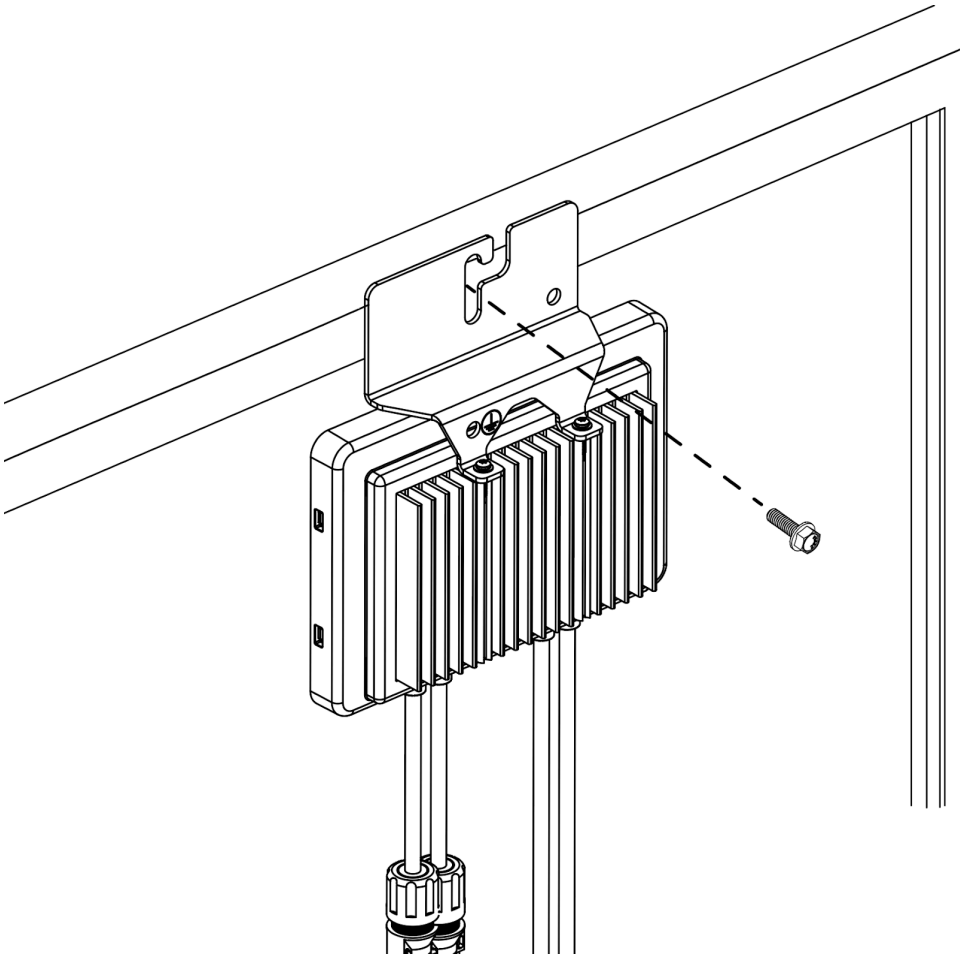


Figure 5. Example installation of a Maximizer in a rail-less system (exploded view).

C. Fasteners

The Maximizer mounting plate must be secured using a 5/16-inch diameter bolt. Ensure that the bolt is tightened to the torque specifications provided by the racking manufacturer. Always refer to the manufacturer's guidelines to ensure proper installation.

D. Orientation

The Maximizer must be installed in the correct orientation to ensure proper functionality and heat dissipation. The heat sink must be positioned downward, facing the roof, while the Lunar logo should be oriented upward, toward the solar panel. Proper alignment is critical for optimal performance and system efficiency.

E. Field Connections

All electrical connections to the Maximizer must be made using Staubli MC4 connectors with the specific part numbers **32.0140P0001-UR** or **32.0141P0001-UR**. Use of these connectors ensures compatibility and reliable performance.

F. Grounding and Bonding

To ensure proper functionality, Maximizers must be installed in a way that establishes a ground bond between the Maximizer mounting flange and the Lunar Battery. This is achieved by bonding the Maximizer to the PV rail or the PV module frame using the mounting bolt.

> ⚠ **CAUTION:** Proper grounding is essential for safety and system reliability.

