

XR 60 User Manual

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MODEL #: ESS16K60KWH2PHVXX (XX IS 00 – 99)

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1. About This Manual

1.1 Purpose

This manual provides instructions for the installation, connection, commissioning, operation, troubleshooting, maintenance, and decommissioning of the EG4® XR 60 Energy Storage System (ESS). Read this manual in its entirety, including all of section 2, Safety Instructions & Notifications, before installing, operating, or servicing the system.

1.2 Intended Audience

This manual is written for the following readers:

- **Qualified installers and licensed electricians:** All system design, installation, wiring, configuration, commissioning, and service work must be performed by qualified personnel in accordance with this manual and all applicable codes. Sections 4 through 13, section 14.5, and section 15 are intended for this audience.
- **Homeowners and system owners:** Homeowners may perform only the tasks specifically identified for them in this manual, such as those in section 9, Startup and Shutdown Procedures, and sections 14.1 through 14.4. Do not perform any other work on the system.

1.3 How This Manual Is Organized

Table 1.1 summarizes the contents of each section.

Table 1.1: Manual Sections

Section	Title	Contents
1	About This Manual	Purpose, audience, organization, and conventions of this manual.
2	Safety Instructions & Notifications	Safety warnings, arc flash hazard data, battery hazard precautions, and symbols used in the manual and on the equipment.
3	Consignes et avis de sécurité	French-language version of the safety instructions and notifications.
4	XR 60 Product Overview	Product description, certifications, packing list, dimensions, exterior features, cable box and communication board connections, battery features, and GridBOSS pairing.
5	XR 60 Installation	Tools, location and foundation requirements, unloading, crate disassembly, forklift positioning, and concrete or gravel pad installation.
6	XR 60 Connections	Cover removal, conduit entry, AC and PV wiring, parallel communication, CT connection, and dongle installation.
7	ESS Rapid Shutdown	External disconnect requirements.
8	System Commissioning	Pre-checks, power-on, dongle configuration, management connection, system configuration, and enabling load output.
9	Startup and Shutdown Procedures	Routine startup and shutdown of the system.
10	Generator Input and Configuration	Generator connection, sizing, wiring, auto-start, and start/stop settings.
11	AC Coupling	AC-coupled PV configuration.
12	Smart Load	Smart Load configuration.

Section	Title	Contents
13	System Troubleshooting	LED status indicators, EG4 Connect events, and fault and warning definitions.
14	System Maintenance	Homeowner maintenance, externally accessible controls, cosmetic cover maintenance, conditions requiring service, and professional service.
15	Decommissioning	ESS end-of-life, recycling, and disposal.
16	Warranty Information	Warranty registration.
Appendix A	Technical Specifications	System, PV input, mechanical and environmental, and compliance and safety specifications.
Appendix B	Compliance Information	Certification and code compliance information.
Appendix C	Abbreviations	Common industry abbreviations and acronyms.
Appendix D	Wiring Diagrams	Reference wiring diagrams for supported system configurations.
	Revision History	Revision history of this manual.

1.4 Conventions Used in This Manual

- Safety notations (DANGER, WARNING, CAUTION, NOTICE, and NOTE) are defined under Symbols Used in Manual in section 2. Observe each notation where it appears.
- Measurements are given in U.S. customary units, followed by metric equivalents in parentheses; for example, 18 in. (457 mm).
- Dimensions are listed in height × width × depth (H × W × D) order; for example, the XR 60 measures 20 3/4 × 38 1/2 × 97 7/8 in. (527 × 978 × 2486 mm).
- Figures and tables are numbered by section. Cross-references to sections, figures, and tables direct the reader to related information.
- References to the NEC refer to the National Electrical Code (ANSI/NFPA 70). Local codes and the Authority Having Jurisdiction (AHJ) take precedence where requirements differ.
- Software references apply to the EG4 Connect app and EG4 Connect website, which can be used to commission, configure, and monitor the system.

1.5 Related Documentation

When the XR 60 is paired with an EG4 GridBOSS, refer to the GridBOSS User Manual for generator wiring and configuration instructions. See section 4.7 for more information.

1.6 Document Revisions

EG4® reserves the right to make changes to the contents of this document at any time without notice. Visit www.eg4electronics.com for the most current version of our manuals and spec sheets. Refer to the Revision History section at the end of the manual for revision history.

1.7 Contact and Support

For questions about this manual or the XR 60 system, contact EG4 Support:

- Email: support@eg4electronics.com
- Phone: (903) 609-1988
- Website: www.eg4electronics.com

2. Safety Instructions & Notifications

2.1 Symbols Used in Manual

DANGER Indicates a hazardous situation that, if not avoided, will result in death or serious injury.
WARNING Indicates a hazardous situation that, if not avoided, could result in death or serious injury.
CAUTION Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.
NOTICE Indicates information considered important but not hazard-related, such as messages about property damage, equipment damage, or loss of data. Failure to follow a NOTICE may damage the equipment or void the warranty.
NOTE Indicates helpful information, tips, or clarifications that are not related to hazards or equipment damage.

2.2 Symbols Used on Equipment

	Risk of electric shock; hazardous voltage present.
	General warning; read the accompanying text.
	Hot surface; risk of burns, do not touch.
	Read the instruction manual before installation, operation, and maintenance
	Refer to the operating instructions.
	Risk of electric shock; hazardous voltage circuits.
	Stored energy; wait 5 minutes after disconnecting all sources of supply before removing the cover.

2.3 IMPORTANT SAFETY NOTIFICATIONS

There are various safety concerns that must be carefully observed before, during, and after the installation, as well as during future operation and maintenance. The following are important safety notifications for the installer and any end users of this product under normal operating conditions.

SAVE THESE INSTRUCTIONS - This manual contains important instructions for **Model ESS16K60KWH2PHV** that shall be followed during installation and maintenance.

DANGER

International safety regulations have been strictly followed in the design and testing of the Energy Storage System (ESS). Before beginning any work, carefully read and follow all safety instructions when working on or with the system. The installation must comply with all applicable national and local standards and regulations.

Incorrect installation may cause:

- **Injury or death to the installer, operator, or third party**
- **Damage to the inverter or other attached equipment**



DANGER: ***Hazardous Voltage Circuits!***

1. Suitable for service when de-energized. Disconnect all sources of supply before servicing. Both AC and DC power sources are terminated inside this equipment. Before installation or servicing by qualified personnel, power off all AC and DC power sources and open the PV DC disconnect and AC breakers.

2. Do not open the system cable connection area while it is operating to avoid electric shock and damage from live voltage and current within the system.

3. Do not make any connections or disconnections (PV, battery, grid, communications, etc.) while the system is operating. Damage to system components or risk of electric shock may occur if working with energized components.

4. The system uses DC current. DC current can lead to sustained muscle contractions, severe burns, or fire if mishandled during electric shock incidents.

5. Do not disassemble the XR 60. Contact the distributor for any issues requiring repair, for more information, and for proper handling instructions. Incorrect servicing or reassembly may pose a risk of electric shock or fire and void the warranty.

6. Damage to the equipment or improper installation may cause arc flash, which can result in serious damage, injury, or death.

7. Make sure the XR 60 is properly grounded. All wiring should be in accordance with the National Electrical Code (NEC), ANSI/NFPA 70 or Canadian Electrical Code.



WARNING: ***TO REDUCE THE RISK OF INJURY, READ ALL INSTRUCTIONS!***

All work on this product (system design, installation, operation, setting, configuration, and maintenance) must be carried out by qualified personnel. To reduce the risk of electric shock, do not perform any service other than what is specified in the operating instructions unless qualified to do so.

1. Read all instructions before installation. For electrical work, follow all local and national wiring standards, regulations, and these installation instructions.

2. The system must be installed in accordance with local electrical, building, fire, and other codes or utility requirements as applicable to the installation and equipment, by qualified personnel in accordance with the installation instructions and appropriate practices.

3. All electrical work shall be performed in accordance with applicable local, state/provincial, and national electrical codes, regulations, and the manufacturer's installation instructions. All wiring shall comply with the National Electrical Code (NEC), ANSI/NFPA 70, or other equivalent electrical standards applicable to the installation location.

4. The system can connect to the utility grid only if the utility provider permits. Consult the local Authority Having Jurisdiction (AHJ) before installing this product to confirm any additional regulations or requirements for the immediate area.

5. Ensure the PV, battery, and grid connections are secure and proper to prevent damage or injuries caused by improper installation.

6. All warning labels and nameplates on system components (enclosures, inverters, batteries, etc.) must be clearly visible and must not be removed or covered.

7. The installer should consider the safety of future users when choosing the correct position and location of the system, as specified in this manual.

8. Keep children from touching, climbing, sitting, or lying on the enclosure, wiring, or other system components.

9. Beware! Components of the system can get hot during use. Do not touch when operating or while sitting in sunlight.

10. Take measures to prevent damage to the unit when transporting, storing, and installing the system. Rupture of the battery and shorting of battery cells can cause the release of toxic gases and harmful electrolyte solutions.

11. The installer is responsible for selecting and using appropriate personal protective equipment (PPE) as required by the installation environment, applicable safety regulations, and the work being performed.

12. Some system components are too heavy to be lifted manually. Use appropriate lifting equipment, material-handling devices, and safe lifting practices whenever moving, positioning, or installing the equipment. Follow all applicable safety requirements and never attempt to lift heavy components without adequate assistance or approved lifting equipment.

13. Before installing, operating, or maintaining any components in the system, it is important to inspect all existing wiring to ensure it meets the appropriate specifications and operating conditions.



WARNING: ***Cancer and Reproductive Harm!***

See www.P65Warnings.ca.gov for more details.



NFPA 704: The NFPA 704 diamond, commonly referred to as the “fire diamond,” is a standardized hazard identification system developed by the National Fire Protection Association (NFPA).

It provides emergency responders with a visual indication of material hazards, allowing for rapid assessment of potential risks during emergency conditions.

Colors indicate the type of warning:

Blue	Health
Red	Flammability
Yellow	Reactivity
White	Space for additional information
Numbers	Indicates the severity from **0** - no special hazard to **4** - severe hazard.

2.4 XR 60 Arc Flash Hazard Information

An arc flash hazard analysis of the XR 60 was performed using ETAP 24.0.3C (Study Case: Arc flash; Revision: Base; Configuration: Normal; study date 05-11-2026). Results are calculated for a nominal system voltage of 240 VAC at a working distance of 18 in. (457 mm). The worst-case results for the XR 60 are summarized in Tables 2.1 and 2.2.

Table 2.1: XR 60 Arc Flash Hazard Summary

Parameter	Value
Incident Energy	17.6 cal/cm²
Arc Flash Boundary	8.1 ft. (2.47 m)
Working Distance	18 in. (457 mm)
Energy Level	Level D

Table 2.2: XR 60 Shock Hazard Approach Boundaries

Parameter	Value
Shock Hazard Voltage	240 VAC
Limited Approach Boundary	3.5 ft. (1.07 m)
Restricted Approach Boundary	1.0 ft. (0.30 m)

Arc Flash Safety Requirements

- Place the equipment in an electrically safe work condition (NFPA 70E, Article 120) before servicing. Energized work requires justification and an energized electrical work permit per NFPA 70E.
- Where energized work is justified, wear arc-rated PPE with an arc rating of at least 17.6 cal/cm².
- Only qualified people may cross the Limited Approach Boundary. Crossing the Restricted Approach Boundary requires shock protection PPE and a documented plan.

Arc flash hazard marking requirements (NEC 110.16) vary by code edition and AHJ interpretation for equipment installed outdoors at residential properties. Consult the authority having jurisdiction (AHJ) to determine whether the installation requires a field-applied arc flash hazard label. Personnel servicing energized equipment must follow NFPA 70E regardless of installation location.



TAKE THESE ADDITIONAL PRECAUTIONS DURING INSTALLATION/REPLACEMENT

Ensure that all precautions listed above have been taken prior to beginning the installation and observe these additional precautions during installation. Failure to take these precautions may result in serious injury or death:



- ***Thermal Runaway: Immediately stop the installation, place battery in a safe state if possible, and move away from the battery if the battery:***
  - ***begins to swell or bulge,***
  - ***emits unusual odors,***
  - ***makes a hissing sound, or***
  - ***begins to emit heat and/or smoke.***

  Your battery may be experiencing thermal runaway, a dangerous condition that may cause fire or explosion. Contact the local fire department, Chemtrec 800-262-8200, and EG4 Support.



- ***Electrical Shock: When installing the XR 60:***
  - ***Do not perform the installation in conditions where dust, moisture, or other debris could enter the enclosure.***
  - ***Avoid touching connections and components unless instructed to do so by this manual.***
  - ***Do not leave the XR 60 unattended during the installation without it being in a safe state. Do not touch, lean on, or lay tools on the battery or connections.***

  If you are electrically shocked during installation, place battery in a safe state if possible, and seek immediate medical attention.



- ***Toxic Gas Warning: When installing the XR 60:***
  - ***Do not open the battery.***
  - ***Do not attempt the installation if the battery is damaged.***

Lithium batteries may emit toxic gases when ruptured. Do not attempt to repair the battery in case of rupture. Move outdoors in case of rupture and seek professional assistance.



- ***<u>Electrolyte Exposure: When installing the XR 60:</u>***
  - ***Ensure that the battery is not damaged.***
  - ***Do not attempt the installation if the product or any component is damaged.***

Lithium batteries contain a liquid electrolyte solution that is corrosive and damaging to skin and eyes. Exposure may occur in the case of damage to the battery. In the case of contact with skin or eyes, wash continuously with water for 15 minutes and seek immediate medical attention. Remove contaminated clothes immediately. In the case of ingestion, drink at least two glasses of water or milk, induce vomiting if unconscious, and seek immediate medical attention.

<u>General Advice:</u>

In all cases of exposure, seek medical attention if symptoms persist or if large amounts of electrolyte are involved. Show this safety information to the treating physician.

Skin Contact:

- **Immediately remove contaminated clothing and shoes.**
- **Rinse affected skin thoroughly with plenty of water for at least 15 minutes.**
- **Seek medical attention if irritation persists or burns appear.**
- **Wash contaminated clothing before reusing.**

Eye Contact:

- **Immediately flush eyes with plenty of water for at least 15 minutes, keeping eyelids open.**
- **Remove contact lenses if present and easy to do.**
- **Seek immediate medical attention.**

Inhalation (if applicable):

- **Move the person to fresh air immediately.**
- **If breathing is difficult, provide oxygen. If not breathing, give artificial respiration.**
- **Seek immediate medical attention.**

Ingestion:

- **Do not induce vomiting.**
- **Rinse mouth with water.**
- **Give small amounts of water or milk to dilute, if the person is conscious and alert.**
- **Never give anything by mouth to an unconscious person.**
- **Seek immediate medical attention or contact Poison Control immediately.**

3. Consignes et avis de sécurité

3.1 Symboles utilisés dans le manuel

DANGER Indique une situation dangereuse qui, si elle n'est pas évitée, entraînera la mort ou des blessures graves.
AVERTISSEMENT Indique une situation dangereuse qui, si elle n'est pas évitée, pourrait entraîner la mort ou des blessures graves.
ATTENTION Indique une situation dangereuse qui, si elle n'est pas évitée, pourrait entraîner des blessures mineures ou modérées.
AVIS Indique des renseignements jugés importants mais non liés à un danger, comme des messages concernant des dommages matériels, des dommages à l'équipement ou une perte de données. Le non-respect d'un AVIS peut endommager l'équipement ou annuler la garantie.
REMARQUE Indique des renseignements utiles, des conseils ou des précisions qui ne sont pas liés à des dangers ni à des dommages à l'équipement.

3.2 Symboles utilisés sur l'équipement

	Risque de choc électrique; présence de tension dangereuse.
	Avertissement général; lisez le texte qui l'accompagne.
	Surface chaude; risque de brûlure, ne pas toucher.
	Lisez le manuel d'instructions avant l'installation, l'utilisation et l'entretien.
	Consultez les instructions d'utilisation.
	Risque de choc électrique; circuits à tension dangereuse.
	Énergie stockée; attendez 5 minutes après avoir débranché toutes les sources d'alimentation avant de retirer le couvercle.

3.3 Avis de sécurité importants

Diverses préoccupations de sécurité doivent être respectées attentivement avant, pendant et après l'installation, ainsi que lors de l'exploitation et de l'entretien ultérieurs. Voici des avis de sécurité importants pour l'installateur et tout utilisateur final de ce produit dans des conditions normales d'utilisation.

CONSERVEZ CES INSTRUCTIONS – Ce manuel contient des instructions importantes pour le **modèle ESS16K60KWH2PHV** qui doivent être suivies lors de l'installation et de l'entretien.

DANGER

Les normes de sécurité internationales ont été rigoureusement respectées lors de la conception et des essais du système de stockage d'énergie (SSE). Avant d'entreprendre tout travail, lisez attentivement toutes les consignes de sécurité et respectez-les en tout temps lors de travaux sur ou avec le système. L'installation doit être conforme à toutes les normes et réglementations nationales ou locales applicables.

Une installation incorrecte peut causer :

- **Des blessures ou la mort de l'installateur, de l'opérateur ou d'un tiers**
- **Des dommages à l'onduleur ou à tout autre équipement connexe**



DANGER : *Circuits à tension dangereuse!*

1. Convient aux travaux d'entretien lorsque l'équipement est hors tension. Débranchez toutes les sources d'alimentation avant d'effectuer des travaux d'entretien. Les sources d'alimentation CA et CC sont raccordées à l'intérieur de cet équipement. Avant l'installation ou l'entretien par du personnel qualifié, mettez hors tension toutes les sources d'alimentation CA et CC, puis ouvrez le sectionneur CC photovoltaïque (PV) et les disjoncteurs CA.

2. N'ouvrez pas la zone de raccordement des câbles du système pendant son fonctionnement afin d'éviter les chocs électriques et les dommages causés par la tension et le courant présents dans le système.

3. N'effectuez aucun raccordement ni débranchement (PV, batterie, réseau électrique, communications, etc.) pendant que le système fonctionne. Des dommages aux composants du système ou un risque de choc électrique peuvent survenir lors de travaux sur des composants sous tension.

4. Le système utilise du courant continu (CC). En cas de choc électrique, le courant continu peut provoquer des contractions musculaires soutenues, des brûlures graves ou un incendie s'il est manipulé de façon inadéquate.

5. Ne démontez pas le XR 60. Communiquez avec le distributeur pour tout problème nécessitant une réparation, pour obtenir de plus amples renseignements et pour connaître les instructions de manipulation appropriées. Un entretien ou un remontage inadéquat peut entraîner un risque de choc électrique ou d'incendie et annuler la garantie.

6. Des dommages à l'équipement ou une installation inadéquate peuvent provoquer un arc électrique, pouvant entraîner des dommages importants, des blessures graves ou la mort.

7. Assurez-vous que le XR 60 est correctement mis à la terre. Tout le câblage doit être conforme au National Electrical Code (NEC), à la norme ANSI/NFPA 70 ou au Code canadien de l'électricité.



AVERTISSEMENT : *POUR RÉDUIRE LE RISQUE DE BLESSURE, LISEZ TOUTES LES CONSIGNES!*

Tous les travaux effectués sur ce produit (conception du système, installation, fonctionnement, réglage, configuration et entretien) doivent être réalisés par du personnel qualifié. Afin de réduire le risque de choc électrique, n'effectuez aucun entretien autre que celui précisé dans les consignes d'utilisation, à moins d'être qualifié pour le faire.

1. Lisez toutes les instructions avant l'installation. Pour les travaux électriques, respectez toutes les normes et tous les règlements locaux et nationaux en matière de câblage, ainsi que les présentes instructions d'installation.

2. Le système doit être installé par du personnel qualifié, conformément aux instructions d'installation et aux pratiques appropriées, ainsi qu'aux codes locaux applicables en matière d'électricité, de bâtiment et de prévention des incendies, et à toute autre exigence des services publics applicable à l'installation et à l'équipement.

3. Tous les travaux électriques doivent être effectués conformément aux codes et règlements électriques locaux, d'État ou provinciaux et nationaux applicables, ainsi qu'aux instructions d'installation du fabricant. Tout le câblage doit être conforme au National Electrical Code (NEC), ANSI/NFPA 70, ou à toute autre norme électrique équivalente applicable au lieu d'installation.

4. Le système ne peut être raccordé au réseau électrique que si le fournisseur de services publics l'autorise. Consultez l'autorité compétente (AHJ) locale avant d'installer ce produit afin de confirmer tout règlement ou toute exigence supplémentaire applicable à la zone d'installation.

5. Assurez-vous que les raccordements PV, de la batterie et du réseau électrique sont adéquats et bien fixés afin d'éviter les dommages ou les blessures causés par une installation inadéquate.

6. Toutes les étiquettes d'avertissement et plaques signalétiques apposées sur les composants du système (boîtiers, onduleurs, batteries, etc.) doivent demeurer clairement visibles et ne doivent être ni retirées ni recouvertes.

7. Lors du choix de la position et de l'emplacement appropriés du système, l'installateur doit tenir compte de la sécurité des futurs utilisateurs, conformément aux exigences du présent manuel.

8. Empêchez les enfants de toucher, d'escalader ou de s'asseoir ou de s'allonger sur le boîtier, le câblage ou tout autre composant du système.

9. Attention! Les composants du système peuvent devenir chauds pendant leur utilisation. Ne les touchez pas pendant le fonctionnement ou lorsqu'ils sont exposés au soleil.

10. Prenez les mesures nécessaires pour éviter d'endommager l'appareil pendant le transport, l'entreposage et l'installation du système. La rupture de la batterie et le court-circuit des cellules de la batterie peuvent entraîner le dégagement de gaz toxiques et de solutions électrolytiques nocives.

11. L'installateur est responsable de la sélection et de l'utilisation de l'équipement de protection individuelle (EPI) approprié, conformément à l'environnement d'installation, aux règlements de sécurité applicables et aux travaux effectués.

12. Certains composants du système sont trop lourds pour être soulevés manuellement. Utilisez de l'équipement de levage approprié, des dispositifs de manutention et des méthodes de levage sécuritaires lors du déplacement, du positionnement ou de l'installation de l'équipement. Respectez toutes les exigences de sécurité applicables et ne tentez jamais de soulever des composants lourds sans une assistance adéquate ou un équipement de levage approuvé.

13. Avant d'installer, d'utiliser ou d'entretenir tout composant du système, il est important d'inspecter tout le câblage existant afin de s'assurer qu'il respecte les spécifications et les conditions de fonctionnement appropriées.



AVERTISSEMENT : *Cancer et effets nocifs sur la reproduction!*

Consultez le site www.P65Warnings.ca.gov pour plus de détails.



NFPA 704 : Le losange NFPA 704, communément appelé « losange de danger », est un système normalisé d'identification des dangers développé par la National Fire Protection Association (NFPA).

Il fournit aux intervenants d'urgence une indication visuelle des dangers associés aux matériaux, permettant une évaluation rapide des risques potentiels en situation d'urgence.

Les couleurs indiquent le type de danger :

Bleu	Santé
Rouge	Inflammabilité
Jaune	Réactivité
Blanc	Espace pour informations supplémentaires
Nombres	Indique le niveau de gravité de 0 – aucun danger particulier à 4 – danger sévère.

3.4 Renseignements sur les dangers d'arc électrique du XR 60

Une analyse des dangers d'arc électrique du XR 60 a été effectuée à l'aide du logiciel ETAP 24.0.3C (cas d'étude : arc électrique; révision : base; configuration : normale; date de l'étude : 05-11-2026). Les résultats sont calculés pour une tension nominale du système de 240 V c.a. à une distance de travail de 18 po (457 mm). Les résultats les plus défavorables pour le XR 60 sont résumés aux tableaux 3.1 et 3.2.

Tableau 3.1 : Sommaire des dangers d'arc électrique du XR 60

Paramètre	Valeur
Énergie incidente	17,6 cal/cm²
Limite d'arc électrique	8,1 pi (2,47 m)
Distance de travail	18 po (457 mm)
Niveau d'énergie	Niveau D

Tableau 3.2 : Limites d'approche pour le danger de choc électrique du XR 60

Paramètre	Valeur
Tension présentant un danger de choc	240 V c.a.
Limite d'approche limitée	3,5 pi (1,07 m)
Limite d'approche restreinte	1,0 pi (0,30 m)

Exigences de sécurité relatives aux arcs électriques

- Mettez l'équipement dans un état de travail électriquement sécuritaire (NFPA 70E, article 120) avant tout entretien. Les travaux sous tension doivent être justifiés et nécessitent un permis de travail électrique sous tension conformément à la norme NFPA 70E.
- Lorsque des travaux sous tension sont justifiés, portez un EPI résistant aux arcs électriques dont la cote d'arc est d'au moins 17,6 cal/cm².
- Seules les personnes qualifiées peuvent franchir la limite d'approche limitée. Le franchissement de la limite d'approche restreinte exige un EPI de protection contre les chocs électriques et un plan documenté.

Les exigences de marquage des dangers d'arc électrique (NEC 110.16) varient selon l'édition du code et l'interprétation de l'autorité compétente (AHJ) pour l'équipement installé à l'extérieur sur une propriété

résidentielle. Consultez l'autorité compétente (AHJ) pour déterminer si l'installation exige une étiquette d'avertissement d'arc électrique apposée sur place. Le personnel qui effectue l'entretien d'équipement sous tension doit respecter la norme NFPA 70E, quel que soit le lieu d'installation.



PRENEZ CES PRÉCAUTIONS SUPPLÉMENTAIRES LORS DE L'INSTALLATION OU DU REMPLACEMENT

Assurez-vous que toutes les précautions énumérées ci-dessus ont été prises avant de commencer l'installation et respectez ces précautions supplémentaires pendant l'installation. Le non-respect de ces précautions peut entraîner des blessures graves ou la mort.



- ***Emballement thermique: Arrêtez immédiatement l'installation, mettez la batterie dans un état sécuritaire si possible et éloignez-vous de la batterie si celle-ci :***
  - ***commence à gonfler ou à se déformer,***
  - ***dégage des odeurs inhabituelles,***
  - ***émet un sifflement, ou***
  - ***commence à dégager de la chaleur et/ou de la fumée.***

La batterie peut être en situation d'emballement thermique, une condition dangereuse pouvant entraîner un incendie ou une explosion. Communiquez avec le service d'incendie local, Chemtrec au 800-262-8200, et le soutien EG4.



- ***Choc électrique: Lors de l'installation du XR 60 :***
  - ***N'effectuez pas l'installation dans des conditions où de la poussière, de l'humidité ou d'autres débris pourraient pénétrer dans le boîtier.***
  - ***Évitez de toucher les connexions et les composants sauf indication contraire dans ce manuel.***
  - ***Ne laissez pas le XR 60 sans surveillance pendant l'installation s'il n'est pas dans un état sécuritaire. Ne touchez pas la batterie ni les connexions, ne vous appuyez pas dessus et n'y déposez pas d'outils.***

En cas de choc électrique pendant l'installation, mettez la batterie dans un état sécuritaire si possible et consultez immédiatement un professionnel de la santé.



- ***Avertissement – Gaz toxiques : Lors de l'installation du XR 60 :***
  - ***N'ouvrez pas la batterie.***
  - ***N'effectuez pas l'installation si la batterie est endommagée.***

Les batteries au lithium peuvent émettre des gaz toxiques en cas de rupture. N'essayez pas de réparer la batterie si elle est rompue. En cas de rupture, déplacez-vous à l'extérieur et demandez l'assistance d'un professionnel qualifié.



- ***<u>Exposition à l'électrolyte : Lors de l'installation du XR 60 :</u>***
  - ***Assurez-vous que la batterie n'est pas endommagée.***
  - ***N'effectuez pas l'installation si le produit ou l'un de ses composants est endommagé.***

Les batteries au lithium contiennent une solution d'électrolyte liquide corrosive et nocive pour la peau et les yeux. Une exposition peut survenir si la batterie est endommagée. En cas de contact avec la peau ou les yeux, rincez abondamment à l'eau pendant 15 minutes et consultez immédiatement un professionnel de la santé. Retirez immédiatement les vêtements contaminés. En cas d'ingestion, buvez au moins deux verres d'eau ou de lait, provoquez le vomissement si la personne est consciente, et consultez immédiatement un professionnel de la santé.

<u>Conseils généraux :</u>

Dans tous les cas d'exposition, consultez un médecin si les symptômes persistent ou si de grandes quantités d'électrolytes sont impliquées. Montrez ces informations de sécurité au médecin traitant.

Contact avec la peau :

- **Retirez immédiatement les vêtements et chaussures contaminés.**
- **Rincez abondamment la peau affectée à l'eau pendant au moins 15 minutes.**
- **Consultez un médecin si l'irritation persiste ou si des brûlures apparaissent.**
- **Lavez les vêtements contaminés avant de les réutiliser.**

Contact avec les yeux :

- **Rincez immédiatement les yeux à grande eau pendant au moins 15 minutes, en gardant les paupières ouvertes.**
- **Retirez les lentilles de contact si présentes et si cela est facile à faire.**
- **Consultez immédiatement un médecin.**

Inhalation (le cas échéant) :

- **Transportez immédiatement la personne à l'air frais.**
- **Si la respiration est difficile, administrez de l'oxygène. Si la personne ne respire pas, pratiquez la respiration artificielle.**
- **Consultez immédiatement un médecin.**

Ingestion :

- **Ne faites pas vomir.**
- **Rincez la bouche à l'eau.**
- **Donnez de petites quantités d'eau ou de lait pour diluer, si la personne est consciente et alerte.**
- **Ne donnez jamais rien par voie orale à une personne inconsciente.**
- **Consultez immédiatement un médecin ou contactez le centre antipoison.**

4. XR 60 Product Overview

The EG4® XR 60 is a 60kWh AC energy storage system (ESS) for residential and light-commercial applications. It combines a lithium iron phosphate (LFP) battery, a hybrid split-phase inverter, and pre-wired control and safety components in one NEMA 3R outdoor-rated enclosure. The system supplies stored energy during grid outages, during peak utility rate periods, and when solar generation is unavailable.

UL 9540 Certification

This certification applies to the complete XR 60 Energy Storage System (ESS).

- Maximum Setup: 3x XR 60

UL 9540A Fire-Propagation Testing

- The test method in UL 9540A determines the capability of battery technology to undergo thermal runaway and then evaluates the fire and explosion hazard characteristics of those battery energy storage systems that have demonstrated a capability to undergo thermal runaway.
- The manufacturer recommends a minimum spacing of 12 in. (305 mm) between each EG4 XR 60. Consult the Authority Having Jurisdiction (AHJ) before installation to determine whether this reduced spacing (less than the 3 ft. (914 mm) required by NFPA 855) is permitted. If the reduced spacing is not permitted, comply with the applicable state or local building and fire code spacing requirements.
- See Intertek/ETL Test Report: 106435375CRT-001

Installation

- Pre-wired internal battery and control connections
- Drop-in enclosure design that arrives pre-assembled
- Commissioning through EG4 Connect on a smart device

Whole-Home and Light-Commercial Backup Power

- Up to 18kW continuous output with high surge capability
- Seamless transfer to battery power during grid outages
- Works with microgrid interconnection devices and generators

Solar and Grid Operation

- Prioritizes solar self-consumption
- Supports zero-export operation
- Works with AC-coupled PV systems
- Grid-tied, off-grid, and hybrid operating modes
- Designed for Virtual Power Plant (VPP) participation
- Remote monitoring, diagnostics, and firmware updates

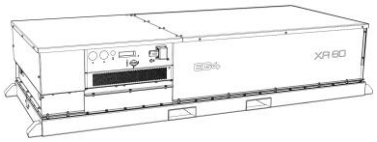
Safe, Durable, and Long-Lasting

- Features a UL-certified system architecture for U.S. markets
- Includes a 15-year system warranty
- 10,000-cycle design life with long-term capacity retention

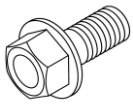
4.1 Packing List

The following items are included with the product shipment:

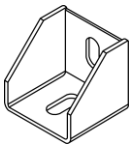
Images for representative purposes only.



EG4 XR 60



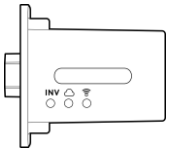
1/2-13 × 1 in. Stainless Steel Flanged Hex Head Screw (x4)



Anchor Bracket (x4)



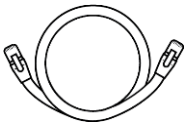
1” CT (x2)



Wi-Fi Dongle



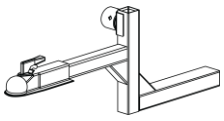
Phillips head M3 x 10 (x4)



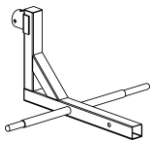
Parallel Comm. Cable L=2m (grey)

Figure 4.1: XR 60 Packing Contents

Optional Installer Kit



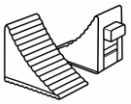
Front Hitch Assembly



Rear Hitch



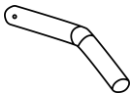
Wheel (x2)



Wheel Chocks



Cotter Pin (x4)



Hitch Pin (x2)



Trailer Jack



EG4 XR 60 Installer Kit Manual

Figure 4.2: Installer Kit Contents

NOTICE

The XR 60 is a stationary energy storage system designed for installation in a fixed location; it is not intended for use as a mobile power system. The optional Installer Kit is intended only for moving the unit to its installation location after it is removed from the crate. Refer to the Installer Kit guide for assembly and operating instructions. Always install the unit on an approved foundation in accordance with this manual and all applicable codes.

4.2 Dimensions

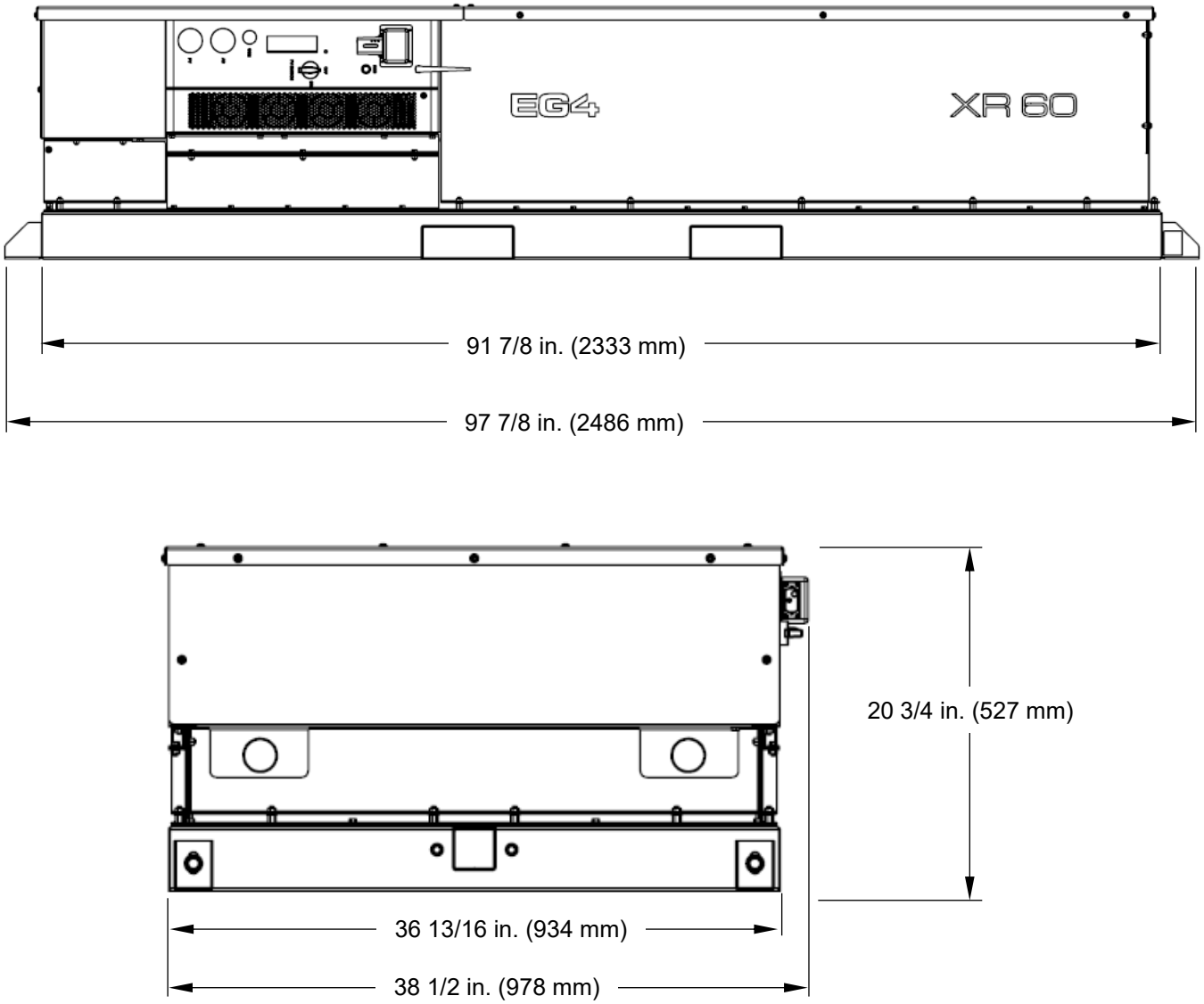


Figure 4.3: XR 60 Dimensions

4.3 Exterior Features

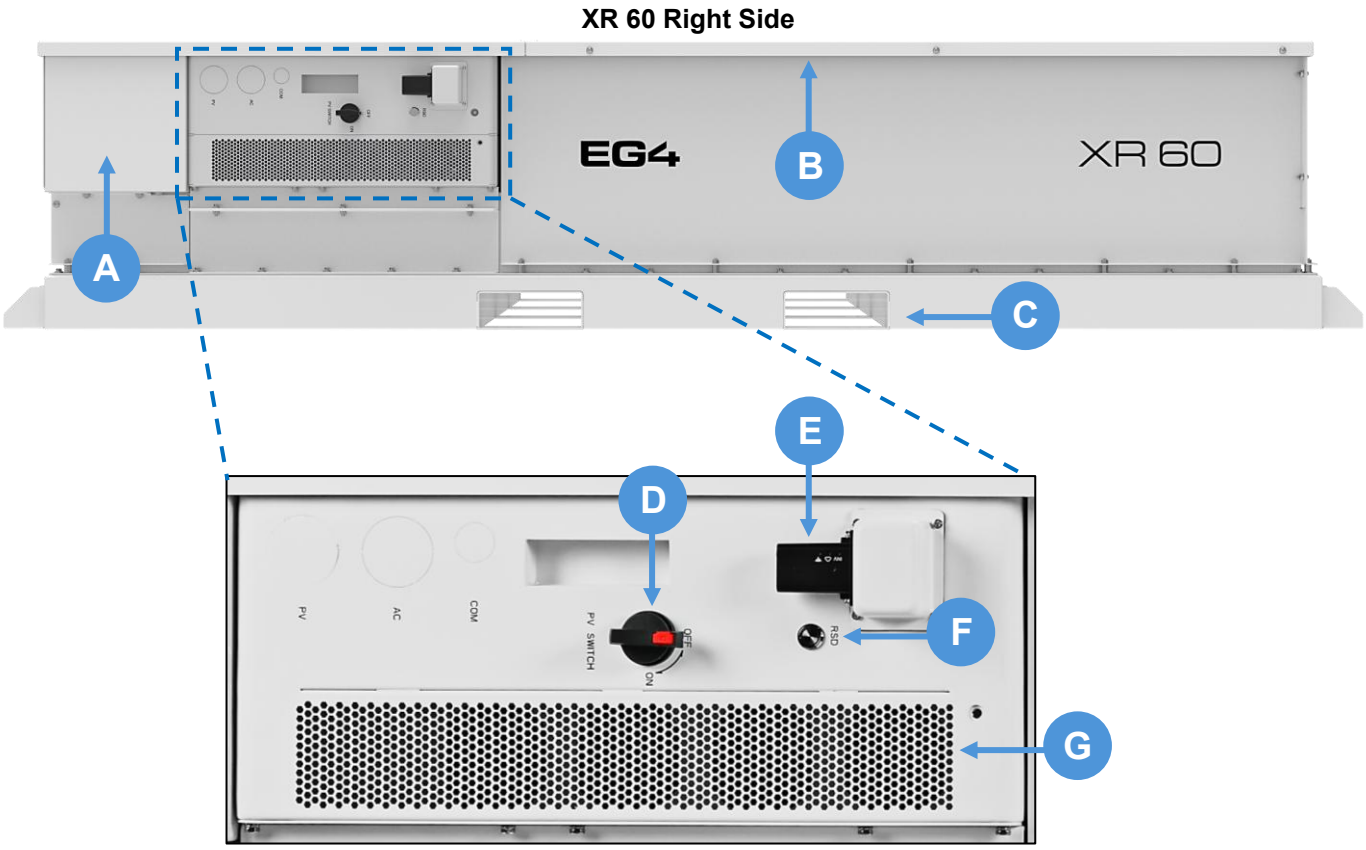


Figure 4.4: XR 60 Exterior – Right Side

Table 4.1: Exterior Components – Right Side

Callout	Component	Description
A	Conduit Box	Used to route and protect system wiring in and out of the system.
B	Top Cover	Protects the top of the system. Remove to access internal connections.
C	Forklift Channels	Used for lifting and transporting the unit.
D	PV Disconnect	Used to connect/disconnect PV input.
E	Wi-Fi Dongle	Used for wireless communication with the EG4 Connect app and website.
F	RSD Button	Used to initiate rapid shutdown of the entire system.
G	Air Intake	Used to bring air into the inverter. Keep it clear of debris.

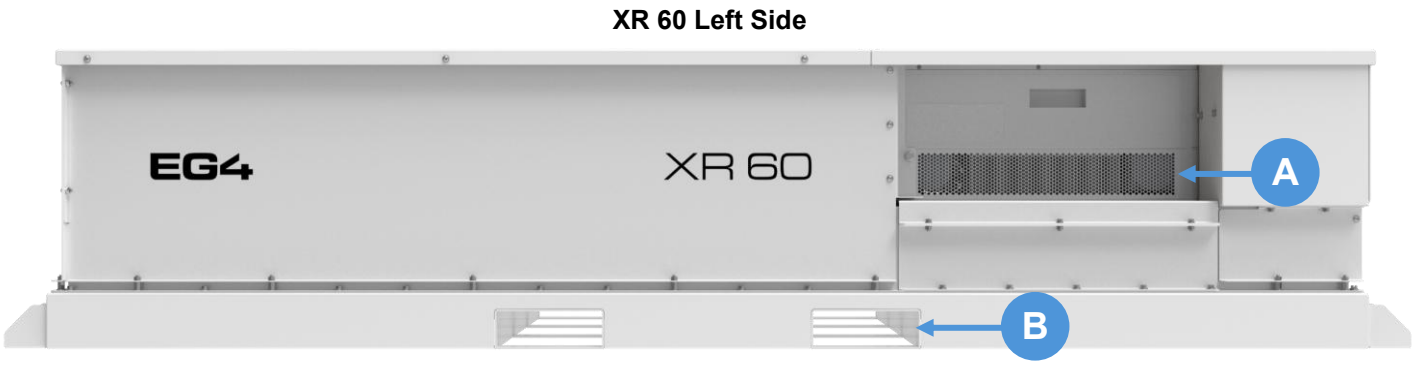


Figure 4.5: XR 60 Exterior – Left Side

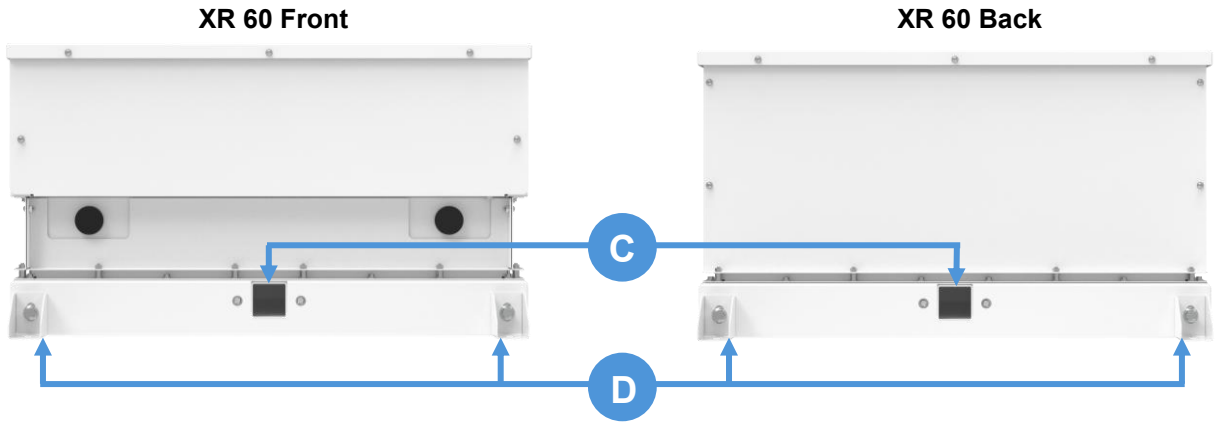


Figure 4.6: XR 60 Exterior – Front and Back

Table 4.2: Exterior Components – Left, Front and Back

Callout	Component	Description
A	Exhaust Vent	Used to remove hot air from the unit. Keep it clear of debris.
B	Forklift Channels	Used for lifting and transporting the unit.
C	Hitch Receiver	Used to attach the hitch assembly for transportation.
D	Anchor Brackets	Used to secure the system to the foundation pad.

4.4 Cable Box Connections

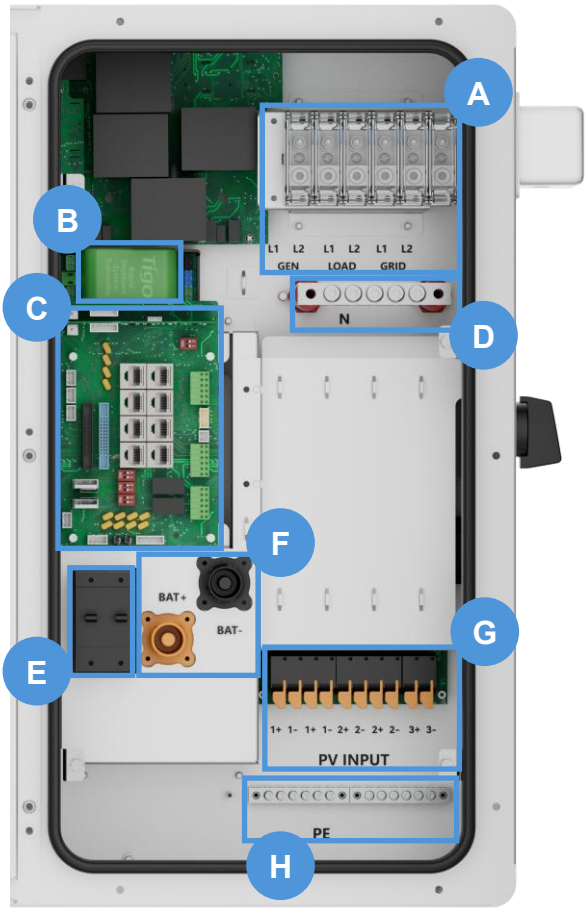


Figure 4.7: Cable Box Connections

Table 4.3: Cable Box Connections

Callout	Component	Description
A	AC Connections	Used for wiring AC power from the grid and to the loads.
B	Tigo RSS Module	Used for PV rapid shutdown.
C	Communication Board	Used for connecting communication cables, configuring DIP switches, adding CTs, and connecting external RSD.
D	Neutral Busbar	Used for neutral wiring.
E	Integrated Bonded Battery Breaker	Provides overcurrent protection for connected batteries.
F	Battery Connections	Used to connect DC battery cables.
G	PV Input	Used for wiring DC power from solar panels to the inverter.
H	Ground Busbar	Used for ground wiring.

4.5 Communications Board Connections

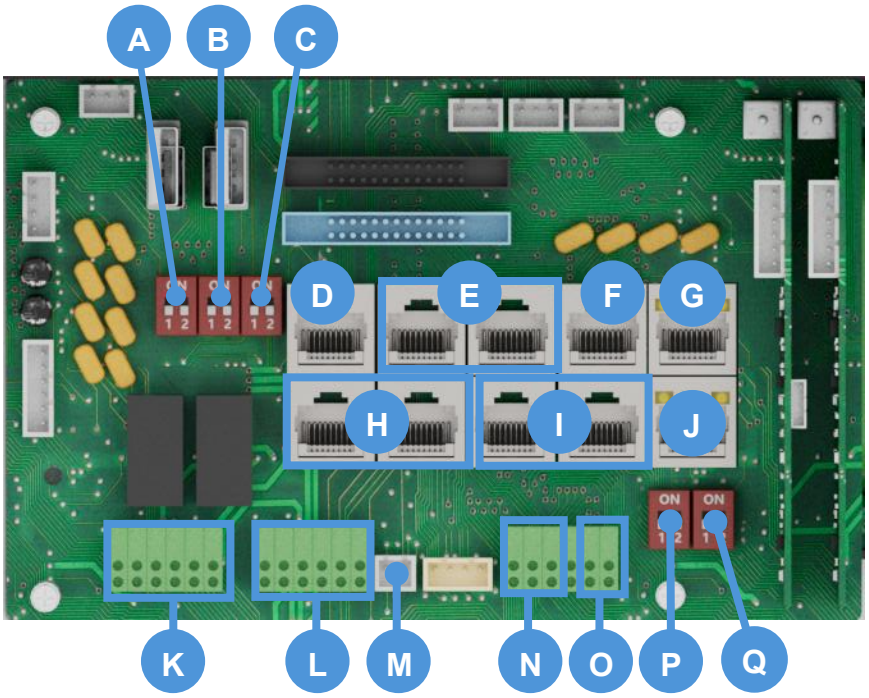


Figure 4.8: Communication Board Connections

Table 4.4: Communication Board Overview

Callout	Description
A	Meter collar DIP switches
B	Reserved
C	Parallel DIP switches
D	Battery communication port (RS485 & CAN)
E	Reserved
F	CT interface
G	Modbus TCP
H	Meter collar ports
I	Parallel communication ports
J	Battery TCP
K	Gen and Dry contact terminals
L	RSD terminals
M	Reserved
N	485B & 485A meter communication
O	DC power connections for customer use, max. 1.5A
P	Reserved
Q	Reserved

4.6 Battery Features

The following image shows the XR 60 with the outer cosmetic cover and conduit box removed.