G. Installing an Optional Ground Lug on the Maximizer

The mounting plate of the Maximizer includes holes for optional installation of a listed grounding and bonding terminal. Follow the manufacturer's instructions for securing and bonding this terminal. The mounting hole has a diameter of 0.26 inch (6.6 mm).

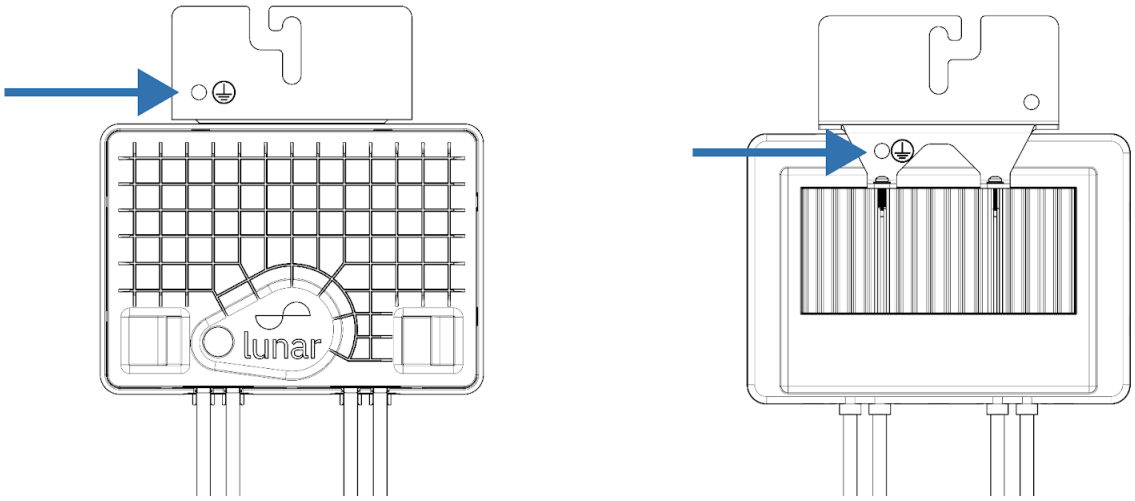


Figure 6. Location of optional ground bonding points on the Maximizer (front and back).

H. MAC Addresses QR Code

Peel the right QR code sticker with MAC address (MAC:XX:XX:XX:XX:XX:XX) off the Maximizer and apply it to a dedicated sheet.

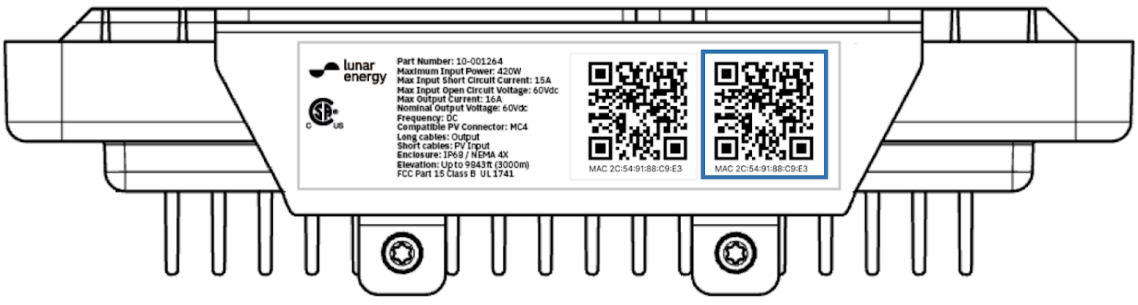


Figure 7. Location of QR code sticker on the Maximizer.

Installing the Maximizer Hub

The Maximizer Hub enclosure is designed using the SnapNrack™ Junction Box XL. The Lunar Maximizer Hub can be mounted directly onto a roof surface or attached to a solar rail system, making it compatible with both rail-based and rail-less solar panel installations. This flexibility ensures seamless integration with various solar mounting configurations.

NOTE: The Maximizer Hub enclosure (SnapNrack™Junction Box XL) does not provide grounding between conduit connections. Use grounding bushings, jumper wires, and terminals as needed to establish grounding.

A. Mounting Maximizer Hub in Rail-Based or Rail-Less Solar Racking Systems

The Maximizer Hub comes with 2 different mounting attachment accessories. Only 1 mounting accessory should be used, based on the desired installation method.