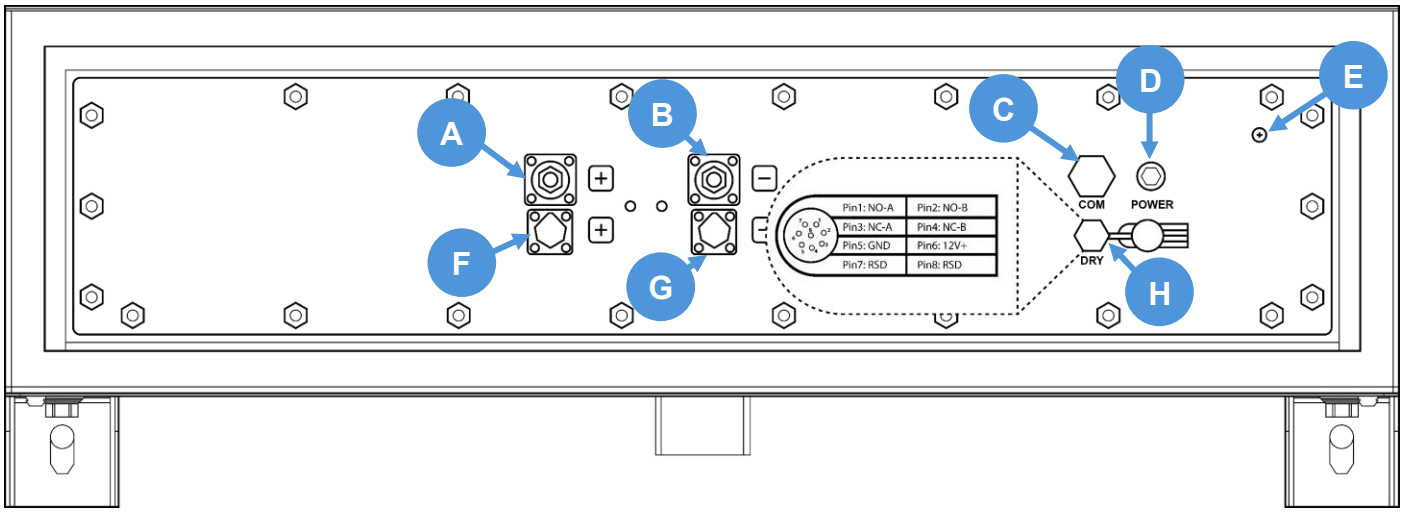


Figure 4.9: Battery Features

Table 4.5: Battery Features

Callout	Component	Description
A	Positive 250A Terminal	250A rated Amphenol connector
B	Negative 250A Terminal	250A rated Amphenol connector
C	COM Port	CAN communication interface for inverter communication
D	Power Switch	Provides battery power to the XR 60
E	GND	Equipment Grounding Conductor (EGC) for grounding the battery
F	Positive 150A Terminal	Reserved – Do not use
G	Negative 150A Terminal	Reserved – Do not use
H	Dry Contact	For RSD control: Normally Closed, Normally Open, Ground, RSD, 12V

4.7 Pairing with GridBOSS

When EG4® XR 60 systems operate with a GridBOSS, connect the AC-coupled PV, smart loads, and generator to the GridBOSS instead of to individual XR 60 units. In this configuration, GridBOSS manages the interconnection and operation of these functions using data from all connected XR 60 systems. At the same time, each XR 60 continues to perform its standard inverter and battery control functions. This architecture allows AC-coupled PV, smart load control, and generator integration to function as shared system resources across up to three XR 60 systems connected to a single GridBOSS.

Table 4.6: XR 60 w/ GridBOSS

Function	Description
AC Coupling	AC-coupled PV connects to and is managed by the GridBOSS, rather than individual XR 60 systems. The GridBOSS interfaces with existing or new grid-tie-only inverters and manages the AC-coupled PV input string using aggregated data from up to three connected XR 60 systems.
Smart Loads	Smart loads (Smart Port) are connected to the GridBOSS. The GridBOSS manages smart load operation using combined data from all connected XR 60 systems based on grid availability, total state of charge, time-of-use (TOU) settings, and PV production.
Generator	Supports integration of a backup generator connected to GridBOSS. GridBOSS manages generator operation using system conditions derived from all connected XR 60 systems when the grid is unavailable and PV generation cannot support the loads.

When installing the XR 60 with the GridBOSS:

- Verify that the latest firmware is installed.
- Confirm the mounting wall is strong enough to support the weight of the GridBOSS.
- Observe and follow all environmental and installation specifications for all units.
- The Loads port will not be used on the XR 60.
- Do not use the CT clamps supplied with the XR 60, as GridBOSS monitors all input/output data.
- Configure all parallel XR 60 units before configuring the GridBOSS.

Refer to the GridBOSS User Manual for detailed installation instructions, configuration options, and use cases. Scan the QR code below and review the versioning whitepaper to determine the correct user manual for the GridBOSS hardware version being installed.

EG4 GridBOSS Hardware Versioning Whitepaper

5. XR 60 Installation

This section outlines the installation requirements and procedures for the EG4® XR 60 Energy Storage System. It provides guidance on required tools, site preparation, clearance requirements, and approved methods for safely transporting, positioning, and anchoring the unit before electrical installation. A forklift is required on site to unload the crated unit from the delivery truck. After the crate is unloaded, use the forklift or the optional Installer Kit to move and position the unit. A minimum of three people is required for safe unboxing and positioning.

5.1 Recommended Tools

DANGER

Use insulated hand tools rated in accordance with IEC 60900 and/or ASTM F1505. Wear appropriate PPE, including insulated gloves, safety glasses, and protective footwear. Failure to follow these requirements may result in serious injury or death.

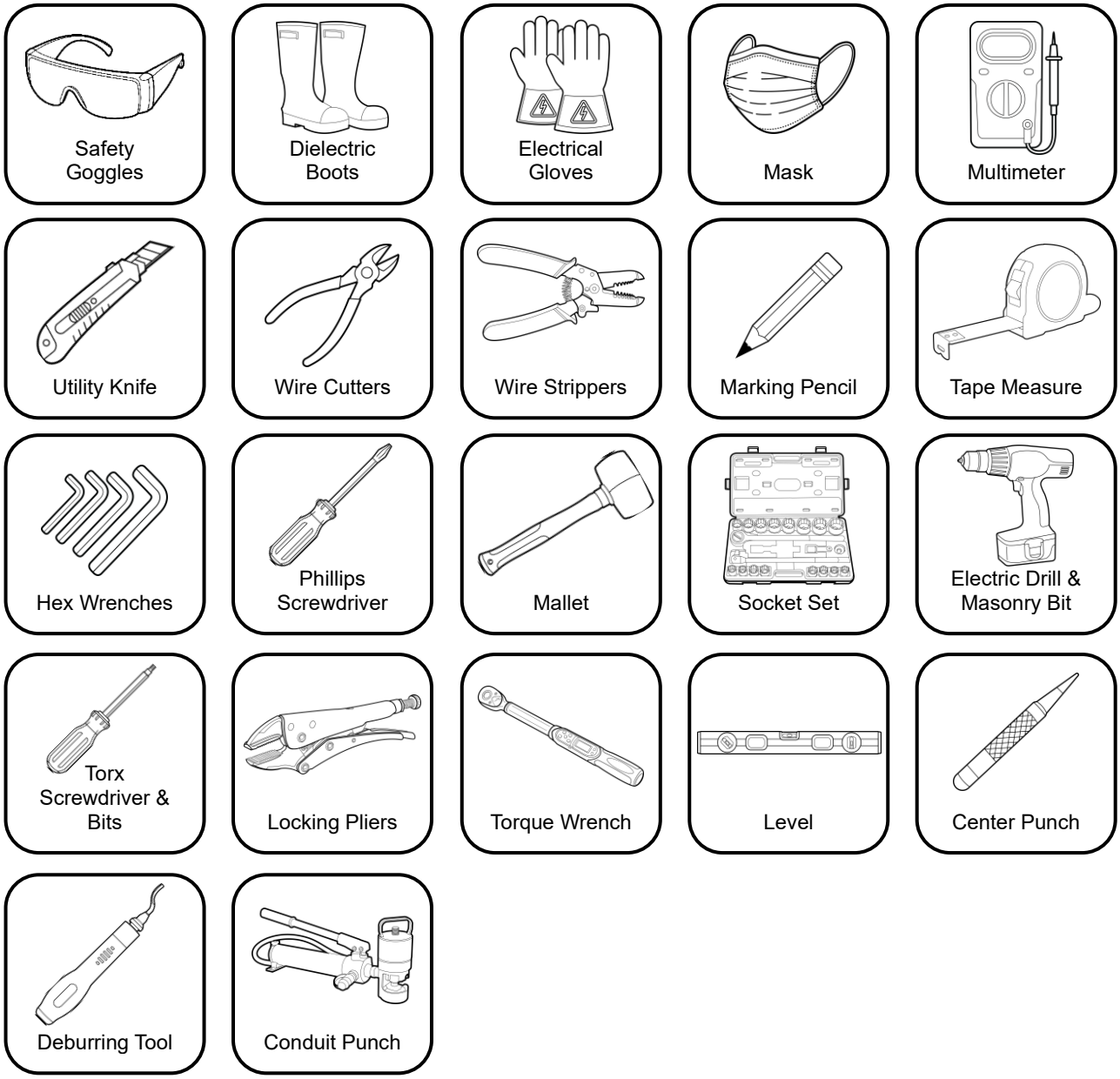


Figure 5.1: Recommended Tools

5.2 Location Requirements

The EG4® XR 60 is a UL 9540-certified, outdoor-only Energy Storage System (ESS) designed for use in large-capacity applications regulated under NFPA 855 and the International Fire Code (IFC). Install the XR 60 outdoors only on a solid, level foundation capable of supporting the total system weight. Maintain adequate clearance around the system to support ventilation, heat dissipation, service access, and safe operation. Follow the spacing requirements specified in this manual and all applicable national and local codes.

NOTICE

The location and spacing requirements provided in this manual serve as general installation guidance based on the manufacturer's testing and certification, including UL 9540A, and applicable requirements from NFPA 855 and the International Fire Code (IFC). Final installation location, spacing, and clearance requirements are subject to approval by the Authority Having Jurisdiction (AHJ).

Before beginning installation, verify with the AHJ that the proposed installation location and spacing comply with all applicable state and local building and fire code requirements. State and local requirements may supersede the recommendations in this manual.

Verify the following items before beginning installation:

1. The recommended minimum spacing between each XR 60 is 12 in. (305 mm). **Before installation, consult the Authority Having Jurisdiction (AHJ) to verify whether this reduced spacing (less than the 3 ft. (914 mm) required by NFPA 855) is permitted.** If reduced spacing is not permitted, install the system in accordance with all applicable state and local building and fire code spacing requirements. Refer to Figure 5.2.
2. The system must be installed at a minimum of 3 ft. (914 mm) from the following (refer to Figure 5.2):
    a. Buildings
    b. HVAC air inlets
    c. Lot lines
    d. Public ways
    e. Hazardous materials
    f. High-piled stock
    g. Any other hazardous exposures not associated with the electrical grid infrastructure
3. Installations must maintain a 3 ft. (914 mm) clearance on each side of the system from combustible vegetation, other combustible growth, and combustible materials. Individual trees, shrubs, and maintained ground cover, such as green grass, ivy, succulents, or similar vegetation, may be located within this clearance area provided they do not create a continuous path for fire to spread. Refer to Figure 5.2.
4. Install the system on a foundation designed to promote positive drainage. Grade the surrounding area to slope away from the base of the unit and prevent water accumulation.
5. Do not install the system in flood-prone areas, drainage paths, locations subject to standing water, or in or near marine environments.
6. Extend the foundation pad at least 5 1/2 in. (140 mm) beyond the system footprint to allow safe access for inspection, maintenance, and service. Determine the final pad dimensions based on site conditions and applicable requirements.
7. EG4 recommends providing site security and visibility measures, including fencing and lighting, in accordance with local codes and AHJ requirements.

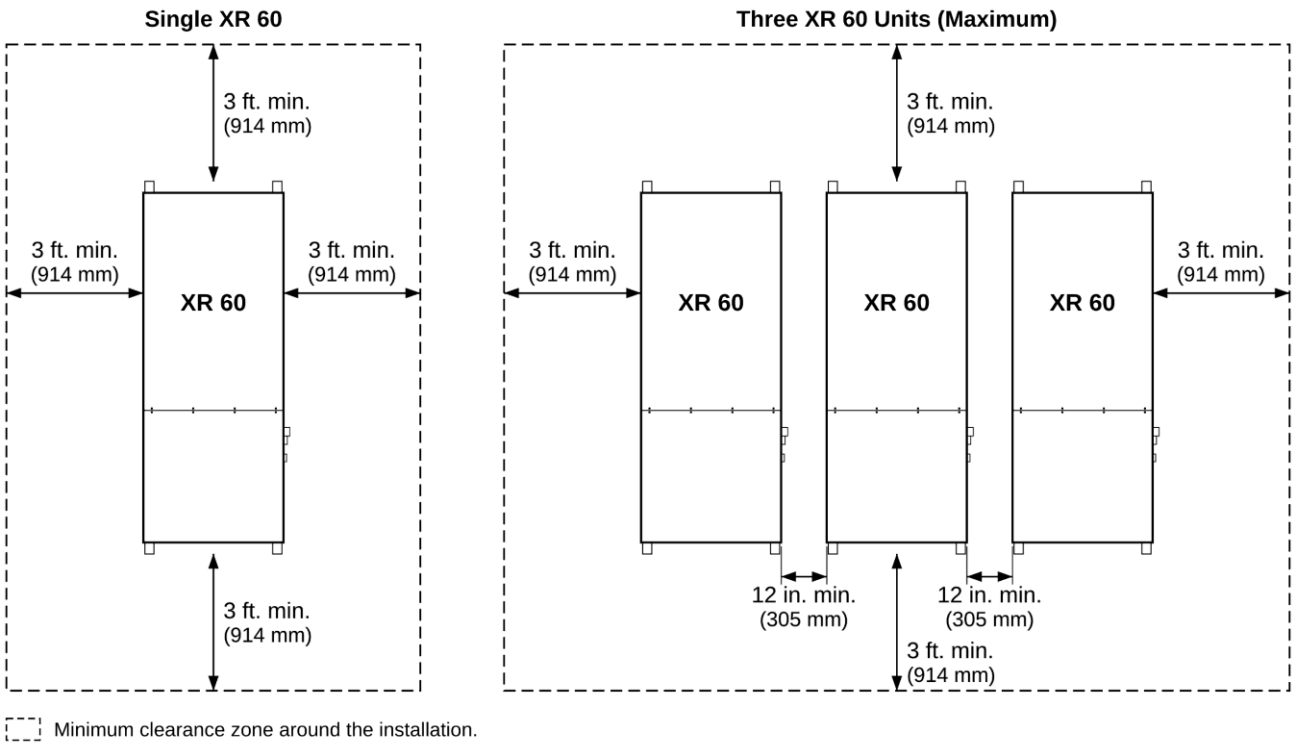


Figure 5.2: Installation Clearances

NOTICE

Before beginning installation, verify with the AHJ that the proposed installation location and spacing comply with all applicable state and local building and fire code requirements. State and local requirements may supersede the recommendations in this manual.

5.3 Foundation Requirements

The following requirements provide minimum guidelines for the design and preparation of the foundation pad for the XR 60. The foundation pad shall extend beyond the system footprint on all sides, support the system weight, maintain stability, and provide proper drainage to ensure safe installation and long-term operation. All foundation designs shall comply with applicable local codes and site-specific requirements.

Concrete Pad

Install the system on a reinforced concrete pad meeting the following minimum requirements:

- Thickness: 5 1/2 in. (140 mm)
- Compressive strength: 4000 psi (27.6 MPa)
- Reinforcement: #4 rebar at 12 in. (305 mm) on center
- Load capacity: 1980 lb. (898 kg), 125% of XR 60 weight
- Extension: 5 1/2 in. (140 mm) beyond the XR 60 footprint on all sides; greater extension may be required by site conditions, equipment configuration, or the AHJ
- Anchoring: 1/2-13 × 3 in. concrete expansion anchors, or equivalent anchors rated for the foundation material, foundation thickness, and expected installation load

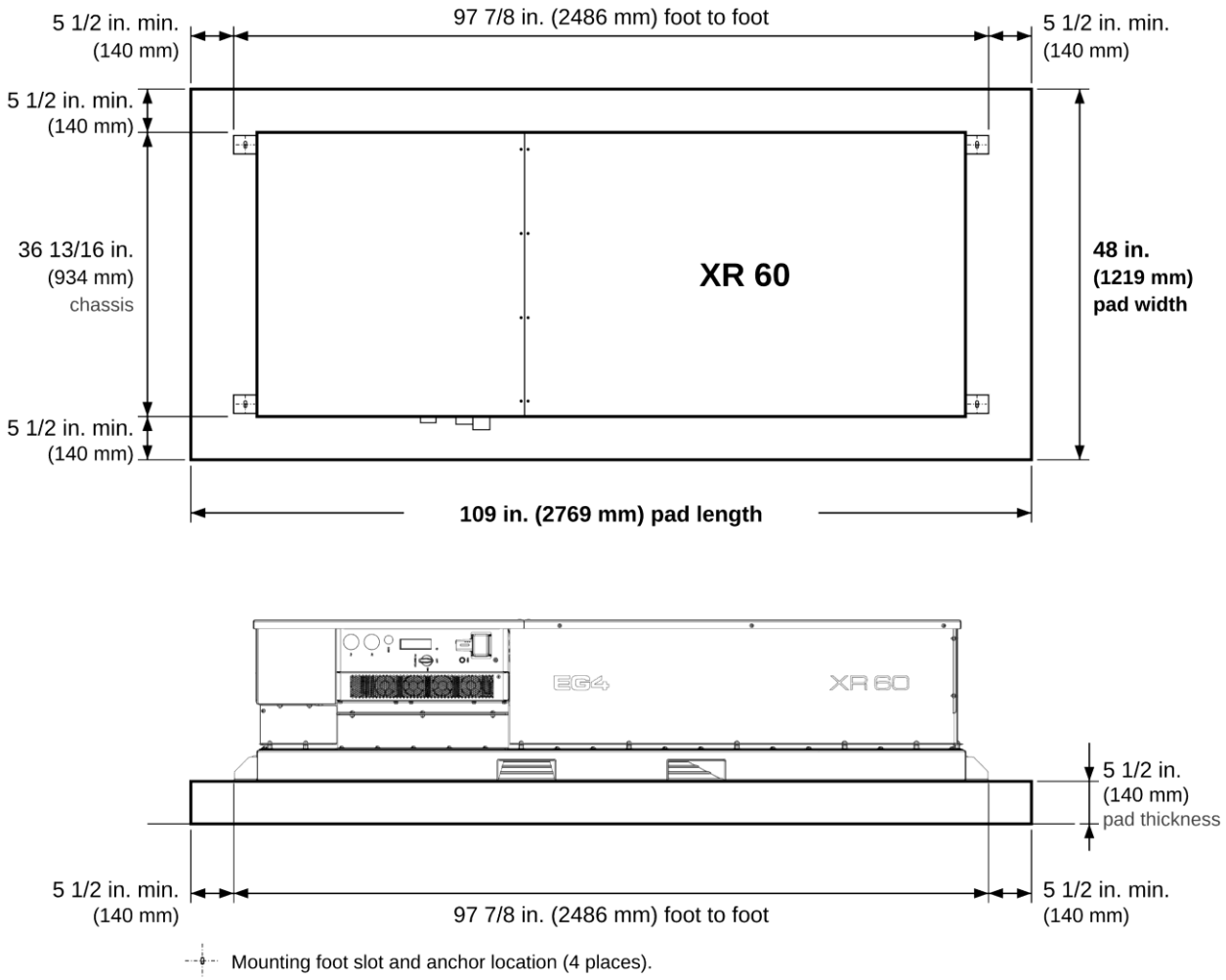


Figure 5.3: Concrete Pad Dimensions

NOTICE

Concrete pad dimensions are provided as a minimum reference design. Determine the final pad dimensions and reinforcement requirements based on site conditions and applicable codes.

Gravel Pad

Where permitted by local codes and site conditions, install the system on a compacted gravel pad that meets the following minimum requirements:

- Thickness: 4 – 7 in. (102 – 178 mm)
- Material: 3/4 in. clean, compacted gravel
- Surface must be level and fully compacted to prevent settling.
- Extend the foundation pad a minimum of 5 1/2 in. (140 mm) beyond the system footprint on all sides to provide safe access for inspection, maintenance, and service. Greater clearance may be required based on site conditions, equipment configuration, or AHJ requirements.

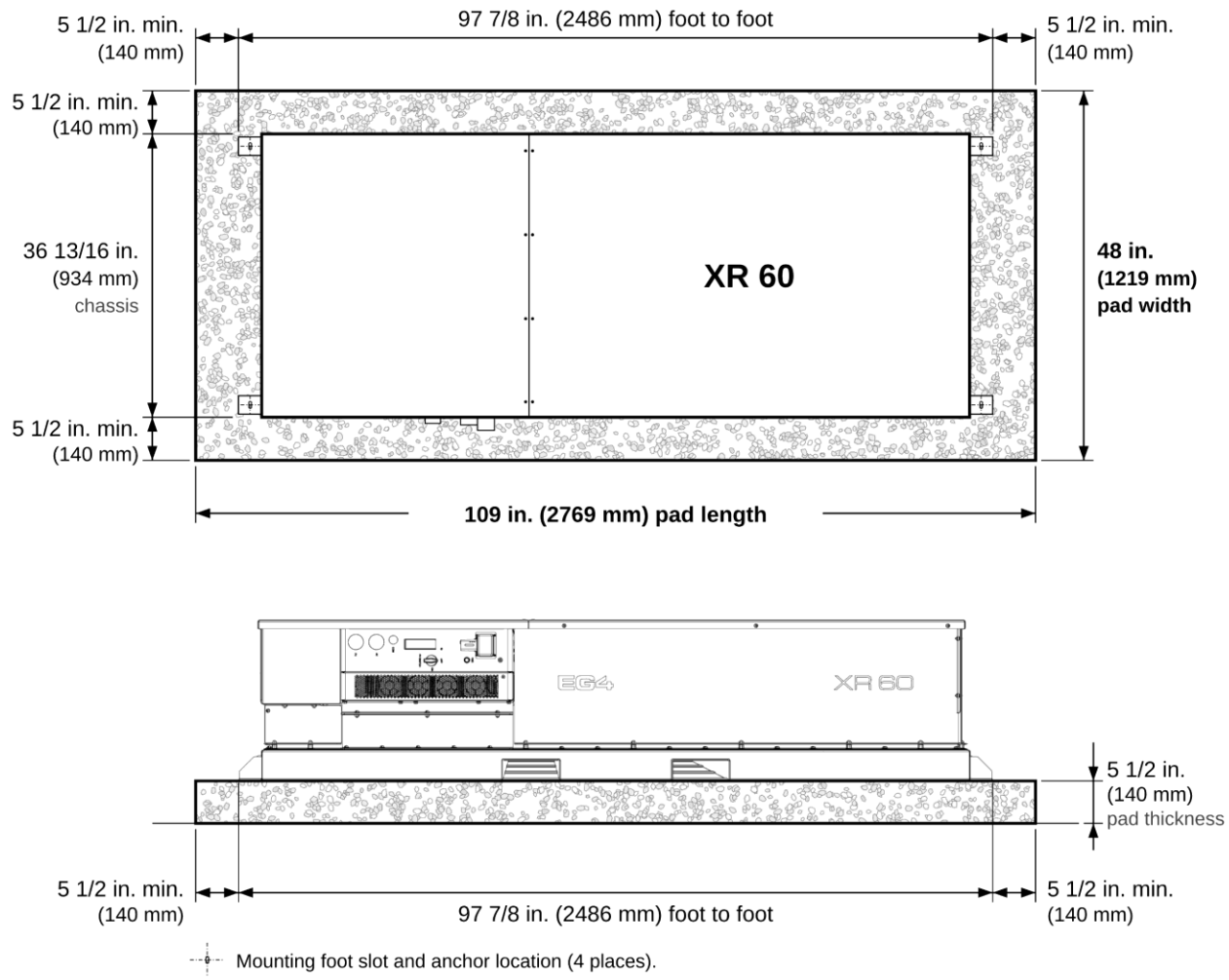


Figure 5.4: Gravel Pad Dimensions

NOTICE

Gravel pad dimensions are provided as a minimum reference design. Determine the final pad dimensions and any other applicable requirements based on site conditions and applicable codes.

5.4 Unloading the Crated Unit

This section describes how to unload the crated EG4® XR 60 from a delivery truck. A forklift is required for all unloading methods, including liftgate delivery. Keep the unit in its crate until it has been unloaded and placed on a solid, level surface. The forklift channels on the unit are not used until the crate has been removed. Review all instructions before proceeding.

Crated XR 60 unit:

- Measurement: 32 1/2 × 44 1/2 × 96 in. (826 × 1130 × 2438 mm)
- Weight: approximately 1810 lbs. (821 kg)

The forklift must meet the following requirements:

- Minimum rated load capacity of 2500 lbs. (1134 kg)
- Minimum fork length of 42 in. (1067 mm)
- Rated for the ground surface at the delivery site (use an outdoor-rated or rough-terrain forklift on unpaved surfaces)

NOTE

The crate can be unloaded using one of the following methods:

- Side unloading: The forklift removes the crate from the side of a flatbed truck or trailer, where the crate is accessible along its 96 in. (2438 mm) length.
- Liftgate delivery: The carrier lowers the crate to ground level on the truck's liftgate, and the forklift then removes the crate from the liftgate platform. The liftgate must be rated for the crated unit's weight. A pallet jack cannot be used to move the crate off the liftgate.

DANGER

The crated unit is extremely heavy. Do not stand or place any part of the body under or beside the load while it is lifted, and keep all personnel clear of the forklift's path. At least two qualified personnel are required: one to operate the forklift and one to act as a spotter.

Follow the steps below to unload the crated unit:

1. Before unloading, inspect the crate for visible shipping damage, such as crushed corners, punctures, or broken boards. Photograph any damage and note it on the delivery receipt before signing.
2. Confirm the truck is parked on level ground with the parking brake set and the wheels chocked.
3. For liftgate delivery only: Confirm the carrier has lowered the liftgate fully to the ground and the platform is stable before the forklift approaches.
4. Approach the crate from its long side. Spread the forks as wide as the crate base allows.
5. Insert the forks fully under the crate base until they extend completely through to the opposite side. Confirm both forks are evenly positioned and are not contacting the crate panels.
6. Slowly raise the crate just enough to clear the truck bed. Confirm the load is balanced and stable before moving. If the crate tilts toward one end, lower it immediately and reposition the forks.
7. Tilt the mast back slightly to stabilize the load, then slowly back the forklift away from the truck.
8. Lower the crate to a safe transport height, keeping the load as low as possible while maintaining ground clearance.

9. Slowly move the crate to a solid, level surface as close to the installation location as possible. Use the spotter to guide the operator.