North America	
Product Description	**SnapNrack™ mounting method**
Lunar Maximizer Hub, rail-less	SnapNrack™ SpeedSeal™ for mounting directly to roof surface
Lunar Maximizer Hub, rail-based	SnapNrack Rail Brackets for mounting to SnapNrack Ultra Rail

For instructions on mounting the Maximizer Hub enclosure (SnapNrack™ Junction Box XL) for both rail-based and rail-less installations, refer to the SnapNrack™ installation manuals at https://snapnrack.com/resources/

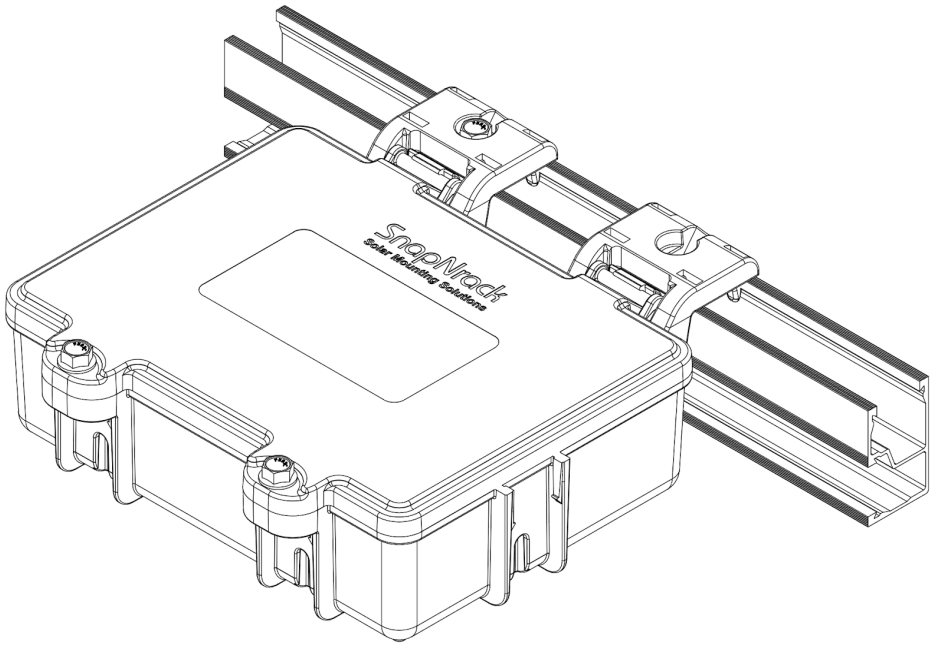


Figure 8. Rail mounted Maximizer Hub

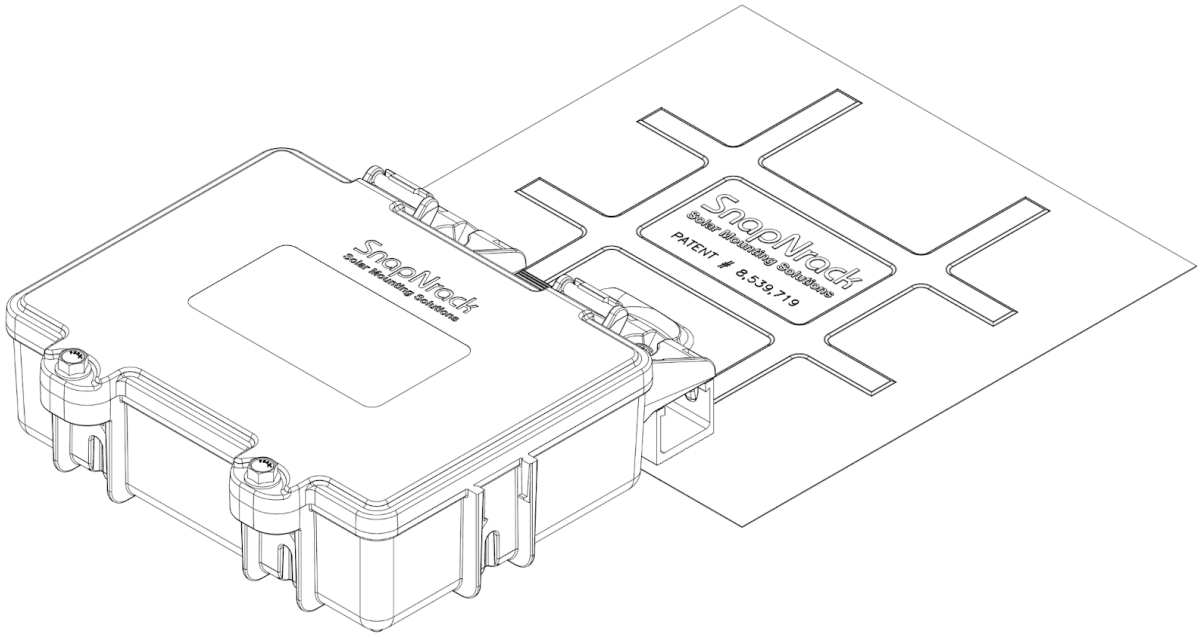


Figure 9. Rail-less mounted Maximizer Hub.

B. Conduit & Cable Entry

For conduit and/or cable entry to the Maximizer Hub, drill appropriate sized holes in the Maximizer Hub enclosure to match the water tight conduit fitting or cable gland.