> **CAUTION**
>
> **Keep the load low during transport to maintain stability. Avoid sudden movements, uneven terrain, slopes, and sharp turns.**

10. Slowly lower the crate until the crate base makes full contact with the ground. Relieve pressure from the forks, then carefully back them out without contacting the crate.
11. Verify the crate is stable and fully supported before removing any crate components.

The crate is now ready to be removed from the unit.

5.5 Crate Disassembly

Remove the crate packaging before maneuvering or positioning the system at the installation site.

Images for representative purposes only.

> **NOTICE**
>
> Verify the system is resting on a solid, level surface before removing any crate components. Do not disassemble the crate on uneven or unstable ground.

1. Using a T25 Torx bit, remove the ten 1/4 × 2 in. screws securing the top of the crate, then lift the top panel off the crate and set it aside. Refer to Figure 5.5 for screw locations.
2. Using a T25 Torx bit, remove the four 1/4 × 2 in. screws securing the front panel and the corresponding screws securing the rear panel. Remove the front and rear panels and set them aside. Refer to Figure 5.6 for front panel screw locations.

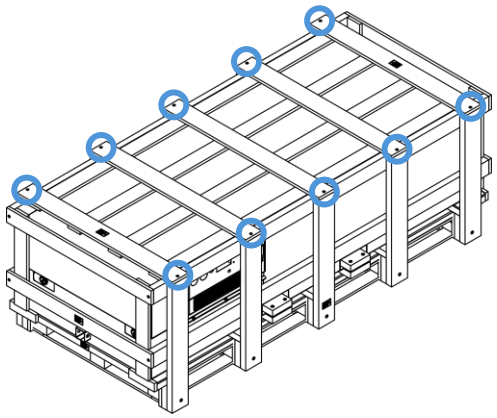


Figure 5.6: Top Panel Screws

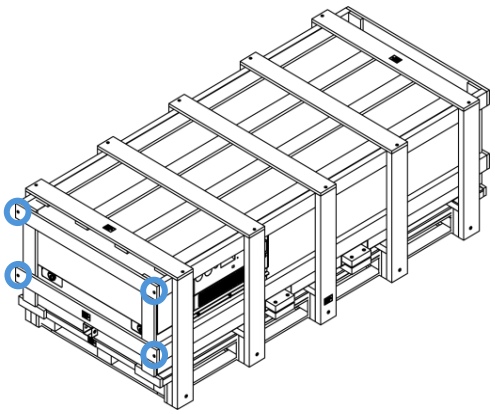


Figure 5.5: Front Panel Screws

3. Using a T30 Torx bit, remove the five 5/16 × 3 1/8 in. screws located along the bottom edge of the side panel shown in Figure 5.7 and the corresponding screws from the opposite side panel. Remove both side panels and set them aside.
4. Using a T25 Torx bit, remove the four 1/4 × 3 1/8 in. screws securing the battens shown in Figure 5.8 and the corresponding screws securing the battens on the opposite side. Remove both battens from the forklift channels and set them aside.

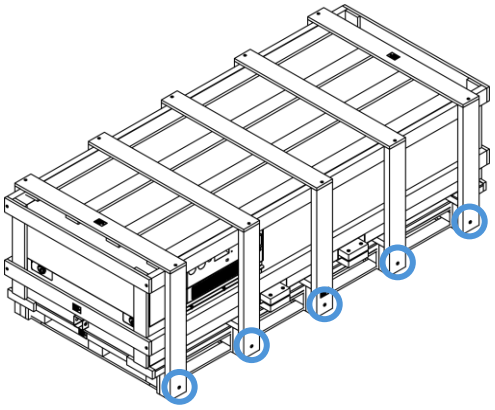


Figure 5.7: Bottom Edge Screws

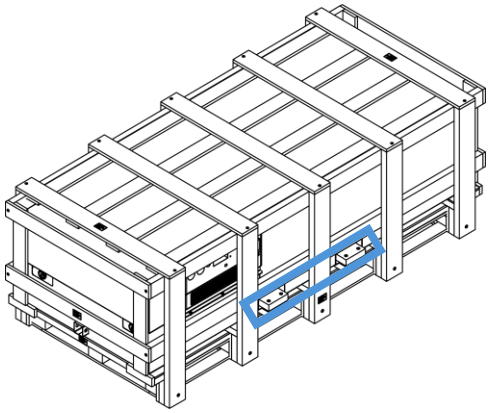


Figure 5.8: Batten Screws

5.6 Transport and Positioning: Forklift

This section outlines the procedures for transporting and positioning the EG4® XR 60 using a forklift. Review all instructions before proceeding. The equipment is heavy and requires proper lifting and handling. On a flat, level surface, use an outdoor-rated forklift to transport and position the unit via the integrated forklift channels.

The forklift must meet the following requirements:

- Minimum rated load capacity of 2500 lbs. (1134 kg).
- Fork length must comply with the requirements shown in Figure 5.9.

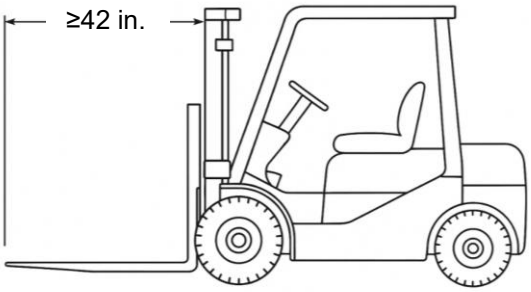


Figure 5.9: Forklift Fork Length

Follow the steps below for forklift transport and positioning:

1. Inspect the unit and verify that the forklift channels on the bottom of the frame are unobstructed and accessible from both sides.

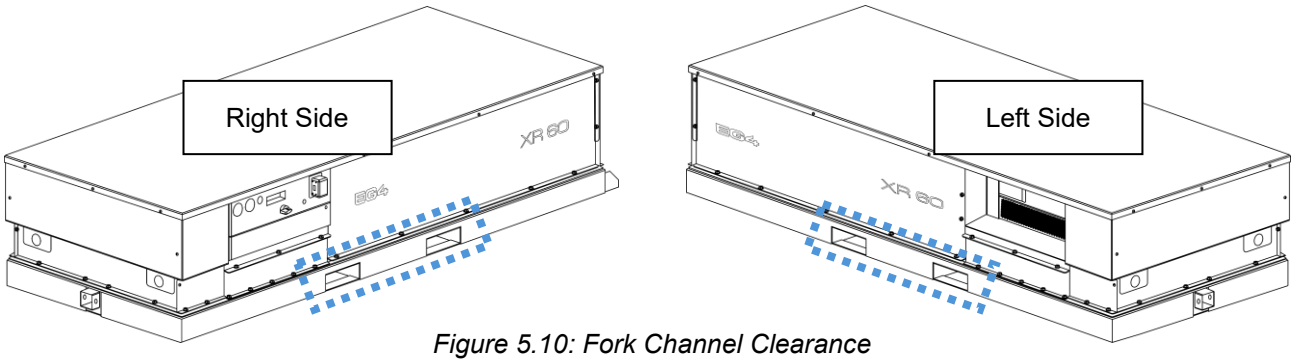


Figure 5.10: Fork Channel Clearance

2. Verify the forklift is rated to safely lift and transport the full system weight listed in Appendix A. Adjust the forks to 22 in. center-to-center to align with the forklift channels.

WARNING

Confirm that the lifting equipment is rated for the full system weight. Failure to use properly rated equipment may result in serious injury or equipment damage.

3. Insert the forks fully into the forklift channels from the left side through to the right side. Position both forks evenly so they extend completely through the channels.

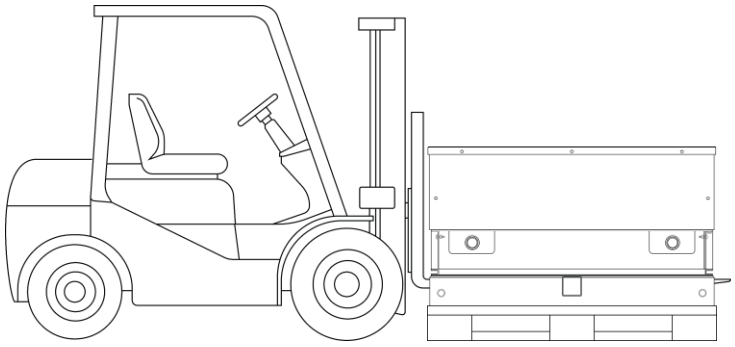


Figure 5.11: Insert Forks

4. Slowly raise the unit until it can clear the crate base. Confirm the load is balanced and stable before proceeding.

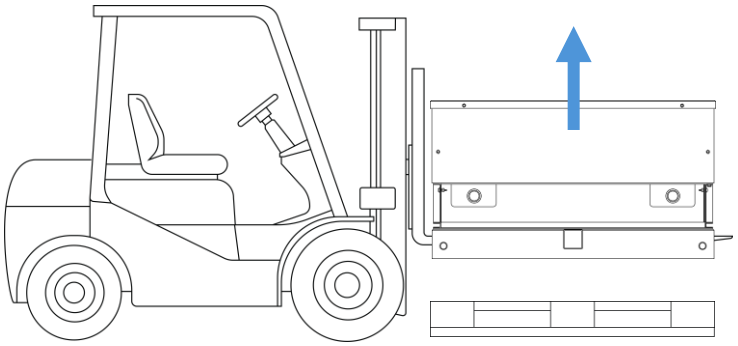


Figure 5.12: Raise Load

DANGER

Do not place any part of the body beneath the unit while it is supported by a lifting device. The unit is suspended in the air during this step. Keep hands and feet clear of the area beneath the load. A minimum of three people is required: one to operate the forklift and at least two to remove the crate base.

CAUTION

The crate base weighs 117 lbs. (53.1 kg). Use at least two people to pull the crate base out from under the load.

5. While the forklift operator holds the unit stationary, two qualified personnel carefully remove the crate base from beneath the unit without placing any part of the body under the suspended load.

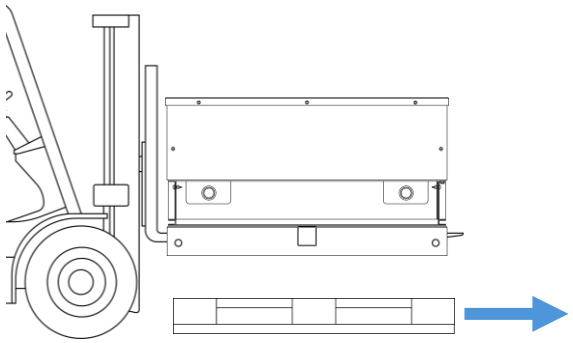


Figure 5.13: Remove Crate Base

6. Raise the unit to a safe transport height, keeping the load as low as possible while maintaining sufficient ground clearance. Slowly transport the unit to the installation location using the forklift.

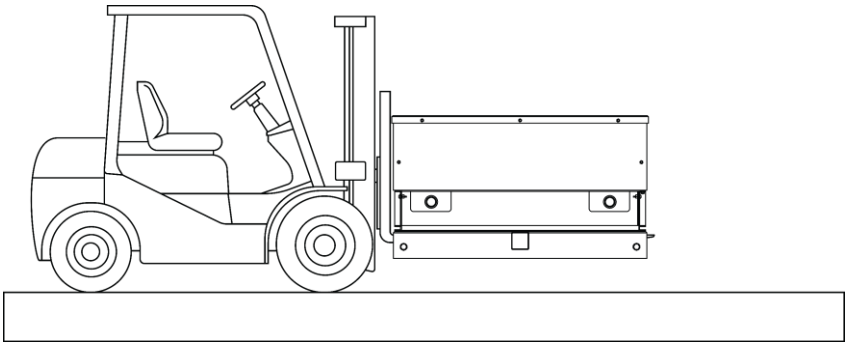


Figure 5.14: Unit Raised for Transport

CAUTION

Keep the load low during transport to maintain stability. Avoid sudden movements, uneven terrain, slopes, and sharp turns.

7. Position the unit on the foundation pad, confirming proper orientation for required clearances, service access, and electrical connections. Slowly lower the unit onto the foundation pad. Verify the frame base makes full contact with the foundation pad.

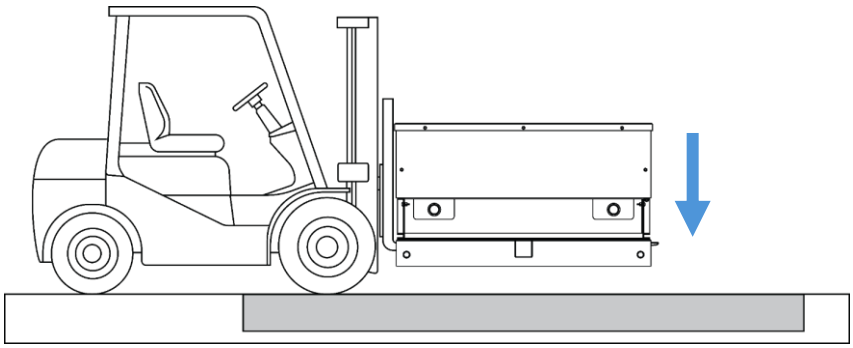


Figure 5.15: Forklift Lowered

8. Once the unit is fully seated, relieve pressure from the forks and verify the unit is stable, level, and fully supported.

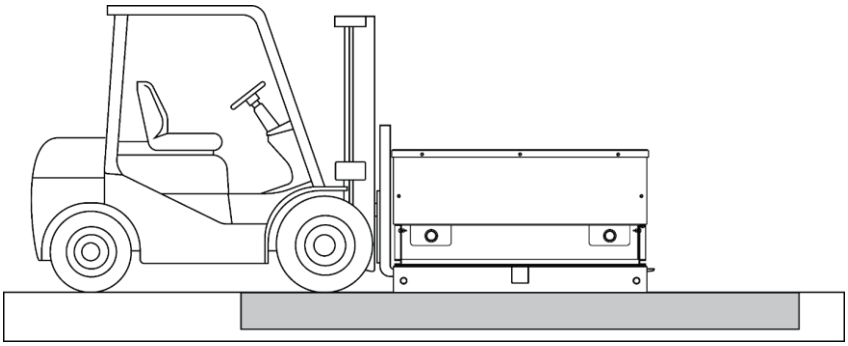


Figure 5.16: Unit on Pad

9. Carefully back the forks out of the forklift channels, making sure no contact is made with the XR 60 during removal. Verify the unit is undamaged, level, fully supported, and properly positioned for operation and anchor bracket installation.

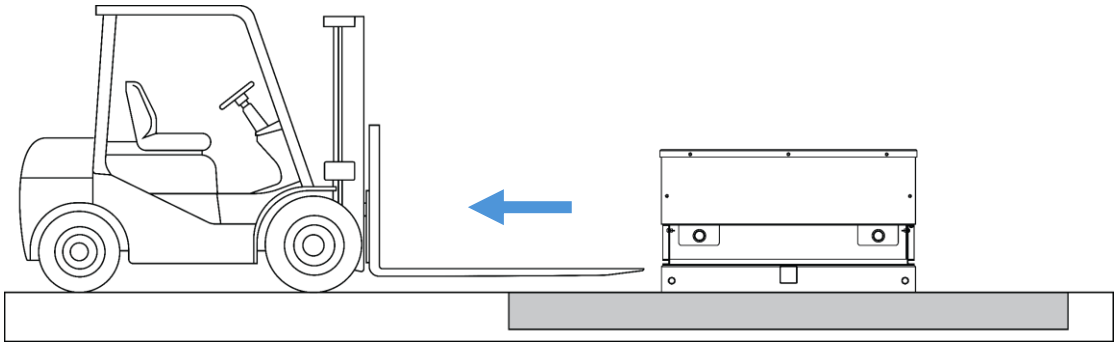


Figure 5.17: Forks Removed

The unit is now ready to be anchored to the foundation. Refer to section 5.7 for anchoring to a concrete pad or section 5.8 for anchoring to a gravel pad.

5.7 Concrete Pad Installation

1. Verify the concrete pad meets the minimum concrete pad requirements listed in section 5.3 and is suitable for the selected anchoring method.
2. Locate the four anchor brackets included with the XR 60.
3. Place two anchor brackets at the front and two anchor brackets at the rear, aligning each bracket with the designated mounting locations on the base of the unit, shown in Figure 5.18.

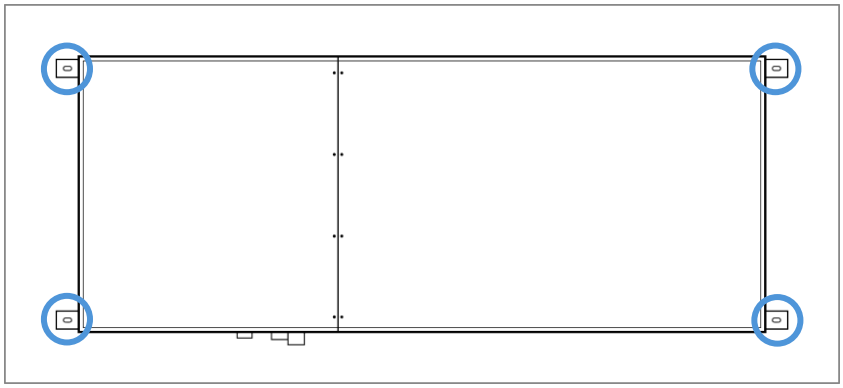


Figure 5.18: Anchor Bracket Placement

4. Using a 3/4 in. socket, temporarily attach the anchor brackets to the unit using the four included 1/2-13 × 1 in. flanged hex bolts.

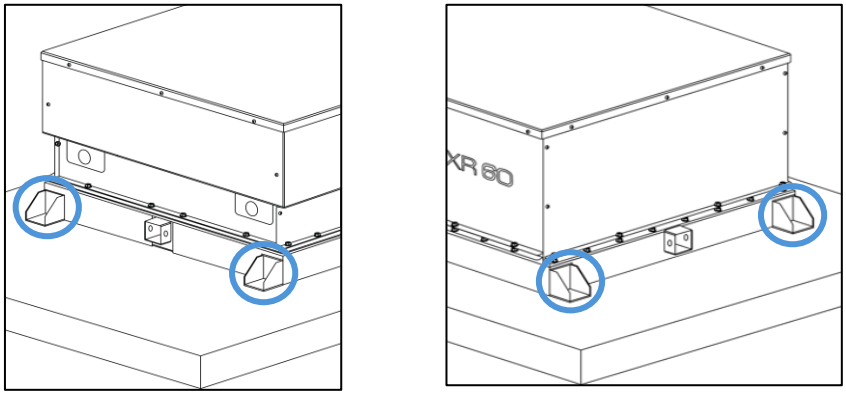


Figure 5.19: Anchor Bracket Locations

5. Using the anchor bracket mounting holes as a template, mark the drilling locations on the foundation pad.

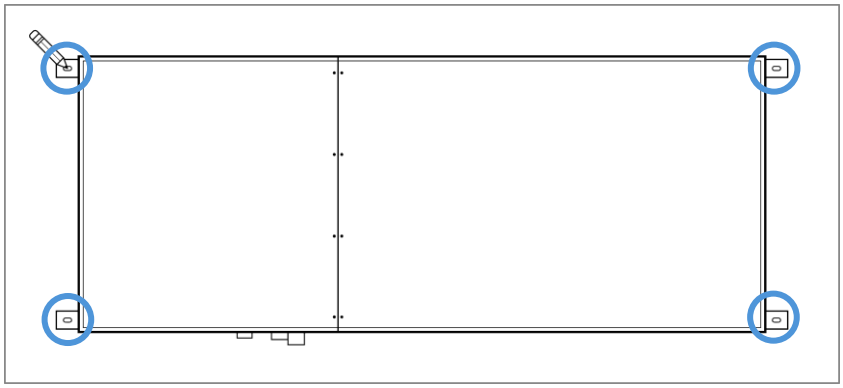


Figure 5.20: Mark Drilling Locations

6. Remove the anchor brackets to provide clear access for drilling.
7. Drill holes at the marked locations using a masonry drill bit sized for the concrete expansion bolts. Drill to the required depth specific to the mounting hardware (not included with purchase).

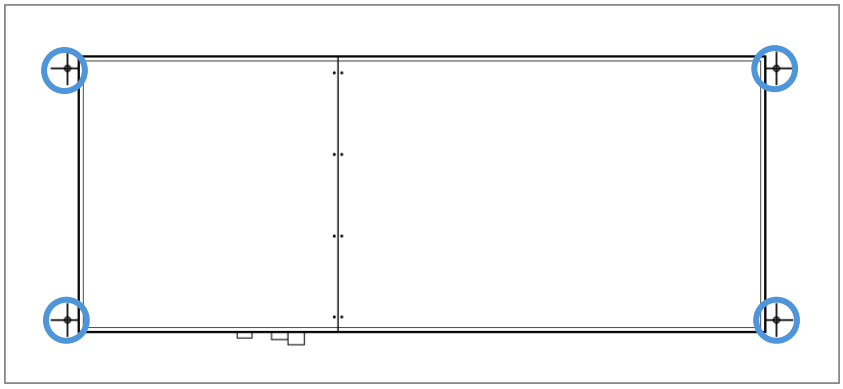


Figure 5.21: Drill Marked Locations

8. Clean each drilled hole to remove dust and debris to ensure proper anchor seating.
9. Reinstall the anchor brackets onto the unit using the included 1/2-13 × 1 in. flanged hex bolts. Position the brackets over the drilled holes and hand-tighten the bolts to allow for minor adjustment within the bracket slots. Adjust each bracket as necessary to ensure it is properly aligned and flush with the foundation pad before tightening.

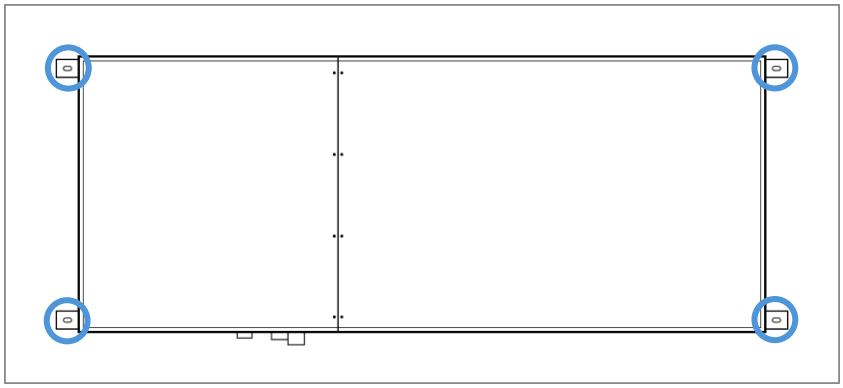


Figure 5.22: Reinstall the Anchor Brackets

10. Fully tighten the anchor bracket mounting bolts to secure the anchor brackets to the unit. Torque each anchor bracket mounting bolt to 30 ft-lbs. (~40.7 Nm).
11. Insert the concrete expansion bolts through the anchor bracket mounting holes and into the drilled holes.

NOTE

EG4 recommends using 1/2-13 × 3 in. concrete expansion bolts to secure the unit to the foundation pad when using the minimum recommended 5 1/2 in. foundation pad thickness. Verify that the selected expansion anchors are properly rated for the foundation material, thickness, and expected installation load.

12. Using a mallet, gently tap each expansion bolt until it is fully seated and the washer and nut are flush with the bracket.
13. Tighten each concrete expansion bolt to the manufacturer's specified torque value. Verify all anchor brackets are securely fastened and that the unit is level, stable, and fully supported.

5.8 Gravel Pad Installation

NOTE

Select, design, and install the anchoring system in accordance with local code requirements and site-specific engineering requirements.

1. Verify the gravel pad meets the minimum gravel pad requirements listed in section 5.3 and is suitable for the selected anchoring method. Confirm any required footings, ground anchors, or helical anchors have been designed and approved for the installation.
2. Locate the four anchor brackets included with the EG4® XR 60.
3. Place two anchor brackets at the front and two anchor brackets at the rear, aligning each bracket with the designated mounting locations on the base of the unit.

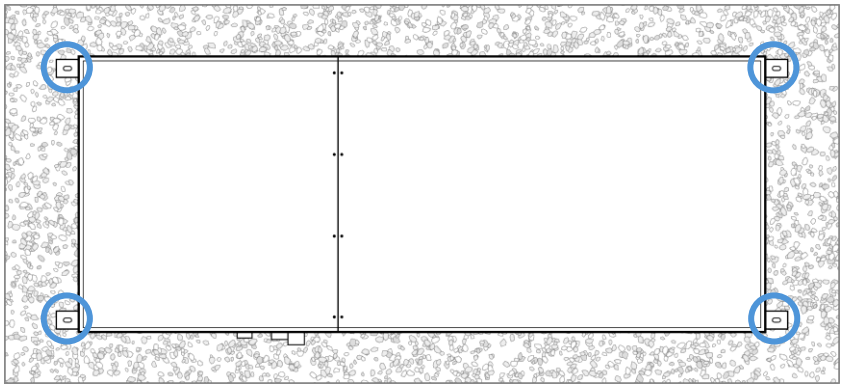


Figure 5.23: Anchor Bracket Placement

4. Using a 3/4 in. socket, temporarily attach the four anchor brackets to the unit using the included 1/2-13 × 1 in. flanged hex bolts.

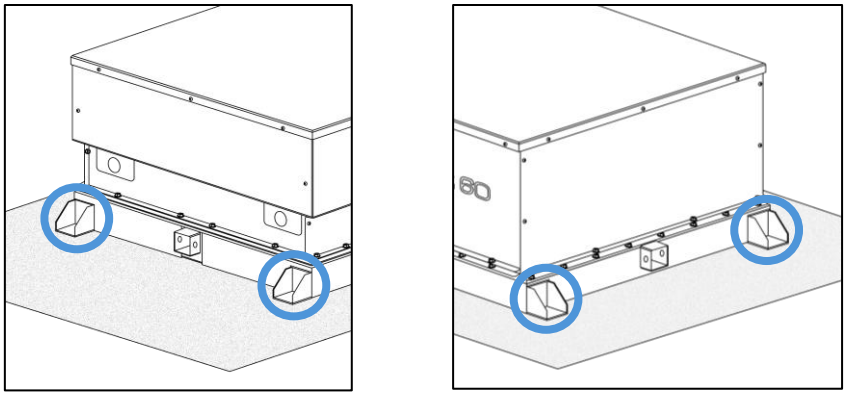


Figure 5.24: Anchor Bracket Locations

5. Using the anchor bracket mounting holes as a template, mark the anchor locations on the foundation pad.

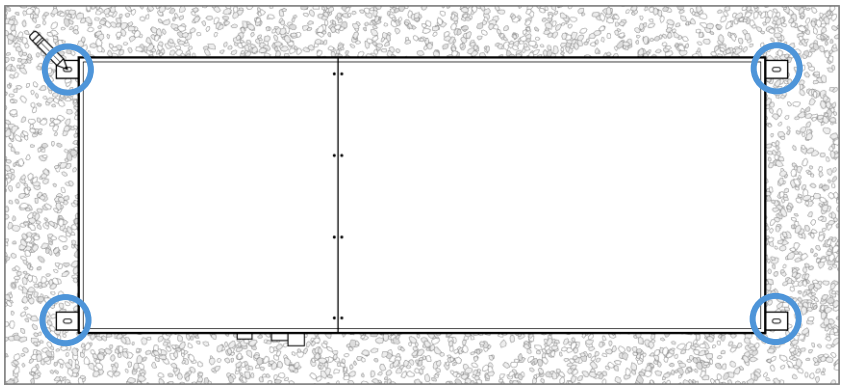


Figure 5.25: Mark Anchor Locations

6. Remove the anchor brackets to provide clear access for anchor installation.
7. Install the ground anchors or helical anchors at the marked locations in accordance with the manufacturer's instructions.

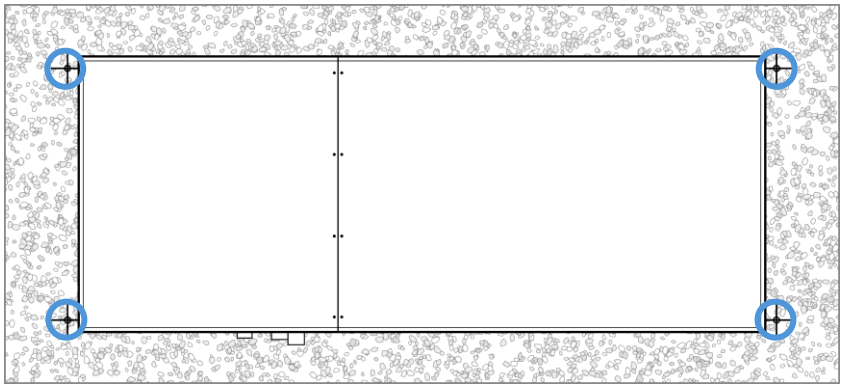


Figure 5.26: Anchor Installation

8. Reinstall the anchor brackets onto the unit using the included 1/2-13 × 1 in. flanged hex bolts. Position the brackets over the installed anchors and hand-tighten the bolts to allow for minor adjustment within the bracket slots. Adjust each bracket as necessary to confirm it is properly aligned and in full contact with the mounting surface before tightening.

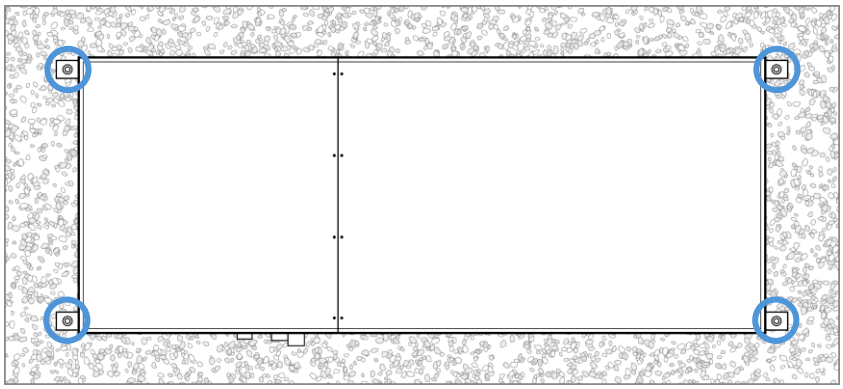


Figure 5.27: Reinstall the Anchor Brackets

9. Fully tighten the anchor bracket mounting bolts to secure the anchor brackets to the unit. Torque each anchor bracket mounting bolt to 30 ft-lbs. (~40.7 Nm).
10. Secure each anchor bracket to the installed anchor using the hardware supplied with the anchoring system. Tighten all hardware to the anchor manufacturer's specified torque values.
11. Verify all anchor brackets are securely fastened and that the unit is level, stable, and fully supported.

6. XR 60 Connections

This section provides instructions for removing the equipment covers to access the wiring and for connecting the inverter wiring, including AC input, AC output, generator, PV, and current transformer (CT) connections. Tighten all hardware and wire lugs to the specified torque values. Install all conduits before routing and terminating the inverter wiring.

CAUTION

Before connecting any wiring to the system, use a multimeter to verify each wire is not carrying voltage.

6.1 Cover Removal

Table 6.1: Cover Fastener Torque Specifications

Component	Recommended Torque Value
Outer Cover	60 in-lbs. (6.8 Nm)
Inverter Cover	13.9 in-lbs. (1.6 Nm)
Cable Box Cover	25.2 in-lbs. (2.8 Nm)
Arc Flash Shield	13.9 in-lbs. (1.6 Nm)

1. Remove the 7 Torx button head screws securing the outer cover (shaded gray) using a T25 Torx screwdriver, as shown in Figure 6.1, and carefully remove the cover.

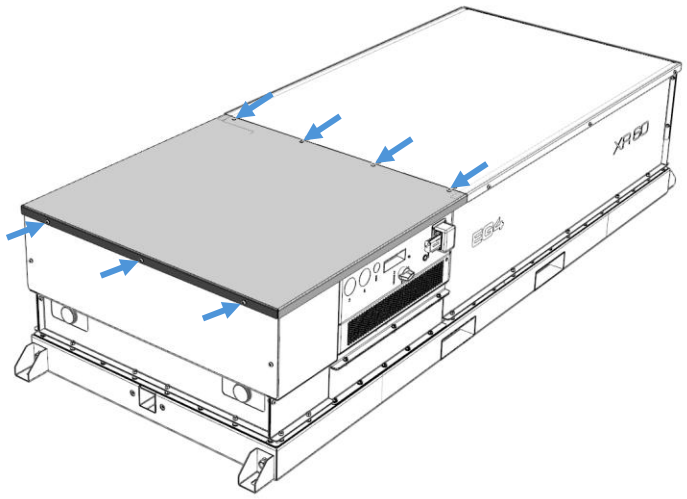


Figure 6.1: Outer Cover Removal

2. Remove the 6 Phillips flat head screws securing the outer inverter cover using a #1 Phillips screwdriver, as shown in Figure 6.2, and carefully remove the cover.
3. Remove the 10 Torx pan head screws securing the cable box cover using a T25 Torx screwdriver, as shown in Figure 6.3, and carefully remove the cable box cover.
4. Remove the 4 Phillips hex head screws securing the arc flash shield using a #1 Phillips screwdriver, as shown in Figure 6.4, and carefully remove the arc flash shield.

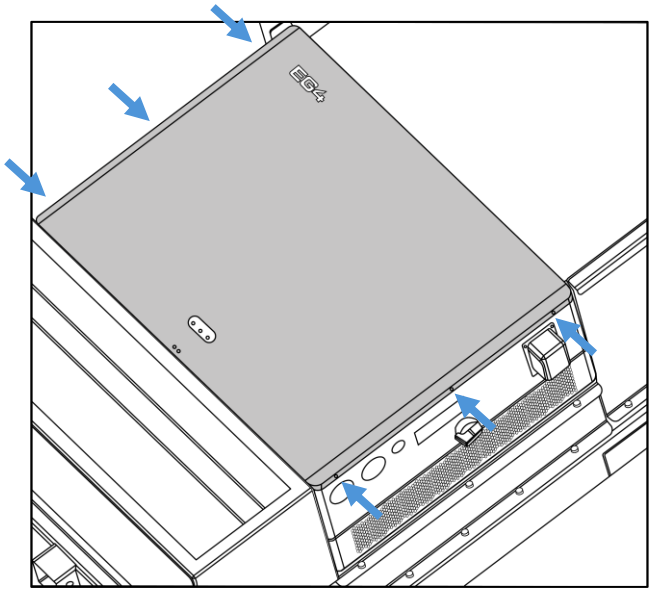


Figure 6.2: Inverter Outer Cover Removal

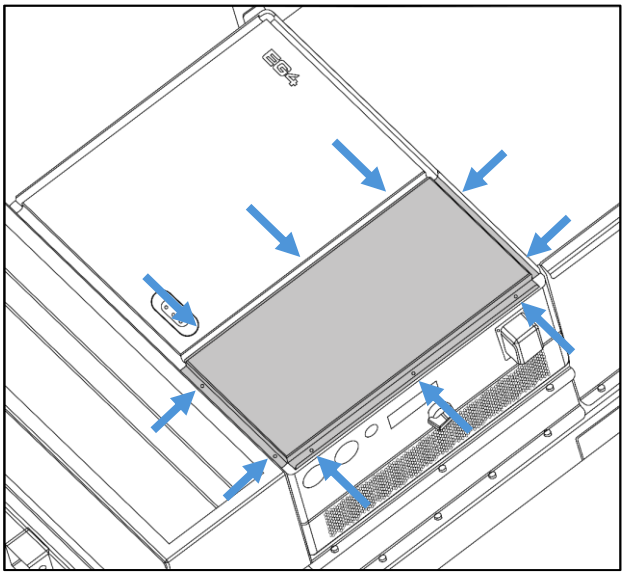


Figure 6.3: Outer Cable Box Cover Removal

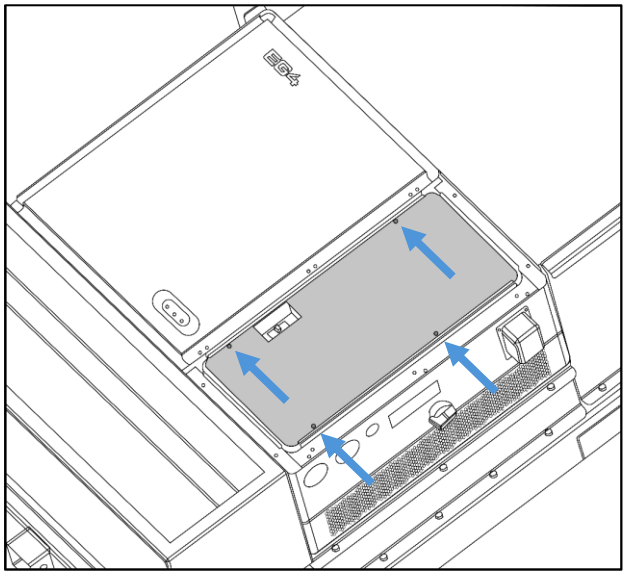


Figure 6.4: Arc Flash Shield Cover Removal

6.2 Conduit Entry Points

The XR 60 conduit box does not include pre-scored knockouts. Conduit entry locations are not predefined and vary by installation. Installers must create the required conduit entry points in the side(s) of the conduit box based on the installation's wiring layout. Depending on the installation layout and/or parallel configurations, conduit entry points may be required on both sides of the conduit box.

Do not create conduit entry points in the front or top of the conduit box. These surfaces are removable access panels and must remain unobstructed.

1. Determine the conduit entry locations required on the side(s) of the conduit box based on the installation's AC, PV, and CT wiring layout. Verify each location provides adequate clearance from internal components, busbars, wiring, and conduit fittings, does not interfere with removal of the conduit box covers, and maintains access to serviceable components. Refer to Figure 6.5 for an example conduit entry layout and hole dimensions. Actual locations will vary by installation.

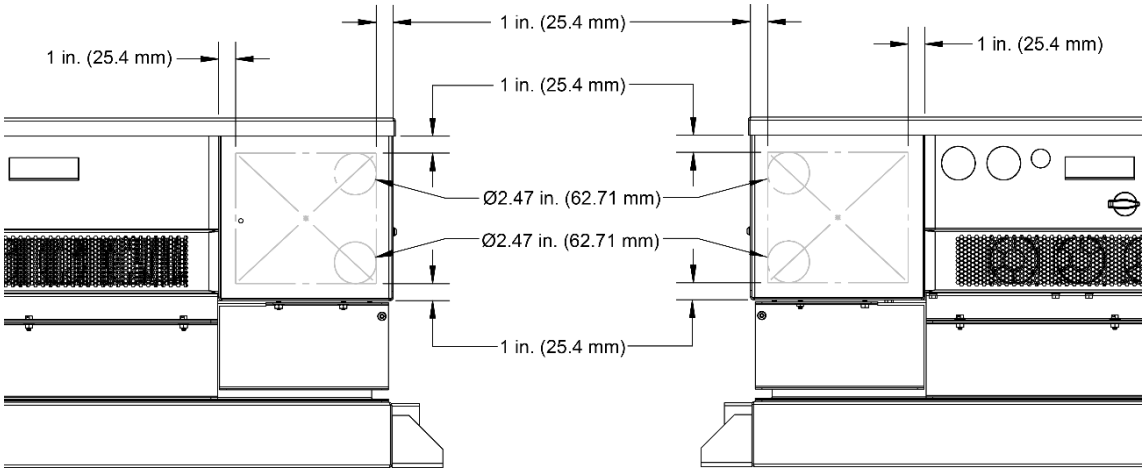


Figure 6.5: Conduit Entry Points

Table 6.2: Conduit Entry Sizes

U.S. Nominal Trade Size	Actual Hole Size
2 in.	2.47 in. (62.7 mm)

2. Cover all battery terminals and points of connection inside the conduit box with a non-conductive protective material before creating any conduit entry points. The cover keeps metal shavings off the battery terminals and connections and makes the shavings easier to collect and remove.
3. Mark each entry location using a center punch.
4. Create each conduit entry using an automatic conduit punch sized for the conduit fitting being installed.
5. Deburr all punched or cut edges to prevent damage to wire insulation during installation.
6. Carefully remove the protective cover, keep the collected shavings contained on the cover, and dispose of them away from the unit. Then remove any remaining metal shavings or debris from inside the conduit box before proceeding.
7. Install the required conduit fittings in each conduit entry point, ensuring a weathertight seal is maintained in accordance with the enclosure's NEMA 3R rating.

NOTICE

Remove all metal shavings and debris from the conduit box before making electrical connections. Metal debris can cause short circuits or damage internal components.

Improperly sealed or oversized conduit entry points can compromise the enclosure's NEMA 3R rating, allowing water intrusion and damaging internal components. Verify all conduit fittings are properly sized, installed, and sealed before proceeding.

6.3 AC Wiring

The EG4® XR 60 features L1 and L2 terminals for AC input (GRID), AC output (LOAD), and generator input (GEN). The system supports up to 66.5A of AC input current and up to 75A of AC output current, with support for 100A pass-through. The terminals are not protected by an internal breaker. Install an external AC breaker between the inverter and the AC power source to provide overcurrent protection and a means of disconnect for maintenance.

Consult a licensed electrical professional and/or the Authority Having Jurisdiction (AHJ) to determine the correct breaker size for the expected load and conductor size.

CAUTION

Before connecting any wiring to the system, use a multimeter to verify each wire is not carrying voltage.

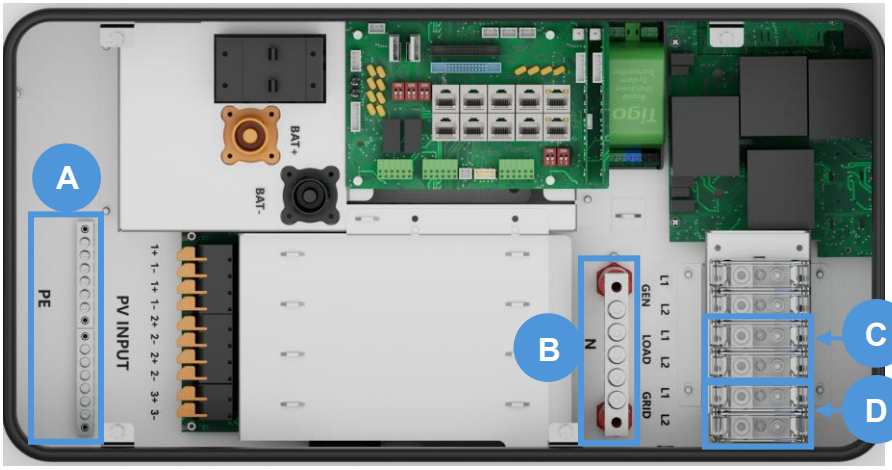


Figure 6.6: AC Wiring Connections

Table 6.3: AC Wire/Breaker Size & Torque

Callout	Connection	Max. Cable Size	Max. Torque	Max. Breaker Size
A	Ground	4 AWG (25 mm^2)	26 in-lbs. (2.9 Nm)	-
B	Neutral	2/0 AWG (70 mm^2)	136 in-lbs. (15.36 Nm)	-
C	Load	2 AWG (35 mm^2)	93 in-lbs. (10.5 Nm)	100A
D	Grid	2 AWG (35 mm^2)	93 in-lbs. (10.5 Nm)	100A

NOTICE

- Connect the AC output ground wire to the ground terminal before installing the AC output L1 and L2 conductors.
- If using fine stranded wire, use ferrules to secure the connections.
- When installing multiple units in parallel, EG4 recommends using equal-length AC cables from each
  XR 60 to the main panel, and from each XR 60 to the loads panel.
- If used in conjunction with GridBOSS, the Loads port on the XR 60 is not used. See the GridBOSS user manual for more information.

Neutral-Ground Bonding

The following information describes the neutral-to-ground relationship within the inverter and the electrical system. Consult a licensed electrician to verify the system is configured correctly.

- The AC input neutral and the AC output neutral are internally connected, also referred to as a common neutral architecture.
- The neutral conductor between the AC input and the AC output is never switched or disconnected.
- The inverter does not create a neutral-to-ground bond in any mode of operation.

CAUTION

The system must have only one neutral-to-ground bond. This bond is typically provided by the main bonding jumper at the service entrance or main service disconnect. Consult a licensed electrician to verify the system bonding is configured correctly.

Wire Connection Steps

1. Verify all breakers are in the off position and there is no current or voltage on each wire.
2. Connect the ground wires:
   a. Install the ground wire first to establish a solid connection to the existing Equipment Grounding Conductor (EGC) during wiring installation.
   b. Route the required ground wire(s) through the conduit and into the inverter cable box area.
   c. Strip 3/8 in. – 9/16 in. (10 mm – 15 mm) of insulation from the wire(s).
   d. Locate the ground busbar labeled “PE”, shown in Figure 6.6. Using a flathead screwdriver, loosen one busbar terminal for each ground wire.
   e. Insert the ground wire under the terminal screw(s) loosened in the previous step.
   f. Tighten the terminal screws to the torque specification listed in Table 6.3.
3. Connect the neutral wires:
   a. Route the required neutral wire(s) through the conduit and into the inverter cable box area.
   b. Strip off 3/8 in. – 9/16 in. (10 mm – 15 mm) insulation from the wires.

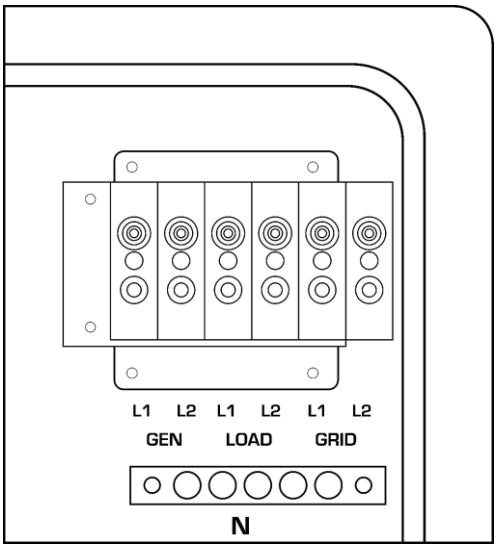


Figure 6.7: AC Connections

c. Locate the neutral busbar labeled “N”, shown in Figure 6.7. Using a 5 mm hex wrench, loosen one busbar terminal for each neutral wire.
d. Insert each neutral wire into its respective terminal loosened in the previous step.
e. Tighten the terminal screws to the torque specification listed in Table 6.3.

WARNING

- **Do not mix the grid input with the load output connections. This could cause damage to the system and other connected devices.**
- **Connect the AC wires with correct polarity. Reversing the L and N conductors will cause the system to enter fault mode and may damage systems operating in parallel.**

NOTICE

The XR 60’s grid terminals are not connected to an internal breaker. EG4 recommends installing a separate AC breaker between the system and the AC input. Refer to Table 6.3 for breaker sizing. Consult a licensed electrician or the local AHJ for specific disconnect requirements.

4. Connect the grid wires:
   a. Route the L1 and L2 wires from the grid through the conduit and into the inverter cable box area.
   b. Before inserting the wires into the lugs, strip 3/8 in. – 9/16 in. (10 mm – 15 mm) insulation from the wires.
   c. Locate the Grid L1 and Grid L2 connection lugs, highlighted in Figure 6.7. Remove the clear protective covers and loosen each mechanical lug using a 5 mm hex wrench.
   d. Insert the L1 wire under the GRID L1 lug and tighten to the torque values listed in Table 6.3.
   e. Insert the L2 wire under the GRID L2 lug and tighten to the torque values listed in Table 6.3.
   f. Replace both protective covers.

NOTICE

- Incorrect torque values may damage terminals.
- The XR 60’s load terminals are not connected to an internal breaker. EG4 recommends installing a separate AC breaker between the system and the loads panel. Refer to Table 6.3 for breaker sizing. Consult a licensed electrician or the local AHJ for specific disconnect requirements.

5. Connect the load wires:
   a. Route the L1 and L2 wires from the loads panel through the conduit and into the XR 60 cable box area.
   b. Before inserting the wires into the lugs, strip 3/8 in. – 9/16 in. (10 mm – 15 mm) insulation from the wires.
   c. Locate the LOAD L1 and LOAD L2 connection lugs highlighted in Figure 6.7. Remove the clear protective plastic covers and loosen each mechanical lug using a 5 mm hex wrench.
   d. Insert the L1 wire under the LOAD L1 lug and tighten to the torque values listed in Table 6.3.
   e. Insert the L2 wire under the LOAD L2 lug and tighten to the torque values listed in Table 6.3.
   f. Replace both protective plastic covers.

6.4 PV Wiring

This section provides instructions for connecting the PV array to the XR 60 and outlines the operating specifications, PV array sizing guidelines, and cable specifications required for proper installation. Review all requirements before making any PV connections to confirm the system operates within the system's supported electrical limits.

Images in this section are for representative purposes only.

Table 6.4: PV Specifications

Specification	Description	Parameter
PV Input Voltage Range	Range required for the unit to operate up to maximum input.	100 – 550 VDC
Unit Startup Voltage	Voltage required for the unit to power on.	150 VDC
Load Output Minimum Voltage	Minimum voltage required to output power to loads.	>140 VDC
MPPT Operating Voltage Range	Range where MPPT can track.	120 – 440 VDC
Full Power MPPT Voltage Range	Range where MPPT operates at maximum capacity.	250 – 440 VDC
Nominal MPPT Voltage	Voltage at which the MPPT operates at maximum efficiency.	360 VDC
Max. Utilized Solar Power	Wattage the unit can utilize from the solar array.	26kW
Recommended Max. STC Solar	Suggested PV power for the device to utilize full 26kW of PV.	31kW

The image shown below represents full utilization of the 3 MPPTs.

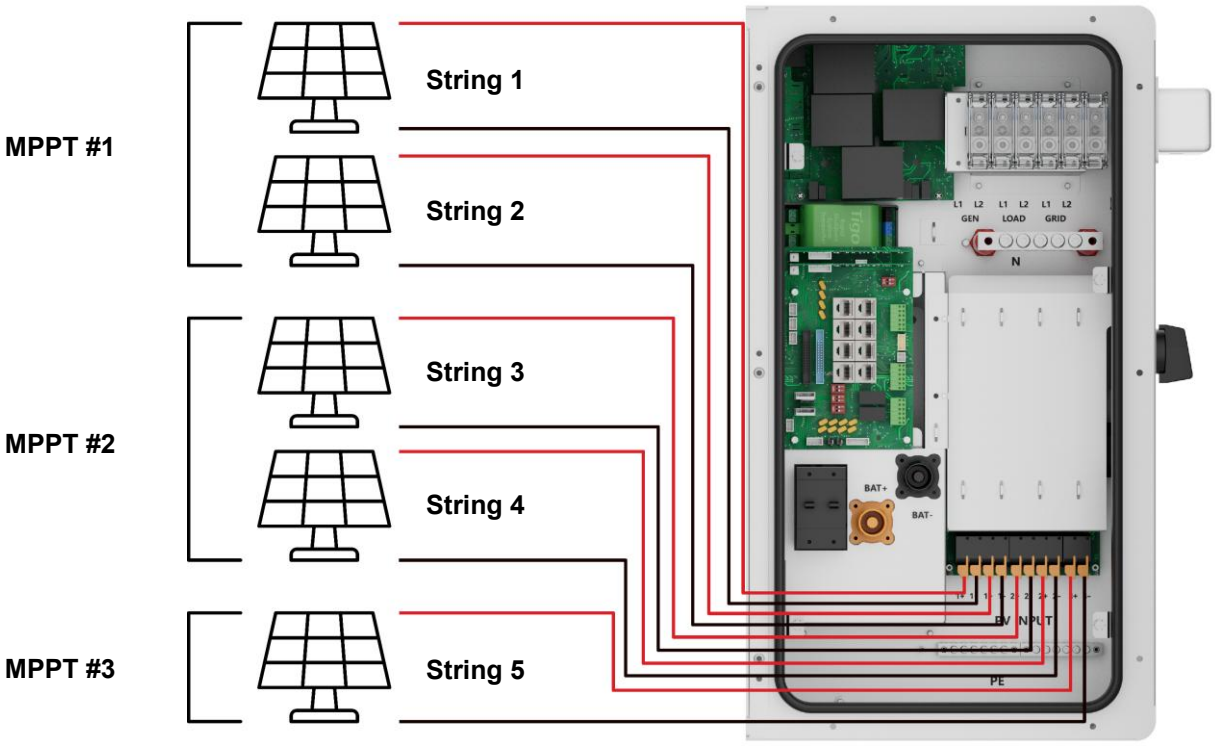


Figure 6.8: String Usage and Sizing

Sizing Guidelines:

- The maximum utilized solar input of the XR 60 is 26kW (DC).
- MPPT 1 and MPPT 2 each support up to 34A of usable input current, with a maximum of 40A short circuit current input. Amperage over 40A can damage the system. When using both strings on the same MPPT, the inverter will parallel them. Each individual string should not surpass 17A to keep the combined current within 34A (Imp).
- MPPT 3 can utilize up to 17A of solar input, with a maximum of 19A short circuit current input. Amperage over 19A can damage the system.
- Verify each string does not exceed the XR 60's MPPT circuit ratings. Double-check that the calculated Vmp range is within the 120 – 440 VDC MPPT operating voltage range. Consult a solar designer if needed.
- All panels on a string should face the same orientation and receive roughly the same amount of shading across the string. Installers should consider string location and wiring order on the racking to minimize shading effects. One shaded module can disproportionately reduce output for the entire string. Optimizers can help counteract the effects of partial shading.