The maximum allowed diameter size for drilled holes is 1.315” to accommodate 1” trade size conduit.

For conduit connections, rain-tight compression connectors must be used. Where cables enter the Maximizer Hub without conduit, water-proof cable glands are required.

> **NOTE:** Conduit and cable connectors used with the Maximizer Hub must be metal and must be UL 514B approved.

C. Orientation

The Maximizer Hub must be mounted in the correct up/down orientation. The SnapNrack logo must be oriented up toward the sky.

Drill holes only in the unobstructed left and right sides of the enclosure (shown in green below), and not in the top, bottom, up-roof, or down-roof sides.

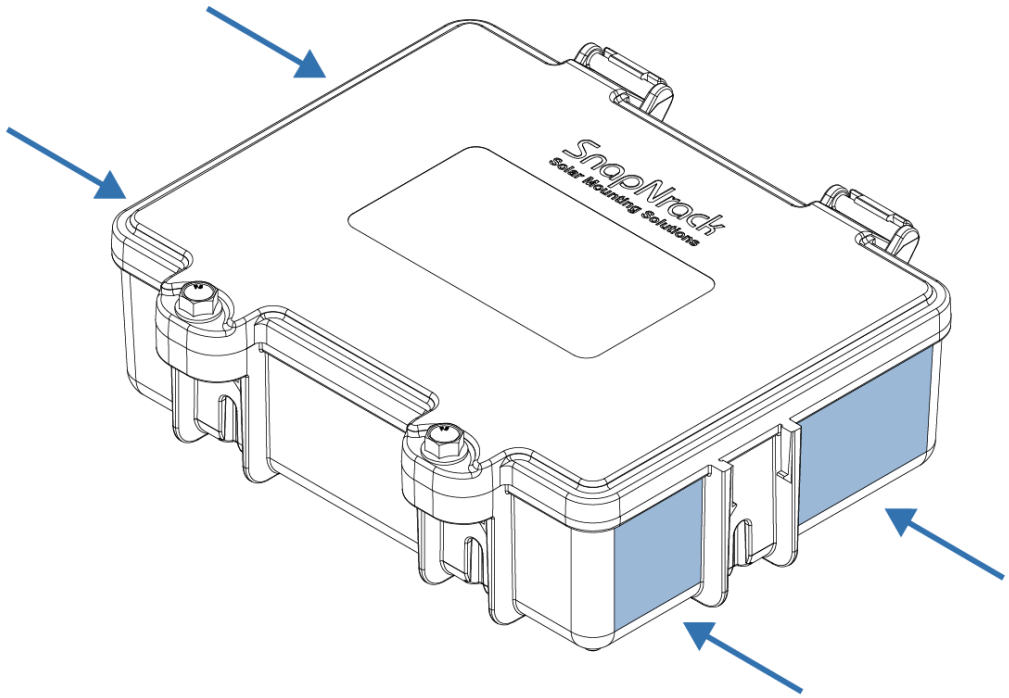


Figure 10. Maximizer Hub possible conduit and cable entry locations (shown in blue).