Figure 6.9: Cable Box PV Connections

- When using both strings within an MPPT, both strings will ideally contain the same model, brand, and quantity of panels so the two strings do not reduce the performance of one another. Both strings should also face the same direction.
- When solar modules are put in series, the voltage multiplies by the number of modules, and the current remains equal to that of a single module.
- When solar strings are put in parallel, the amperage multiplies by the number of strings, and the total voltage of the string remains equal to the voltage of a single string.
- If an external Overcurrent Protection Device (OCPD) is needed, use an OCPD rated at 600V/20A for each string. Refer to the solar module specifications for more information.

DANGER

Damage will occur if the string voltage on a cold, sunny morning exceeds the inverter's max input voltage of 550V!

Table 6.5: PV Wire Sizing

Cable Size	Min. Insulation Voltage	Max. Amperage per MPPT
10 AWG – 8 AWG* (6 mm^2 – 10 mm^2 max.)	600V	MPPT 1: 34A MPPT 2: 34A MPPT 3: 17A

*Maximum supported wire size is 8 AWG.

NOTICE

- The array can have a higher Imp than the 34A/34A/17A specified, but the MPPTs will not fully utilize the extra current. An array that can deliver more current than the MPPTs can use helps increase solar production in the morning and on winter or cloudy days. An Isc higher than 40A/40A/19A will cause damage to the inverter.

WARNING

- **Verify the lowest ambient temperature of the installation location. The rated VOC on the solar module nameplate is obtained at STC (77°F/25°C). As the ambient temperature drops, the solar module VOC increases. Ensure the maximum solar string voltage, corrected at the lowest temperature, does not exceed the inverter's maximum input voltage of 550V.**
- **It is recommended to install a PV disconnect switch between the XR 60 and PV modules.**
- **It is crucial for system safety and efficient operation to use proper cable for PV module connections as shown in Table 6.5.**
- **When connecting multiple strings, label each string to avoid incorrect wiring, which could damage the equipment.**
- **When connecting multiple XR 60s in parallel, a single string cannot be shared between each system. Each string must be connected to its own MPPT.**
- **For all modules, the calculations need to be performed or verified by consulting a professional or using a string sizer such as:**
  EG4® Solar Panel String Sizer.
  https://eg4electronics.com/wp-content/themes/hello-elementor/eg4-solar-panel-string-sizer/

EG4 Solar Panel String Sizer

PV Wiring Steps:

1. Verify all breakers and disconnect switches are in the OFF position before connecting or disconnecting PV wires. Use a multimeter to confirm there is no voltage present before making any connections.
2. Route a pair of PV wires from the PV disconnects to the inverter cable box area. Be sure to label all wires and work with one string (pair of wires) at a time.
3. Strip off 1/2 in. – 11/16 in. (12.7 mm – 17 mm) insulation on the PV string's positive and negative wires.
4. Locate the desired MPPT controller and string. Starting with the positive "+" terminal, lift the orange spring clamp into an open position. See Figure 6.10.

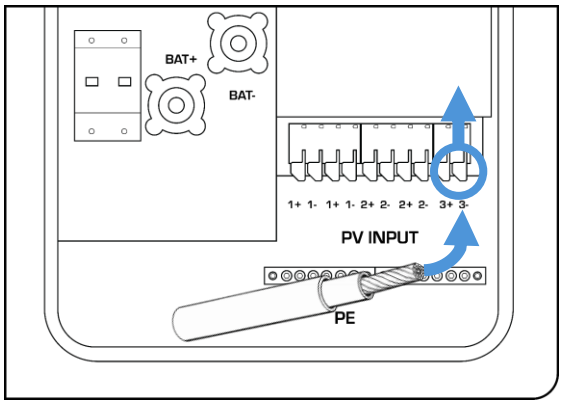


Figure 6.10: PV Wire Install

5. Insert the positive PV wire into the positive "+" PV connection point. Once the wire is in place, close the connector by pushing the orange spring clamp down. Verify the PV wire is properly secured by lightly pulling on it.
6. Working with the same string, lift the orange spring clamp of the negative "-" PV connection point.
7. Insert the negative "-" PV wire into the negative "-" PV connection point. Once the wire is in place, close the connector by pushing the orange spring clamp down. Verify the PV wire is properly secured by lightly pulling on it.
8. Repeat steps 2 – 7 for each PV string that needs to be connected. When connecting multiple strings, verify the positive and negative wires for each string remain together and are connected to the same string.

NOTE

Use wire ferrules for the PV string conductors if using fine stranded wire.

6.5 Parallel Communication Cable

The EG4® XR 60 ESS supports up to three units in parallel, including when paired with a GridBOSS. Parallel operation requires one system to be set as the master and a parallel cable connected between each system for system-to-system communication.

Follow these steps to cable and configure each inverter to support parallel connections.

1. Ensure each inverter circuit breaker is in the open (OFF) position. No voltage should be coming in or out of the system at this point.
2. Set the CAN communication DIP switches to the ON position for the first and the last inverter. Set both DIP switches to the OFF position for any inverters between the first and last.
3. Install the included parallel cable (grey in color) to the parallel port on each inverter as shown by the blue lines in Figure 6.11. If only two systems are installed, only one parallel cable is required. However, two parallel cables will create redundancy in the event one cable is disconnected or stops working.

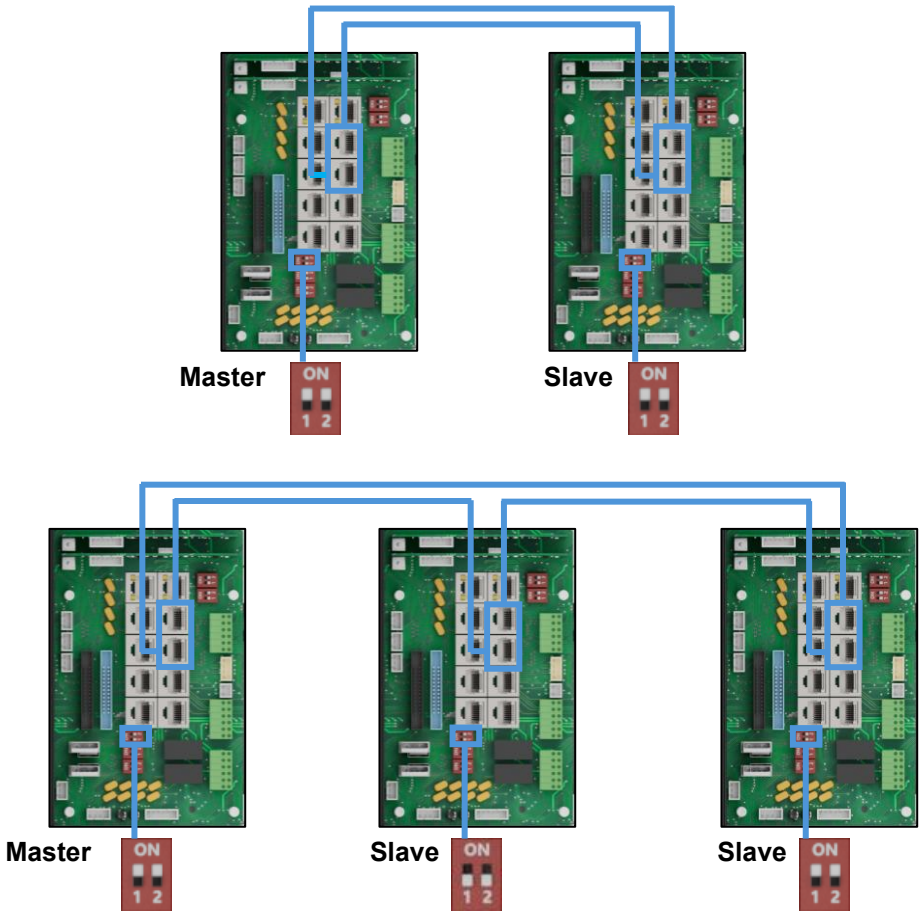
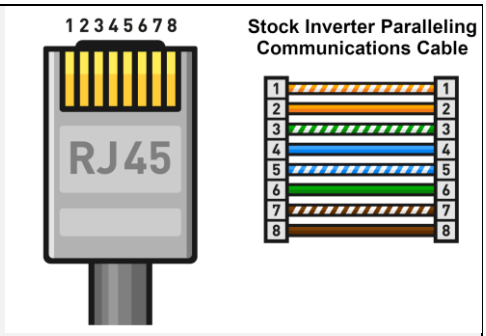


Figure 6.11: Communication Paralleling Configurations

CAUTION

Use only the provided inverter paralleling communication cable when connecting inverters in parallel. Using an incorrect cable may result in communication failure or equipment damage.

If a longer cable is required, use a standard straight-through RJ45 Ethernet cable wired according to the pinout shown here. A shielded cable is recommended. Contact the distributor the equipment was purchased from if additional assistance is required.



6.6 CT Connection

To measure the power imported from and exported to the grid, a pair of CTs must be installed at the service entry point in or near the main service panel. Each system is supplied with two CTs connected to a single RJ45 connector. The CT specifications are listed below:

Model: CTSA024-300A/100mA

Specification: 240V/208V, 300A/100mA

CT Clamp Ratio

The inverter supports three CT clamp ratios: 1000:1, 2000:1, and 3000:1. The included CTs are 3000:1. If using a third-party CT, confirm the CT ratio is of a supported type. Be sure to select the correct CT ratio setting on the inverter.

Extending the CT Clamp Cable

If needed, the CT wires may be extended using a shielded CAT5 (or higher) straight-through Ethernet cable and an RJ45 adapter to connect the existing CT cable to the extension. The total length of the original CT cable plus the extension can be up to 300 ft. (~91 m). Refer to the pinout table below to verify the cable is using the proper pinout.



Table 6.6: CT Pinout

PIN	Description
1 – 4	Reserved
5	CT2N
6	CT2P
7	CT1N
8	CT1P

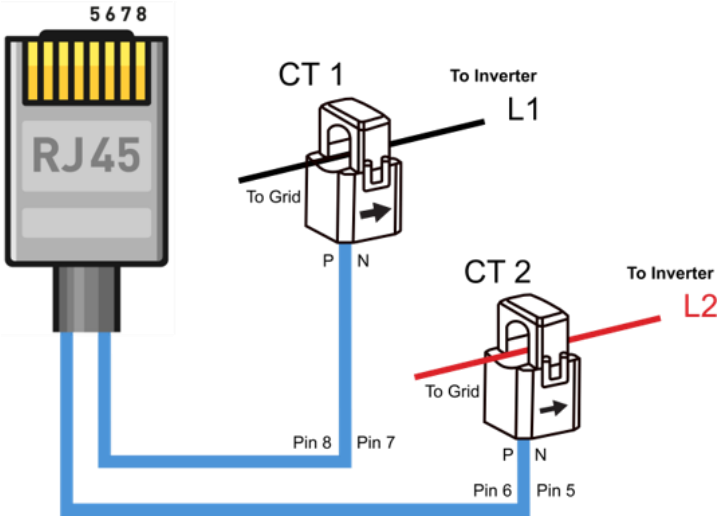


Figure 6.12: CT Extension and Connection

CT Clamp Wiring

Images in this section are for representative purposes only.

1. Locate the CTs included with the system(s).
2. Install CT1 on L1 and CT2 on L2 at the service entry point in the main service panel, as close to the utility meter as possible. Refer to Figure 6.13.
3. Verify the CT installation meets the following requirements:
   a. Orient each CT clamp so the arrow points toward the inverter.
   b. Install each CT clamp around only a single conductor. Do not install a CT clamp around multiple conductors, the neutral conductor, or the equipment grounding conductor.
4. Route the CT cables to the inverter. If additional cable length is required, use an RJ45 adapter and shielded CAT5 cable to extend the connection.
5. Connect the RJ45 connector from the CT cable to the CT port on the inverter.

NOTE

- Incorrect CT installation may result in inaccurate grid import/export measurements.
- If grid import and export values appear reversed in EG4 Connect, verify that the CT clamps are installed on the correct conductors and that the arrows on the CTs are pointing toward the inverter.

Legend:

Black = L1

Red = L2

Grey = Neutral

Blue = Communication Cable

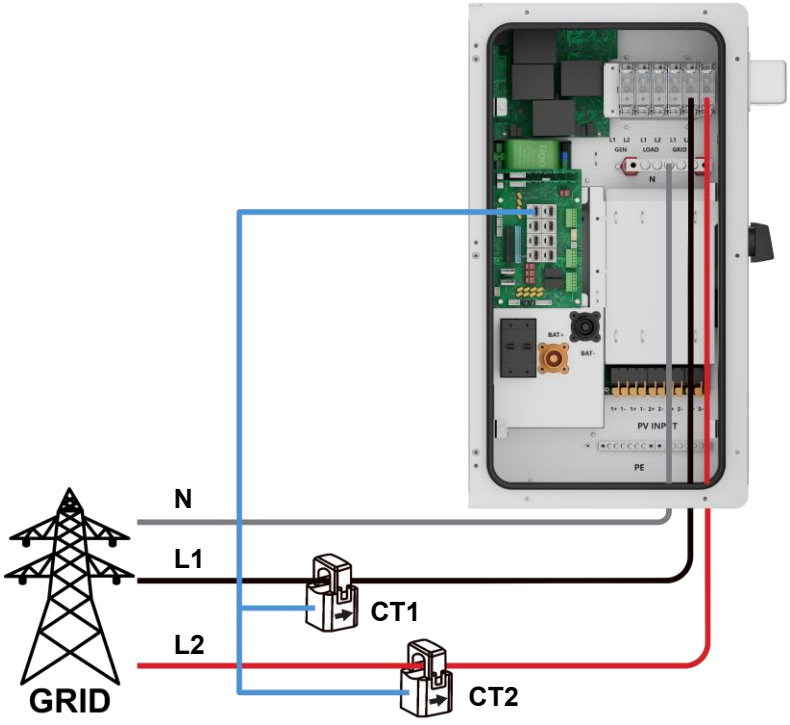


Figure 6.13: CT Clamp Placement

NOTICE

Split-phase (120/240 VAC) parallel configurations: Install CT clamps on only the master inverter. Slave inverters are not configured with CT clamps. All system current and voltage measurements are obtained from the master inverter.

6.7 Installing the Dongle

A Wi-Fi communication dongle enables configuration and monitoring of the system, providing remote access to system data and settings from a computer or mobile device.

NOTE

All dongle models require internet access to enable user account creation, system commissioning, system configuration, and system monitoring. In off-grid installations without internet or cellular service, the dongle supports local connectivity; however, local connections support only one system at a time, and the system does not offer remote monitoring or configuration.

Local access requires connecting a mobile device directly to the dongle's Wi-Fi hotspot and using the "Offline Mode" option in the EG4® Connect app. Installers must download the EG4 Connect app from a location with internet access before arriving at the installation location.

Installation

Install the dongle by plugging it into the designated port on the side of the inverter and securing it with the four (4) Phillips-head screws.

- Failure to tighten the four screws could cause a loss in the IP68 weather rating.
- It is recommended to take a picture or write down the dongle serial number and PIN located on the dongle sticker. This information is required when configuring the dongle in section 8.3.

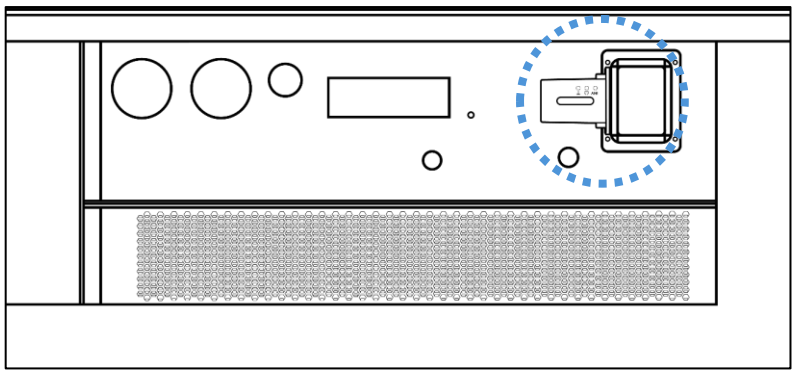


Figure 6.14: Dongle Install

Due to certain limitations of the Wi-Fi Dongle, verify that the home Wi-Fi network signal and security settings meet the following requirements:

- The Wi-Fi dongle only supports wireless networks operating at 2.4 GHz. If the router supports 5 GHz or 6 GHz, confirm that it also supports 2.4 GHz and that it is enabled.
- The Wi-Fi dongle is compatible with WPA2 and WPA3 security protocols on the 2.4 GHz network only.
- It is recommended that the home Wi-Fi network name length does not exceed 19 characters, and the password length does not exceed 24 characters. Do not include any of the following special symbols in the password: @, #, $, %, &, *, ?, _, /, or spaces.

Dongle Troubleshooting Guide

For Wi-Fi Dongle troubleshooting, scan the QR code.

7. ESS Rapid Shutdown

Under the NEC, an Energy Storage System (ESS) must have a disconnecting means that safely isolates the ESS from other electrical systems to support servicing, maintenance, and emergency response. The disconnect must be suitable for the voltage and current, capable of interrupting load current, and coordinated with the ESS controls so the system shuts down safely. UL 9540 requires the disconnecting means to be readily accessible, clearly identified, and positioned so that first responders and service personnel can quickly isolate the ESS without entering hazardous areas; this is typically at the ESS enclosure, integral to the system, or immediately adjacent to it, depending on the system design. While UL 9540 focuses on product safety and allows flexibility in exact placement, it is intended to align with installation codes (such as NEC Article 706) that reinforce accessibility, visibility, and clear labeling.

Typically, Rapid Shutdown (RSD) is a safety function for PV systems that rapidly reduces potentially hazardous DC voltage on PV conductors to protect first responders. By contrast, an ESS disconnect isolates the battery energy storage system from the rest of the electrical system.

A complete system shutdown (PV, battery, and AC output) can be triggered with the XR 60. This is done via closed-loop communication between the inverter and the battery. To shut down the entire system, use the RSD switch on the inverter or an external RSD switch properly wired to the inverter. For UL 9540 compliance, section 7.1 explains how to wire an external RSD switch to the ESS. The XR 60 ships with an integrated Tigo RSS transmitter. Sunspec Compliant RSD receiver modules must be installed at the PV panels for RSD to function properly.

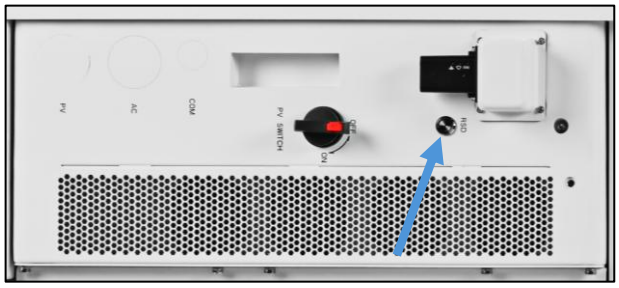


Figure 7.1: RSD Button

7.1 External Disconnect

External E-Stop Switch connections:

- The external switch must be “Normally Closed” by default, and “Open” when the button is pressed for emergency shutdown.
- The external switch should be connected to the RSD terminals on the inverter and mounted in a readily accessible location outdoors (check with the local AHJ for requirements).
- Remove the jumper from the external RSD connection and wire the E-Stop Switch into the SW and +12 terminals, as shown in Figure 7.2.

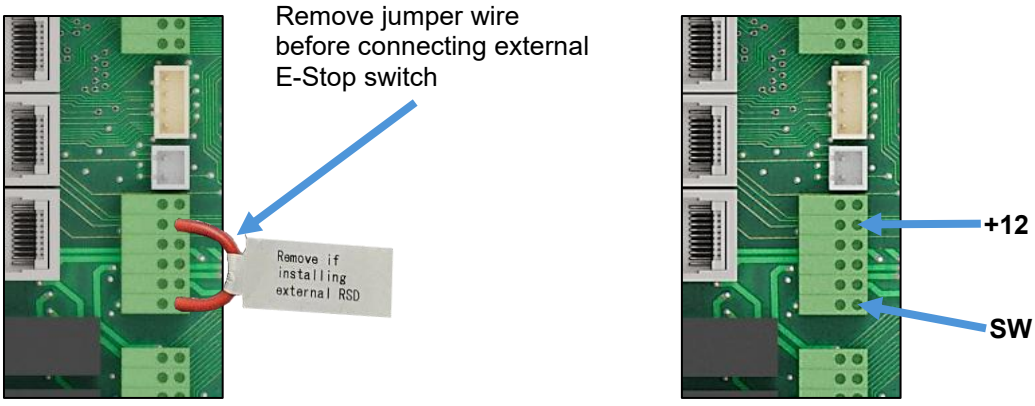


Figure 7.2: External Disconnect

8. System Commissioning

This section describes the initial power-up process for the XR 60 and the configuration steps required to safely accept PV and/or grid power, operate the integrated battery, and supply power to connected loads. These steps are especially important when up to three XR 60 units operate together in a parallel configuration. All configuration procedures in this section are shown using the EG4 Connect app interface.

> **NOTE**
>
> All settings shown in this section are also available on the EG4 Connect website, except for dongle configuration, which can only be completed in the EG4 Connect app.

Follow each section, starting with section 8.1, to complete the commissioning process:

- 8.1 – Pre-Checks
- 8.2 – System Power-On
- 8.3 – Dongle Configuration
- 8.4 – Management Connection
- 8.5 – System Configuration
- 8.6 – Enable Load Output

At the end of this section, the XR 60 will be fully configured, online in EG4 Connect, and able to supply power to the loads without warnings or faults.

> **CAUTION**
>
> **Failure to complete the required pre-checks in 8.1 before applying power or configuring the system may result in improper operation or equipment damage.**

8.1 Pre-Checks

Verify the following items are completed before moving on to section 8.2:

1. All cables have been run and are properly connected according to section 6.
2. All circuit breakers are in the OFF (open) position. This includes:
    a. External AC input breakers and/or shutoff switch
    b. AC output breaker in the loads panel
3. A dongle is installed for each system as shown in section 6.7.
4. If more than one XR 60 is connected in a parallel configuration, verify the parallel cables are installed according to section 6.5.
5. Using a multimeter verify the following voltages are within the inverter's operating range using the data provided in Appendix A Technical Specifications:
    a. Make sure the PV disconnect on the side of the inverter is in the OFF (open) position. Turn ON the external PV disconnect only. Check the PV voltage and confirm it is within the operating range.
    b. If using AC input, verify all input breakers are in the OFF (open) position. Double-check each hot line to neutral connection supplying power to the inverter to ensure voltage is in operating range of the inverter.

8.2 System Power-On

WARNING

Do not enable output to the loads or switch the load breaker in the loads panel to the ON (closed) position. Enabling loads before the system is correctly configured may result in improper operation or damage to the inverter and connected equipment.

1. Turn the battery breaker, located in the inverter cable box, to the ON (closed) position.
2. Press and hold the power switch in the conduit box (see Figure 8.1) for approximately 5 seconds, until the indicator turns solid green. The XR 60 powers on and energizes the system.

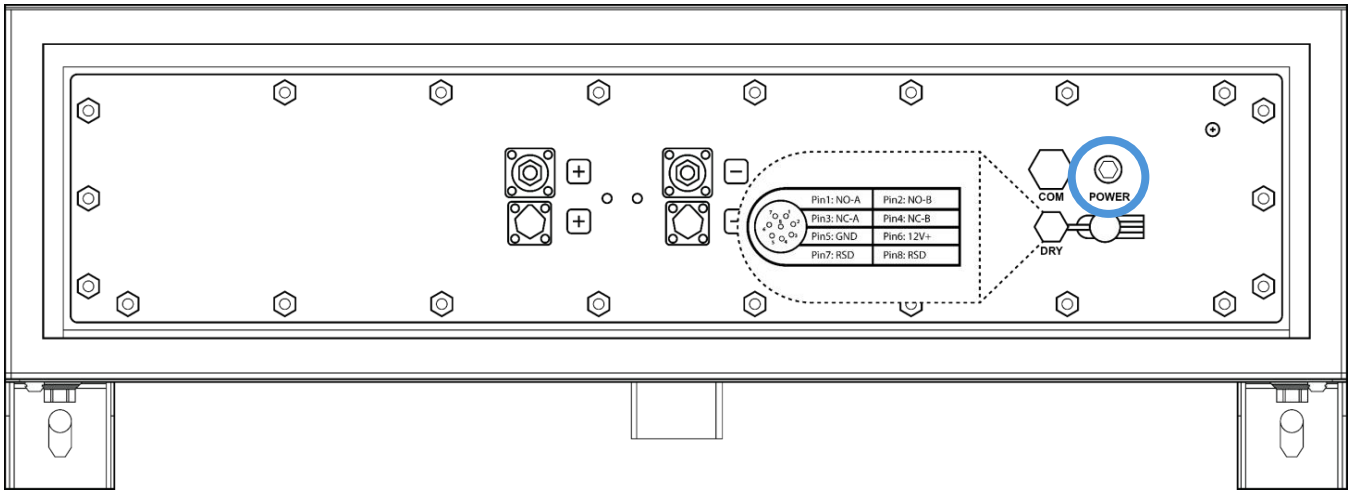


Figure 8.1: XR 60 Power Switch

3. Observe the LED display on the top side of the XR 60 and confirm it powers on. Refer to Table 13.1 for LED status descriptions.
   - If the LEDs display Normal, proceed to the next step.
   - If a Warning or Fault is present, refer to section 13 for troubleshooting. Resolve all faults before proceeding.

NOTICE

At this stage, the system may display warnings related to missing PV or AC input. These warnings are expected, provided no active faults are present.

4. If PV is installed, move the external PV isolator switch to the ON (closed) position. Then set the PV switch on the side of the inverter to the ON (closed) position. Observe the front panel LED and confirm normal operation before proceeding.
5. If using grid input, set the external AC breaker between the input panel and the inverter to the ON (closed) position. This will provide AC power for the system. Verify the inverter displays normal operation with no active warnings or faults before proceeding.

8.3 Dongle Configuration

This section describes how to configure the communication dongle to establish network connectivity and enable monitoring and configuration of the system.

Table 8.1: Dongle FCC ID

Name/Model	Serial Number (SN)	Dongle Type	FCC ID
2nd gen e-WiFi Dongle (Encrypted)	xJxxxxxxxx	2.4 GHz only	2AC7Z-ESPC3MINII

NOTICE

Before proceeding with dongle configuration, ensure the following requirements are met:

- The EG4® Connect app is downloaded and installed on a supported iOS or Android device.
- Internet access is available during setup.
- The local Wi-Fi network meets the following requirements:
  - 2.4 GHz frequency band enabled (5 GHz/6 GHz not supported)
  - WPA2 or WPA3 security protocol is enabled on the 2.4 GHz network.
  - The Wi-Fi network name (SSID) should not exceed 19 characters, and the password should be no longer than 24 characters. Avoid using special characters like @, #, $, %, &, *, ?, _, /, or spaces.

Failure to meet these requirements may prevent successful dongle configuration and monitoring access.

Configuration Pre-Step:

The EG4 Connect mobile app is required to configure the dongle. Download the EG4 Connect mobile app from one of the following:

- Apple App Store (iOS)
- Google Play Store (Android)

Alternatively, scan the QR code to access the appropriate app store. For Wi-Fi Dongle Troubleshooting assistance, scan the following Dongle Troubleshooting Guide QR code:

Connect App for iOS

Connect App for Android

Dongle Troubleshooting Guide

Configuration Steps:

1. Confirm the EG4® Connect app is installed on a mobile device before proceeding.
2. Verify the Wi-Fi dongle is powered on. Illumination of the Wi-Fi LED indicates the dongle's hotspot is active and ready for connection.
3. Using a mobile device, open the device's Wi-Fi settings and connect to the dongle's Wi-Fi hotspot. The hotspot name matches the serial number printed on the Wi-Fi dongle and will appear in the list of available networks.
4. Open the EG4 Connect app and select "**Dongle Connect**".
5. On the Dongle Connect screen, select "**SCAN WI-FI NETWORKS**" to display available networks.
    a. If the scan fails, enter the serial number printed on the dongle in the optional Dongle Serial field, then select "SCAN WI-FI NETWORKS" again.
    b. If network scanning is not supported or remains unsuccessful, follow the prompt to manually enter the local Wi-Fi network name and password.
6. Select "**SEND CREDENTIALS**" to transmit the network information to the dongle.
7. Once configured, the dongle will connect to the local Wi-Fi network and then to the internet. The Cloud LED will illuminate when the dongle successfully connects to the monitoring server.
8. After connecting to the monitoring server, the dongle establishes internal communication with the system. When this connection is successful, the INV LED will illuminate.
9. When the Wi-Fi, Cloud, and INV LEDs are all illuminated, the system is online and ready to be configured and monitored using the EG4 Connect app or the EG4 Connect website.
10. Return the mobile device to the local Wi-Fi network.

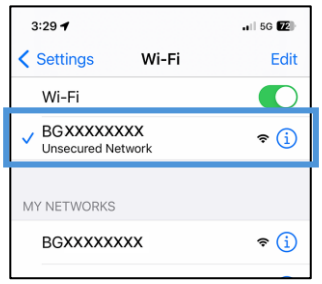


Figure 8.2: Dongle Network Select

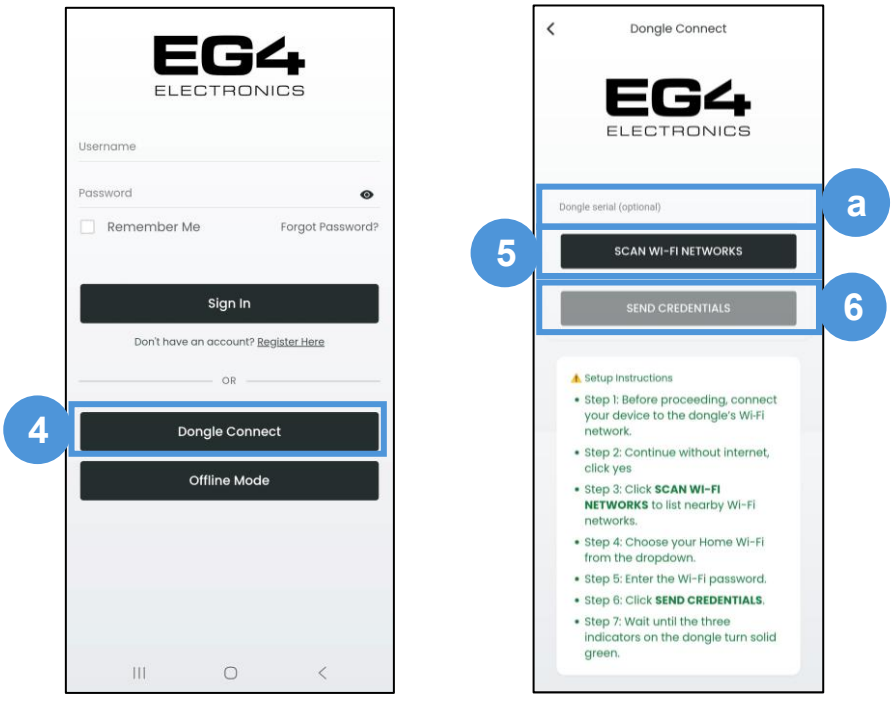


Figure 8.3: Dongle Configuration

8.4 Management Connection

This section explains how to create or log in to an EG4 Connect account and register the system's dongle to a station. New users should follow the New User steps; existing users should follow the Existing User steps.

New User:

Option 1: Mobile App

Open the EG4 Connect app on the mobile device and select "**Register Here**". The EG4 Connect app should have been installed in section 8.3.

1. Complete the registration wizard. Contact the distributor for the required Installer Code. The dongle Serial Number (SN) and PIN are printed on the label attached to the dongle.
2. Once all dongles have been added, select "**Continue**". Registration is complete, and the app will proceed to the Commissioning process described in section 8.5.

Option 2: Web Browser

1. Using a web browser, navigate to https://eg4connect.com/ and select "**Register here**."
2. Complete the registration wizard. Contact the distributor for the required Installer Code. The dongle Serial Number (SN) and PIN are printed on the label attached to the dongle.
3. Once all dongles have been added, select "Continue". Registration is complete, and the website will proceed to the Commissioning process described in section 8.5.

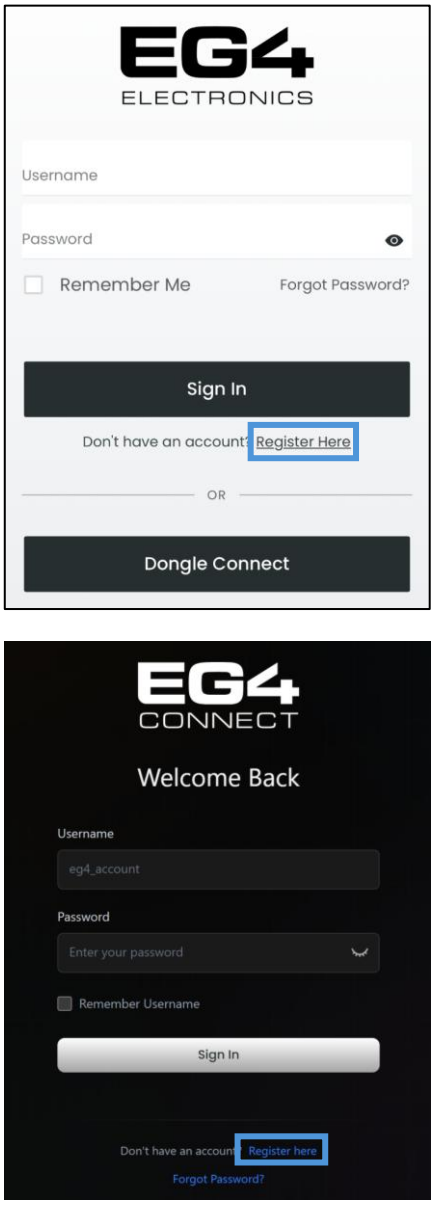


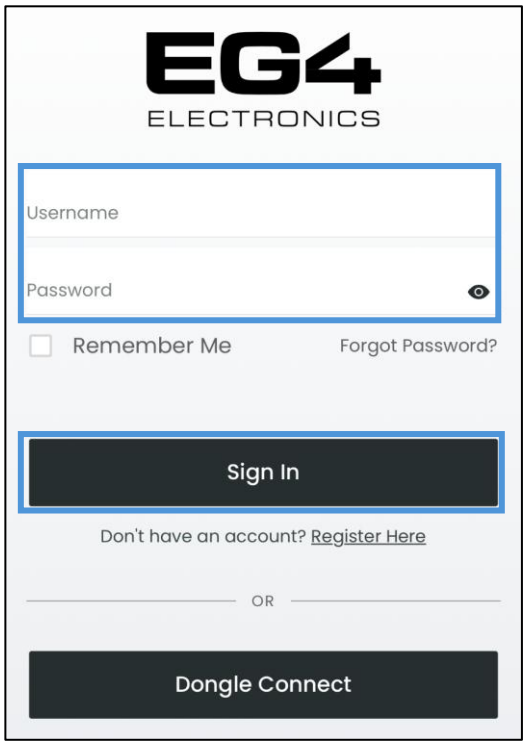
Figure 8.4: New User Account & Dongle Registration

Existing User:

When an EG4 Connect or EG4 Monitor Center account already exists, XR 60 systems equipped with a communication dongle can be added to the account using the app.

Option 1: Mobile App

1. Open the EG4 Connect app and log in using existing account credentials.
2. Select the Account Menu (top-right corner), then select “**Commission**”.
3. Select an existing station or select “**Add Station**” to create a new one.
4. Select “**Add Inverter**”.
5. Select “**Add Dongle**”, then enter the dongle serial number and PIN from the label on the dongle. Select “**Add Dongle**” to register the dongle to the selected account.
6. Confirm the dongle appears on the Dongles list, then select “**Continue**”.



Option 2: Web Browser

1. Navigate to https://eg4connect.com/ and log in using existing account credentials.
2. Select the “**Configuration**” tab, then select “**Dongles**”.
3. Select “**Add Dongle**”.
4. Enter the dongle Serial Number (SN) and Verify Code (dongle PIN), select the appropriate station to link the system to, and then select “**Add**”.
5. The EG4 XR 60 will now appear in EG4 Connect.

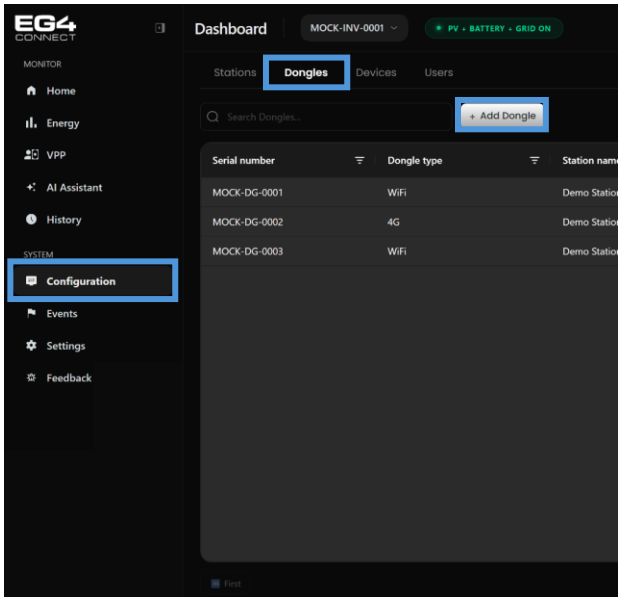


Figure 8.5: Existing User Dongle Registration

8.5 System Configuration

This section explains how to configure the XR 60 for first-time use. Commissioning is performed through either the EG4® Connect app or the EG4 Connect website, both of which provide guidance for each step.

> **WARNING**
>
> **If multiple systems are installed to operate as a single ESS, each system must be configured correctly for parallel operation before enabling load output. Improper configuration may result in system malfunction, equipment damage, or unsafe operation.**

Commissioning Steps: EG4 Connect Mobile App

After completing section 8.4 for a new user, the Connect app will launch the Commissioning process automatically. To start commissioning manually, open the Account menu in the upper right corner and select “Commission”.

1. **Commission Station**: Select the station to be commissioned, then select “Continue”.
2. **Station Inverters**: Select the system(s) to be commissioned. If commissioning a parallel system, select all systems to be commissioned. Select “Continue”.
    - **Parallel Configuration:** Select the master inverter of the system, then select “Continue”. This step is automatically skipped if only one system is selected.
3. **Phase Type**: Select the station’s phase configuration, then select “Continue”.
4. **GridBOSS**: Select “Yes” if the system is connected to a GridBOSS, or “No” if not. Selecting Yes skips the CT or Meter step, because the GridBOSS handles measurement. Select “Continue”.
5. **CT or Meter**: Select “CT” or “Meter” for the AC power measurement method, then select “Continue”.
    - **CTs**: Set the Sample Ratio (1/3000 when using the included CTs) and CT Power Offset, then select “Continue”.
    - **Meter**: Select the meter brand (Eastron or WattNode), then select “Continue”.
6. **Export to Grid**: Select “Yes” to permit grid export (utility permission required), then select “Yes” in the Confirmation prompt, or “No” to disable it.
    a. **Export Settings:** Set Export Power (kW) and Export Solar Only, then select “Continue”.
7. **Operating Mode**: Select how the system will prioritize power flow:
    a. Time of Use: Set the Reserve SOC% and schedule block actions (Grid Charging, Battery Export, Peak Limit, PV Priority). Select “Save”.
    b. Self Consumption: Set the Reserve SOC% and select “Battery First” or “Home First”. Select “Save”.
    c. Off-Grid Only: Set the Reserve SOC%, the control method (Time Only or SOC%+Time), and scheduled blocks. Select “Save”.
8. **Smart Ports/Aux Devices**: Select “Add Device”, then select the device type: Smart Load, Existing PV Link (AC Couple), or Generator. Configure the device settings and select “Add Device”. The device then appears in the Smart Ports/ Aux Devices list. To remove a device, select the trash icon next to it. Select “Save” to continue or select “Save” without adding a device if none is required.
    a. **Smart Load:** Set Grid Always On (on keeps the smart port on whenever the grid is available) and PV Power. Under Smart Load Based On, select “SOC%”, then set the Start SOC% and End SOC% values.
    b. **Existing PV Link:** Under Charge Based On, select SOC%, then set the Start SOC (%) and End SOC (%) values. Keep the start and end values within 5 – 10% of each other for optimal AC coupling operation.

c. **Generator:** Set Gen Boost and Microgrid Link as required and enter the Cooldown Time (M). Under Charge Based On, select SOC%, then set the Start SOC (%) and End SOC (%) values. Enter the Charge Limit (Amps) and the generator's Rated Power (W).

> **NOTE**
>
> The XR 60 supports only one auxiliary device, because the GEN port can perform only one function at a time.

9. **Review**: Review the summary of all configured settings. If all information is correct, then select "Commission" to apply the configuration. If any information is not correct go back and make the needed changes, re-review and then commission.

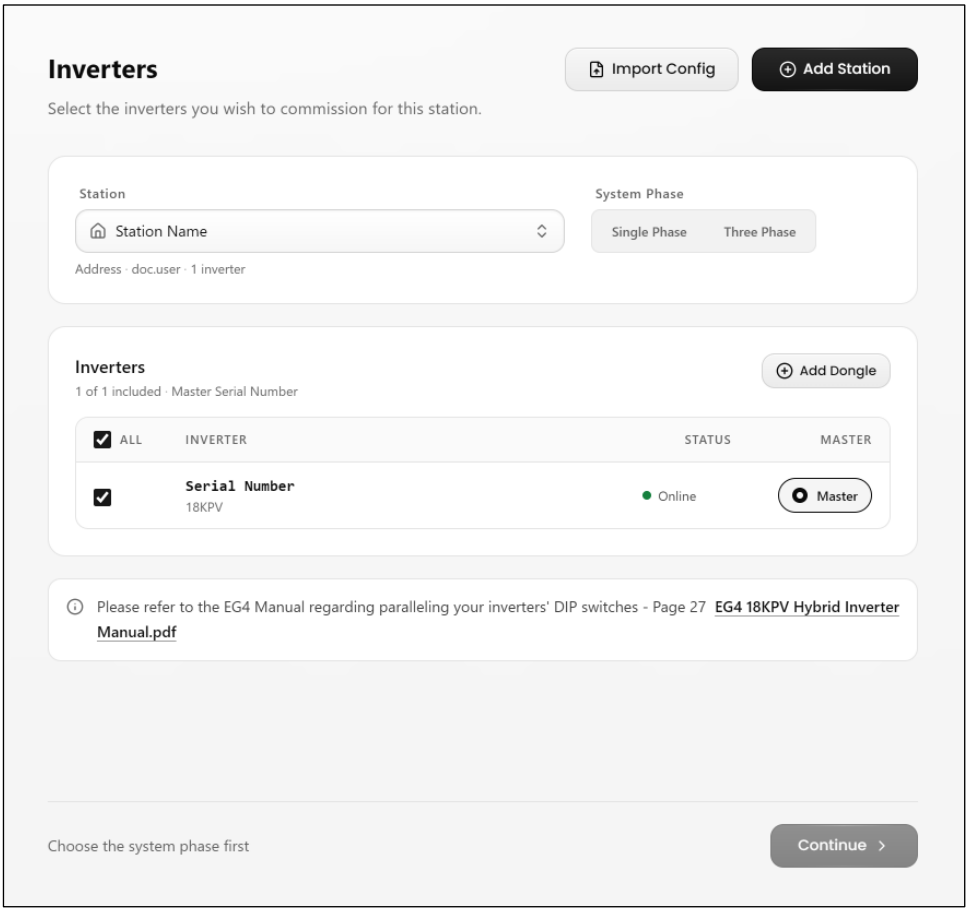
Commissioning Steps: EG4 Connect Website

After completing section 8.4 as a new user, the Connect website launches the commissioning process automatically. To start commissioning manually, select "Commission" under System in the left menu.

The Commissioning step list on the left side of the screen shows each step and the progress. Progress is saved automatically to the station profile.

1. **Inverters:** Select the station from the Station drop-down, then select "Single Phase" or "Three Phase" under System Phase. Under Inverters, check each system to be commissioned (or "All"). For a parallel system, include all systems and select the Master; the others show Slave. Select "Continue".

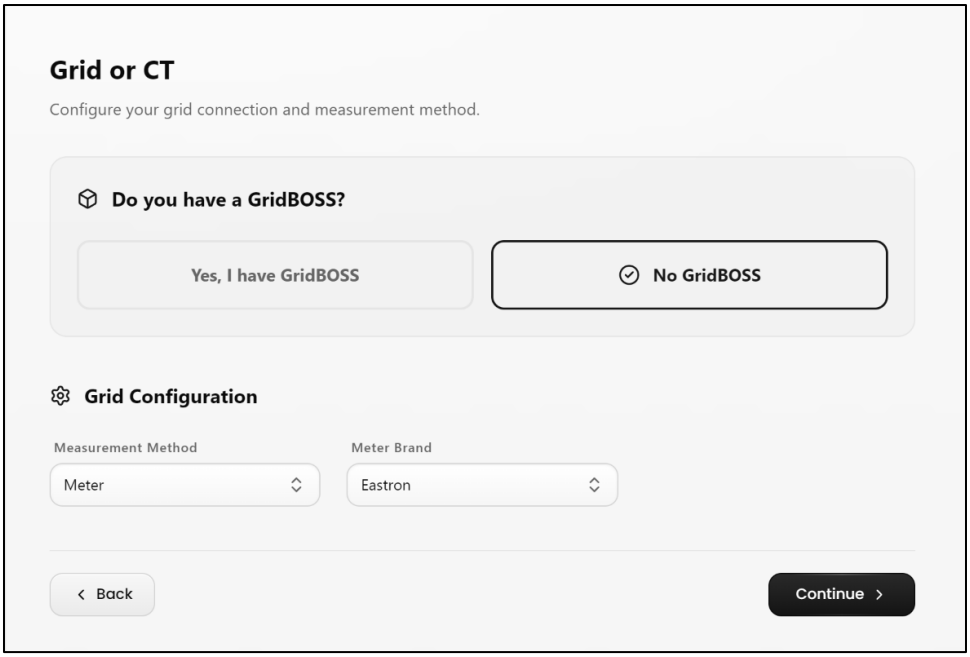
   Note: If the station or a system is not listed, complete section 8.4 before continuing.



2. **Grid or CT:** Select “Yes, I have GridBOSS” if the system is connected to a GridBOSS, or “No GridBOSS” if it is not. If a GridBOSS is connected, CT/Meter configuration is skipped because the GridBOSS handles grid measurement; select “**Continue**”.

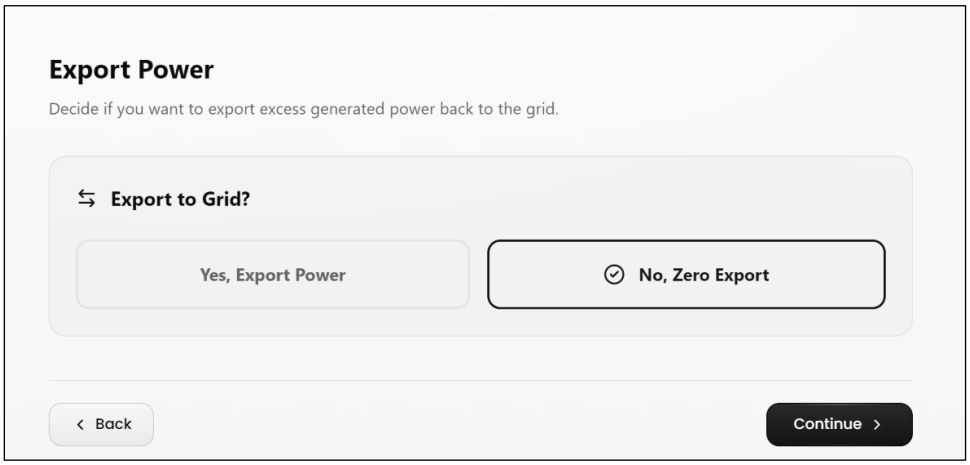
   If a GridBOSS is not used, select the Measurement Method under Grid Configuration:

   - **CT (Current Transformer):** Set the Sample Ratio (1/3000 when using the included CTs) and the CT Power Offset (W), then select “**Continue**”.
   - **Meter:** Select the Meter Brand (Eastron or WattNode), then select “**Continue**”.