Wire the System

A. Maximizer Connections

- Connect the input (short) DC+ and DC– leads from the Maximizer to the corresponding PV module leads.
- Connect the output (long) DC+ and DC– leads from the Maximizer to the output of other Maximizers in the series string.
- Connect the DC+ output connector of the Maximizer at one end of the series string to the corresponding terminal in the Maximizer Hub.
- Connect the DC– output connector of the Maximizer at the other end of the series string to the corresponding terminal in the Maximizer Hub.

NOTE: The PV module must use a Staubli MC4 connector that matches the 12 AWG to 10 AWG Staubli MC4 size of the connectors on the Maximizer leads

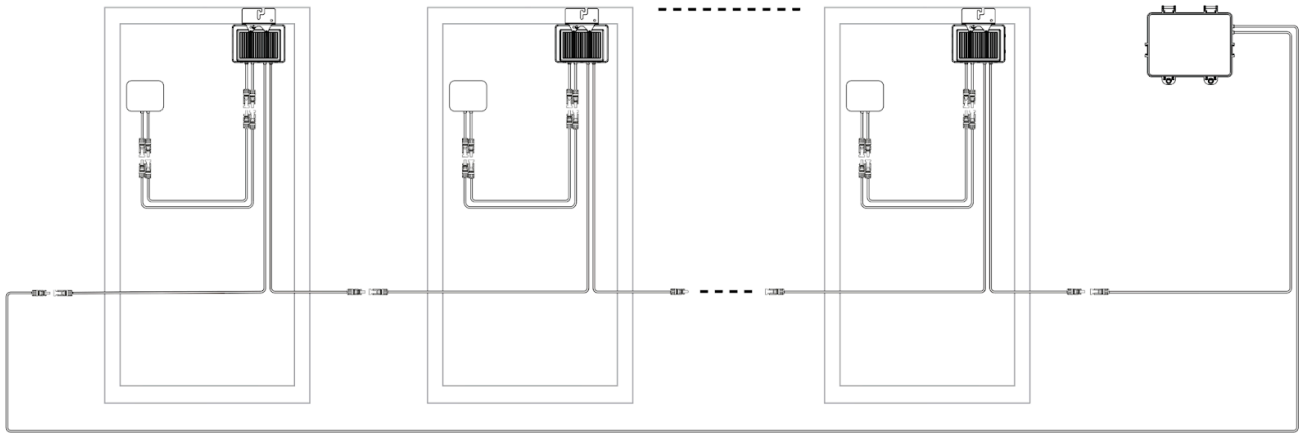


Figure 11. Single series string example (Maximizer mounted to module frame shown).

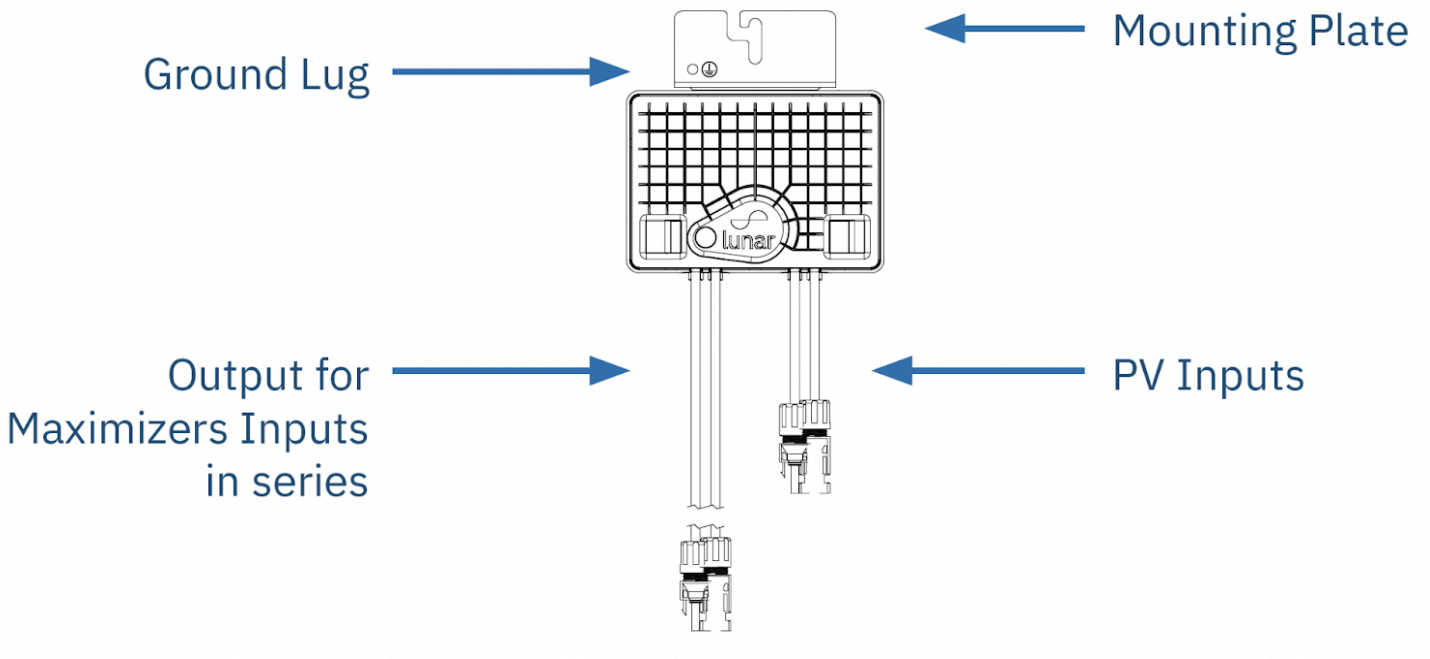


Figure 12. Maximizer connections

B. Maximizer Hub Wire Terminations

The Maximizer Hub has 3 positive (red) DC terminals, 3 negative (black) DC terminals, and 1 ground (green) terminal mounted to a DIN rail.

Torque the positive and negative terminals to 1 Nm (8.9 in-lbs).

Torque the ground terminal to 1.3 Nm (11.5 in-lbs).

The Maximizer Hub is factory installed with the positive terminals bonded together with push-in jumpers. The negative terminals are bonded together in the same fashion. Adjustment from factory condition should not be necessary, but an installer may remove these jumpers if needed.
The PCBA inside the Maximizer Hub has wire leads connected to one positive and one negative terminal. Adjustment from factory condition should not be necessary, but an installer may release and re-terminate these leads from the DIN rail terminals if needed.

✓ NOTE: Do not move, alter, or otherwise impact the PCBA or its cover within the Maximizer Hub.

✓ NOTE: Which wire is connected to which terminal is interchangeable, provided they abide by their respective polarity. An example wiring diagram for the Maximizer Hub is shown below.

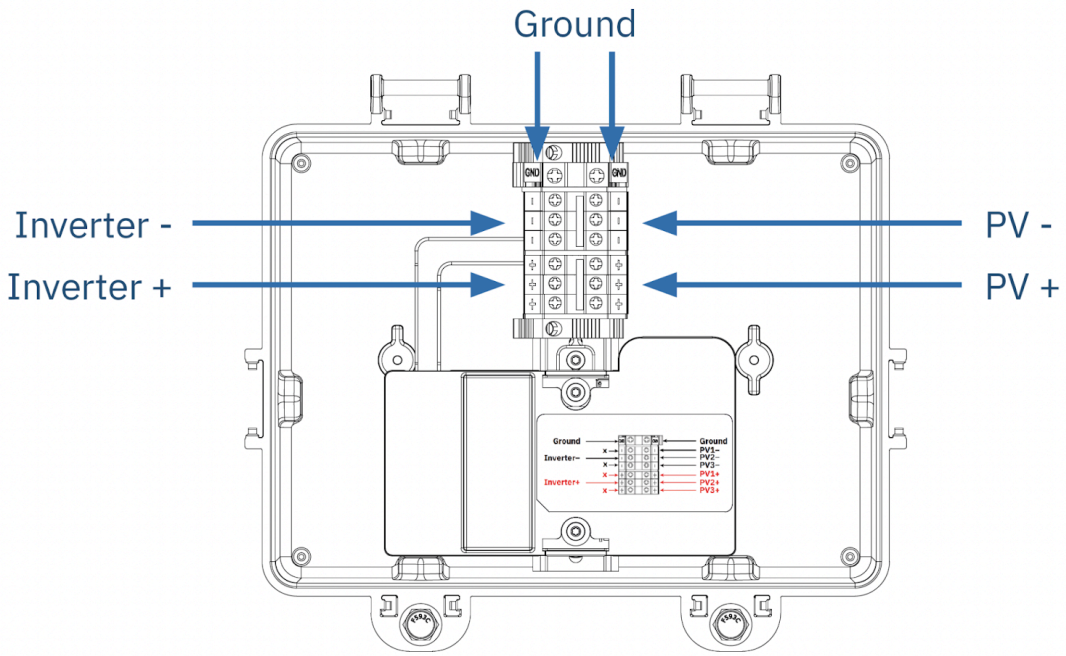


Figure 13. Lunar Maximizer Hub interior showing wire terminal locations

C. Maximizer Hub Grounding

The Maximizer Hub must be grounded with a wire of sufficient gauge in compliance with NEC requirements. The Maximizer Hub has two ground terminals at the top of the terminal block.

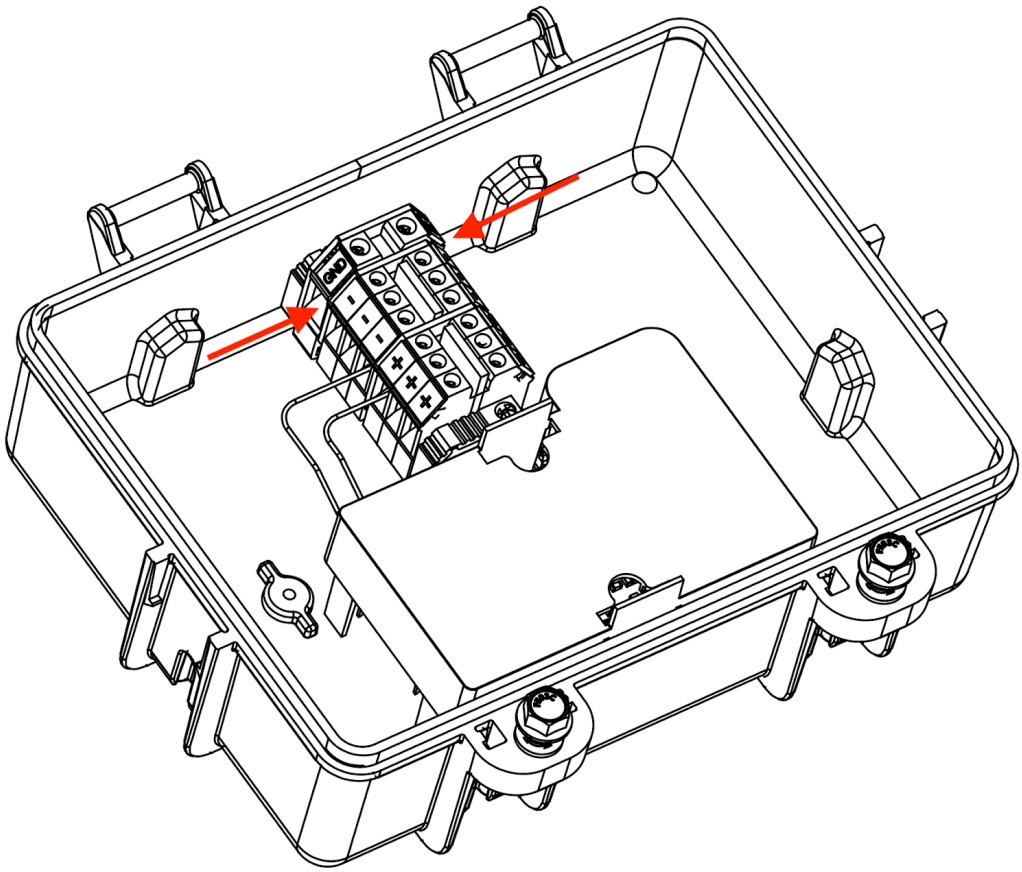


Figure 14. Lunar Maximizer Hub interior showing ground terminal locations.

Commission the System

To commission the Maximizer Hub and Maximizer:

1. Download and launch the Lunar Installer App on your supported device.
2. Log into your Lunar Installer account.
3. Follow the prompts for commissioning a Lunar Maximizer Hub and Maximizers. This includes scanning the QR code on the removable label from each Maximizer. The Maximizer Hub QR code is not required to be scanned.
4. While commissioning the Lunar Battery system, the Maximizer Hub and Maximizers receive firmware updates if appropriate.
5. After commissioning is complete, the Maximizer Hub and Maximizer transmit data and receive over-the-air firmware updates via the Lunar Battery system.