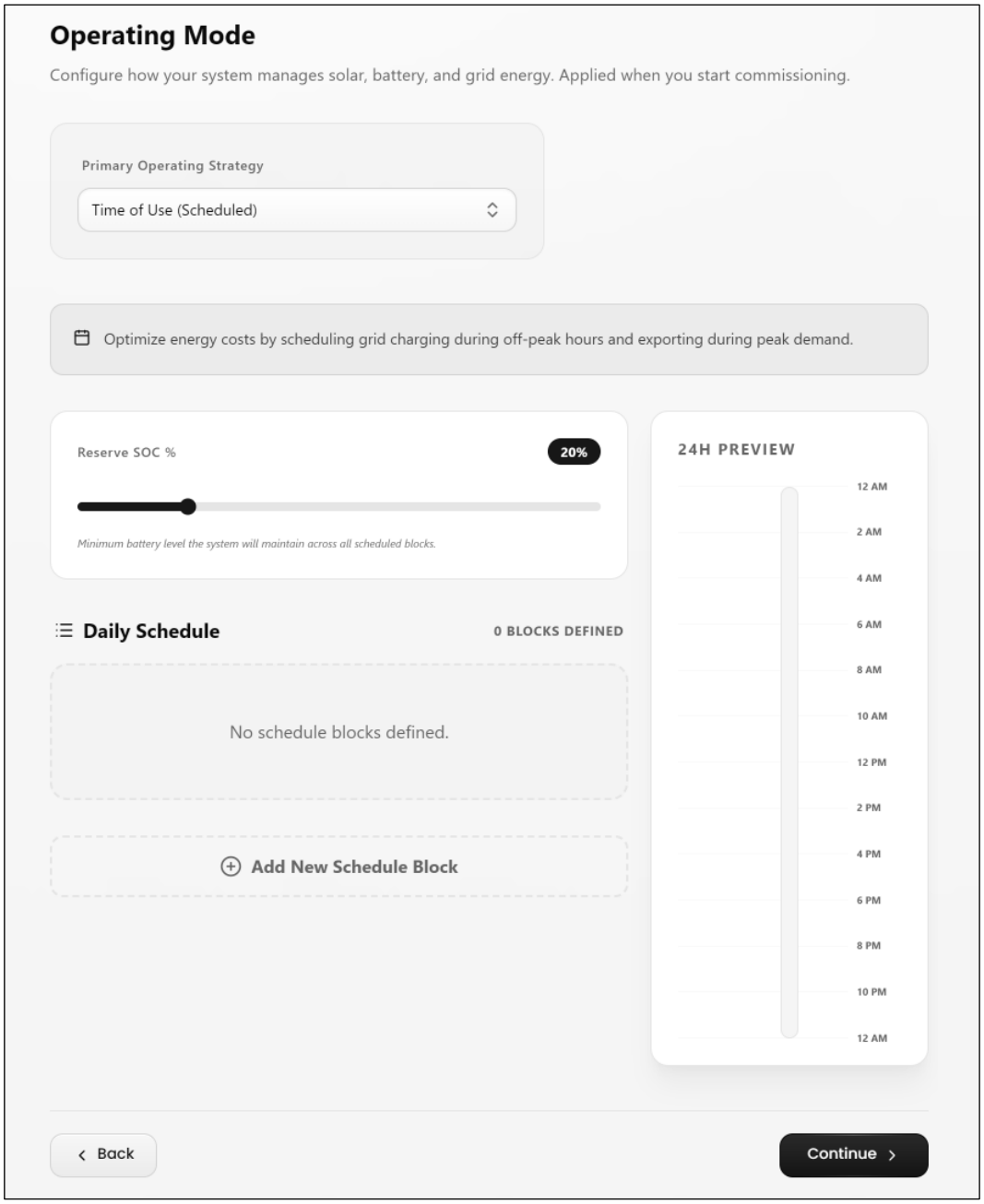


3. **Export Power:** Select “Yes, Export Power” to permit grid export, or “No, Zero Export” to disable it. Select “Continue”.

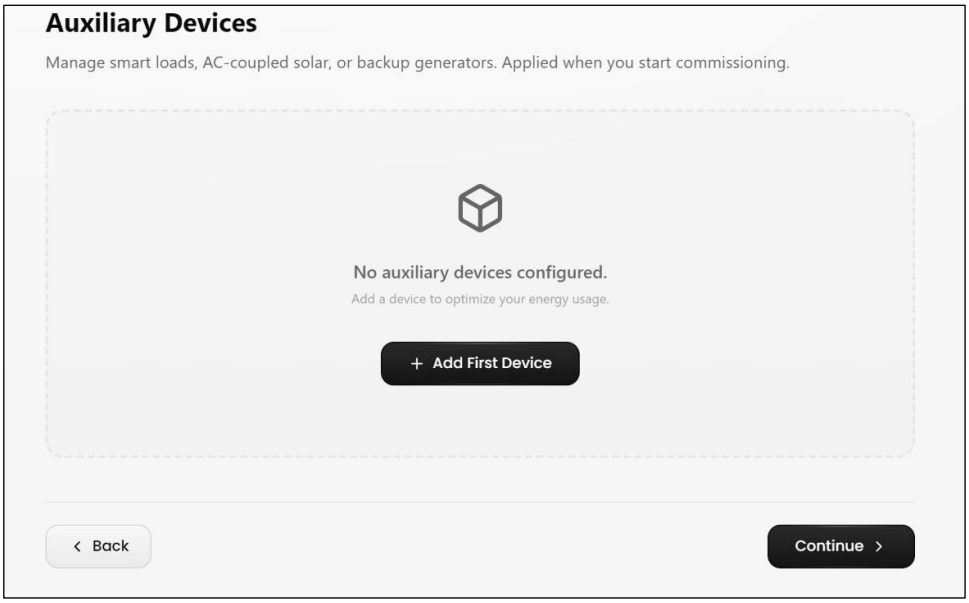
   - If “Yes, Export Power” is selected, a Legal Requirements prompt appears. Exporting power typically requires a signed interconnection agreement with the utility. Select “I Confirm” to continue.
   - Under Export Configuration, enter the Max Export Power (kW) and select an Export Restriction: “Solar Only” or “Solar + Battery”. Select “Continue”.



4. **Operating Modes:** Select the operating mode from the Primary Operating Strategy drop-down: Time of Use (Scheduled), Self Consumption (Smart), or Off-Grid Only (Stand-alone). Operating mode settings are applied when Start Commissioning is selected on the Summary. Configure the settings for the selected operating mode, then select “Continue”.
    - **Time of Use:** Set the Reserve SOC %, the minimum battery level the system maintains across all scheduled blocks. Under Daily Schedule, select “Add New Schedule Block”. Select the Operation Type (Grid Charging, Battery Export, Peak Limit, or PV Priority), then set the Start Time and End Time. Select the Regulation Logic (Time Fixed or SOC% Threshold), enter the required value, such as Charge Current (A), and select “Add to Schedule”. Repeat for each schedule block.
    - **Self Consumption:** Set the Standard Reserve SOC %. Under System Priority Strategy, select “Battery First” to send all solar to the battery until it reaches the target SOC, or “Home First” to send solar to the loads first, then to the battery.
    - **Off-Grid Only:** Set the Reserve SOC %, then select the Regulation Style: Time Only or SOC% + Time. Select “Add Charging Window”, then set the Start Time, End Time, AC Charge Power (kW), Start SOC (%) and End SOC (%). Repeat for each block. To remove the block, select the trash icon next to it.



5. **Auxiliary Devices:** Select “**Add First Device**”, then select the device type: Smart Load, Existing PV Link (AC Couple), or Backup Generator. Configure the device settings and select “**Confirm Device**” or select “**Discard**” to cancel. Select “Continue” or select “Continue” without adding a device if none is required.
   - **Smart Load:** Set Grid Priority (on means the load is always on when the grid is available), Min PV Power (kW), and the Start SOC% and Stop SOC%.
   - **Existing PV Link:** Under Charge Based On, select SOC%, then set the Start SOC (%) and End SOC (%) values. Keep the start and end values within 5 – 10% of each other for optimal AC coupling operation.
   - **Backup Generator:** Set Gen Boost and Microgrid Link as required. Under Charge Based On, select SOC%, then set the Start SOC (%) and End SOC (%) values. Enter the Charge Limit (Amps) and the generator’s Rated Power (W).

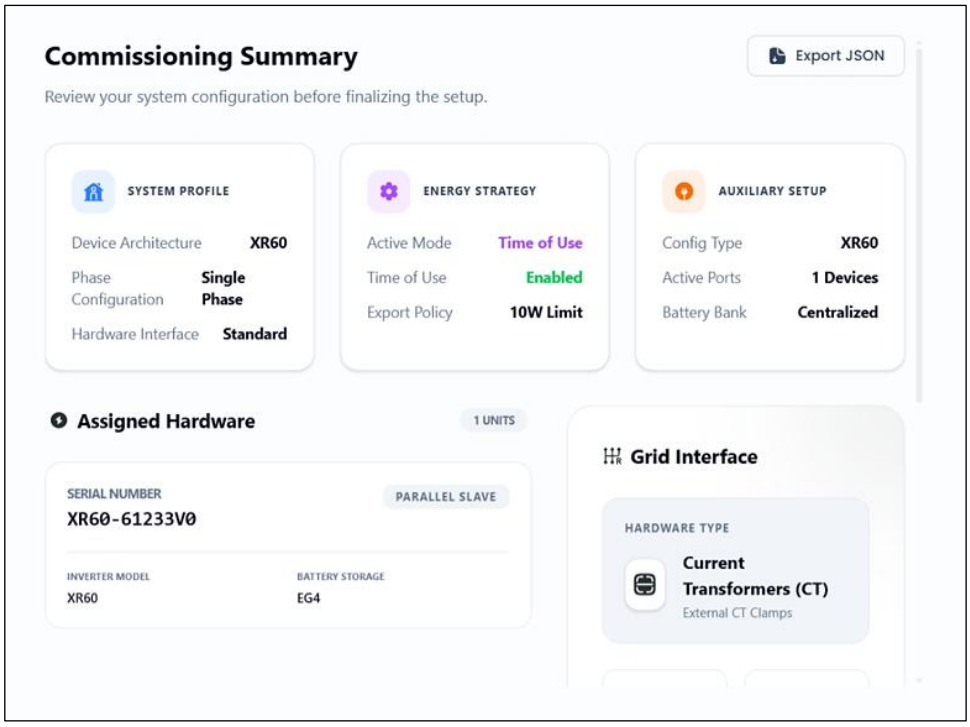


NOTE

The XR 60 supports only one auxiliary device, because the GEN port can perform only one function at a time.

6. **Commissioning Summary**: The Commissioning Summary shows the configured settings, including the system profile, energy strategy, auxiliary setup, assigned hardware, and grid interface. Verify all information is correct, then select “**Start Commissioning**” to apply the configuration. Optionally, select “Export JSON” to save a copy of the configuration.

   A "Configuring Hardware" window shows the configuration progress; this may take up to 2 minutes. When “Setup Complete” appears, commissioning is complete. Select “View What Was Commissioned” to see the applied settings or access the system dashboard by selecting “Access Dashboard.”



8.6 Enable Load Output

This section describes the final steps required to place the EG4® XR 60 into normal operation and safely energize connected loads.

1. Verify each system is fully configured according to section 8.5. This step is critical for systems with multiple XR 60s.
2. Confirm normal system operation:
   - The green LED on the front of each inverter should be illuminated.
   - Normal status will be displayed in the Station and Operating Status section of EG4 Connect.
   - No warnings or faults should be present. If a warning or fault is displayed, refer to section 13 for troubleshooting or contact the distributor before proceeding.
3. Verify the loads panel is ready to accept power from the ESS. Check the voltage at the loads panel input breaker and confirm it is within the expected operating range.
   - If the voltage is within range, proceed to the next step.
   - If the voltage is not within range, verify system configuration and resolve the issue before continuing.
4. Set the input breaker at the loads panel to the ON (closed) position.
5. Verify that the connected loads are now powered by the ESS.
6. Perform a final check to confirm no warnings or faults are displayed on the inverter front panel or in Connect (web or app).
7. Reinstall the cover panels that were removed in section 6.1, starting with the arc flash shield. Refer to Table 6.1 for cover fastener torque specifications.
8. Once all the cover panels are installed, system commissioning is complete.
9. Set the system in standby mode until the system is ready for use.

8.7 System Management and Monitoring

The XR 60 is monitored and managed through EG4 Connect, available as a mobile app and as a website. EG4 Connect displays real-time system status, including solar production, battery state of charge, grid and load power, and energy history, and sends alerts when the system reports an event. Operating modes, charge and discharge settings, Smart Port functions, and firmware updates are also managed through EG4 Connect. The app and the website use the same account and system data, so either can be used to view and manage the XR 60.

For detailed instructions on using EG4 Connect, refer to the EG4 Connect App and EG4 Connect Website guides, available through the links below.

EG4 Connect App Guide

EG4 Connect Web Guide

9. Startup and Shutdown Procedures

This section describes the procedures for safely starting up and shutting down the EG4® XR 60 after the installers place the system in service. Follow these procedures during normal operation when the system must be safely de-energized and re-energized to perform wiring changes, maintenance, troubleshooting, or parts replacement. This section assumes the XR 60 has already been installed and commissioned and is operating as intended, and it focuses on safe handling of the system during routine service activities.

9.1 Startup

1. Before proceeding, confirm proper personal protective equipment (PPE) is worn.
2. Remove the outer cosmetic cover and inverter cable box covers, following the instructions in section 6.1.
3. Close the battery breaker in the inverter cable box.
4. Power on the XR 60 by pressing and holding the power switch, accessible through the conduit box opening, for ~5 seconds until the indicator turns solid green. See Figure 8.1.
5. Close the external PV isolator switch, if equipped.
6. Close the PV disconnect switch on the side of the XR 60. See Figure 4.4.
7. If using AC input, close the external AC input breaker between the panel and the XR 60.
8. Close the external AC output breaker, if equipped, supplying the loads panel.
9. Reinstall the cable box covers and outer cosmetic cover removed in step 2. Refer to Table 6.1 for cover fastener torque specifications.

NOTE

Re-energize the system only after completing all work, verifying all personnel are clear of the equipment, reinstalling all covers and protective barriers required for operation, and ensuring the technician who applied each lockout/tagout device removes it.

9.2 Shutdown

WARNING

Unexpected energization of the system can cause serious injury or death.
Before performing installation, maintenance, or service on the XR 60, all personnel working on or near the system must isolate all hazardous energy sources and apply lockout/tagout (LOTO) in the sequence shown below. Follow all applicable OSHA requirements, the National Electrical Code (NFPA 70), and local codes.

DANGER

Never disconnect battery, PV, or AC input power while under load. In an emergency, shut down the system using the external ESS disconnect switch. For non-emergency shutdowns, follow the shutdown procedure below.

1. Before proceeding, confirm proper personal protective equipment (PPE) is worn. See section 5.1.
2. Notify all affected personnel that the system will be shut down (de-energized).
3. Turn off all loads connected to the system.
4. Remove the outer cosmetic cover and inverter cable box covers, following the instructions in section 6.1.
5. Identify all energy sources: PV (DC), grid (AC), and battery (DC).
6. Open and lock the external input AC disconnect/breaker.
7. Open and lock the external input DC PV disconnect/breaker.
8. Open the PV disconnect switch on the side of the XR 60.
9. Power down the XR 60 by pressing and holding the power switch, accessible through the conduit box opening, for ~5 seconds until the indicator light turns off.
10. Open the battery breaker inside the cable box of the XR 60.
11. Use a voltmeter to verify that no AC or DC voltage is present at all connection points.
12. Apply a lockout device and tag to each energy isolation point. Tags must include the technician's name, date, and reason for lockout.
13. Reinstall the inverter cable box covers, and outer cosmetic cover removed in step 3.

10. Generator Input and Configuration

This section describes the requirements and procedures for connecting a generator directly to the EG4® XR 60. It includes sizing guidelines, generator wiring, GEN port configuration, and operational behavior when a generator is used for charging and load support.

> **NOTE**
>
> When an EG4® GridBOSS is used, the generator connects to the GridBOSS generator port, not the XR 60. Refer to the GridBOSS User Manual for generator wiring and configuration instructions.

10.1 Connection Overview

In systems that do not include a GridBOSS, the generator is connected directly to the XR 60 generator (GEN) port. In this configuration, the XR 60 manages generator input, battery charging, and load support based on system conditions and configured settings. All generator wiring, configuration, and sizing must comply with XR 60 installation requirements.

> **NOTE**
>
> The XR 60 generator port can be configured for generator input, AC-coupled input, or Smart Port output, but only one mode can be active at a time. This configuration is typically set during installation and should be changed only if the connected device is replaced. The selected generator port mode must match the connected equipment and the overall system design.

10.2 Sizing Guidelines

Proper generator sizing is critical to ensure stable power delivery, reliable battery charging, and proper load support.

XR 60 power characteristics:

- Maximum AC input power: **16kW**
- Continuous output (no PV): **15kW**
- Continuous output (with PV): **up to 18kW**
- Generator pass-through relay rating: **80A**
- Short-duration peak capability to support transient loads
- Supports simultaneous load supply and battery charging

Generator Requirements:

- Output voltage: 120/240 VAC, 60 Hz
- Total Harmonic Distortion (THD) less than 3%
- Recommended generator capacity: ≥ 1.5 × XR 60 continuous output

10.3 Wiring Requirements and Installation

Table 10.1: Generator Wiring

Terminal Connection	Min. Wire Size	Torque
Generator	4 AWG (25 mm^2)	97 – 106 in-lbs. (11 – 12 Nm)

Power Cable Installation:

1. Verify the XR 60, generator, and all circuit breakers are powered OFF.
2. Route the conductors from the generator to the XR 60 cable box using approved conduit.
3. Remove 5/16 – 3/8 in. (8 – 10 mm) insulation from each conductor.
4. Connect the generator ground to the XR 60 “PE” ground busbar.
5. Connect the L1 and L2 wires to the XR 60 “GEN” L1 and L2 terminals.
6. Connect the generator neutral to the XR 60 “N” busbar.



Figure 10.1: Generator Wiring

NOTE

In parallel systems, the generator must connect to each EG4® XR 60. Daisy-chaining GEN ports is not supported.

10.4 Auto-Start Wiring and Operation

When properly wired and configured, the EG4® XR 60 can automatically start the generator based on battery state of charge (SOC) or a charge request from the system. When the generator is running, it supplies AC power to charge the batteries, and any remaining capacity is passed through to the AC Output (LOAD) terminals to support connected loads.

The GEN port pass-through relay is rated for 80A. When the generator is operating, ensure that the combined load and battery-charging current does not exceed 80A. If generator output is insufficient to support all connected loads, the XR 60 can supplement power from the battery using a feature called Gen Boost, when enabled.

The generator will stop automatically when the battery SOC rises above the configured AC-charging stop threshold.

The XR 60 provides two sets of dry contacts for generator-related signaling:

- **CO1 / NO1 (GEN Start):** Used to start or wake the generator when a charge request occurs.
- **CO2 / NO2 (Warning Output):** Provides a signal to external devices when battery SOC reaches the configured warning level.

Table 10.2: XR 60 Generator Contacts

Unit Status	Condition		Dry Ports (CO2 & NO2)	Gen Ports (CO1 & NO1)
Power Off	The inverter is off with no power output		Open	Open
Power On	Without grid	Battery SOC < Generator Charge Start SOC	Closed	Closed
		Battery SOC > Generator Charge End SOC	Open	Open
Power On	With grid	Battery SOC < Generator Charge Start SOC	Closed	Open
		Battery SOC > Generator Charge End SOC	Open	Open

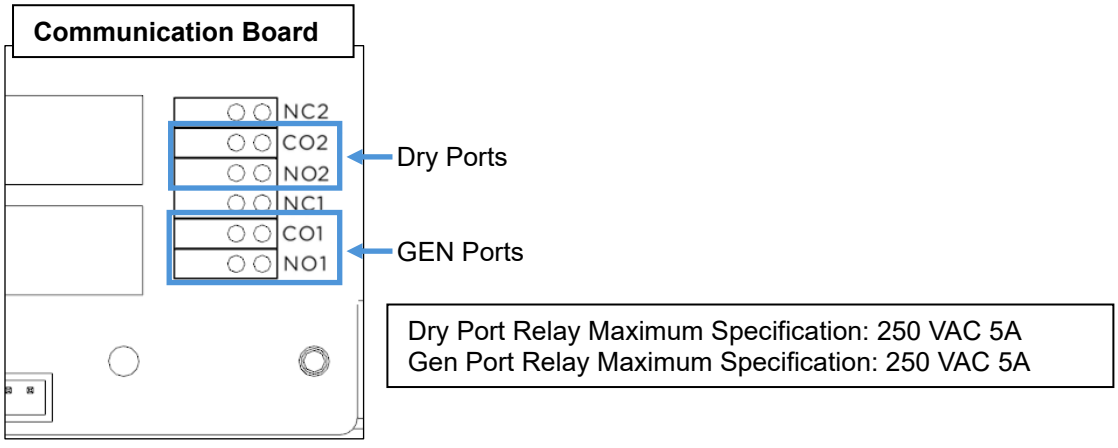


Figure 10.2: XR 60 Generator Contacts

10.5 Generator Start and Stop Settings

Using the EG4® Connect app or website, navigate to the Settings page, then select "**Smart Ports/Aux Devices.**" Select the generator to configure its settings. Under Charge Based On, select "**SOC%.**"

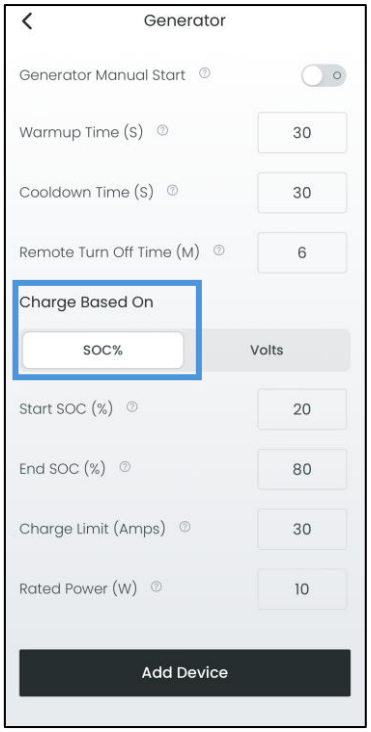


Figure 10.3: Generator Charge Type

Generator Start Conditions:

The generator will start when the utility fails **and** the battery SOC is lower than the "Start SOC (%)."

Generator Stop Conditions:

The generator will stop when battery SOC is higher than the "End SOC (%)" setting.

11. AC Coupling

The GEN port allows an existing grid-tied solar system to be AC-coupled to the XR 60. PV comes from the existing system while the XR 60 controls battery charging and any extra PV coming into the system. The system can accept PV inputs to the three MPPT channels and AC-coupled solar input simultaneously. The AC-coupled solar input can be up to 80A of AC current while the MPPT channels can handle up to 26kW of solar. To enable AC coupling or configure AC coupling settings, ensure the system is in standby mode.

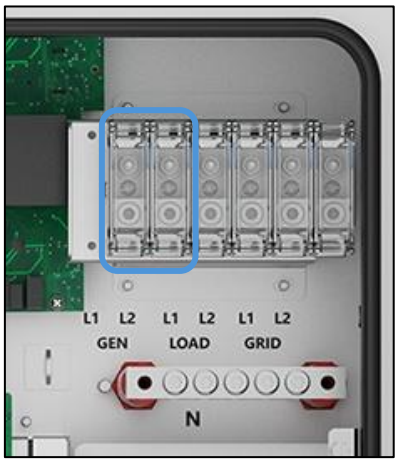


Figure 11.1: GEN Port AC Coupling

After AC Coupling is Enabled:

When battery SOC gets below the set parameters, AC coupling will engage and use PV from the existing solar system to charge the batteries. When the battery bank is charged to the set limit, the system will continue to control the loads without charging the battery. There will be about a 5-minute delay for AC coupling to turn on. When solar power exceeds the sum of loads' power consumption and maximum battery charging power, the system will signal the grid-interactive inverter to reduce power via the frequency-shifting, power-reduction mechanism.

What is frequency-shifting power reduction?

All UL 1741 SA-compliant grid-interactive inverters have the Frequency-Watt feature, which requires the grid-interactive inverter to reduce power with increasing grid frequency. The power will drop to zero before the over-frequency trip threshold is reached.

When the grid is down and the hybrid inverter requires an AC-coupled inverter to reduce power, it simply shifts the output frequency up slightly, and the grid-interactive inverter will limit its output power accordingly after sensing this frequency shift.

When the grid is up, the frequency is dictated by the grid, and the hybrid inverter will reduce exported power if the frequency goes up.

AC Coupling Settings:

When using AC Coupling through the GEN port, an Existing PV Link device must be added and configured under “Smart Ports/Aux Devices.” The Existing PV Link device allows the system to accept AC-coupled PV input through the GEN port.

It is recommended to keep the “Start SOC (%)” and the “End SOC (%)” within 5 – 10% of each other for optimal operation when utilizing AC coupling.

NOTE

The GEN port can perform only one function at a time. When the GEN port is used for AC Coupling, it cannot be used as a Smart Load or for a generator.

12. Smart Load

When configured as an auxiliary output, the generator (GEN) port can be used to supply power to designated loads based on system conditions. This function allows the system to prioritize energy usage and automatically control connected loads based on available PV power and battery state of charge (SOC). The GEN port output is controlled through system settings and may be used for load management applications such as controlled load supply or load shedding.

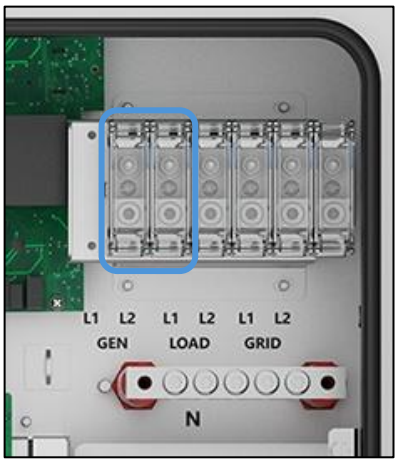


Figure 12.1: GEN Port Smart Load

After Smart Load is Enabled:

When PV power exceeds the “PV Power (kW)” setting, and the battery SOC reaches the “Start SOC (%)”, the GEN port will automatically switch on to power the connected load. When the battery reaches the configured “End SOC (%)”, or PV drops below the “PV Power (kW)” value, the GEN port automatically switches off.

Smart Load Settings:

When using the configurable settings to control the GEN port output, a Smart Load device must be added and configured under “Smart Ports/Aux Devices.” The system will provide power to this load based on set “PV Power (kW)”, “Start SOC (%)”, and “End SOC (%)” values. When “Grid Always On” is enabled, the Smart Port remains on whenever grid power is available.

NOTE

The GEN port can perform only one function at a time. When the GEN port is used for Smart Load, it cannot be used for AC Coupling or for a generator.

13. System Troubleshooting

Troubleshooting is used to identify and resolve issues that may affect system performance or safety. Prompt troubleshooting helps reduce downtime and prevent equipment damage. Use monitoring tools to isolate faults and always follow proper safety procedures when performing corrective actions.

13.1 Using System LEDs

If a warning or fault occurs, users can troubleshoot using the inverter status LEDs described in Table 13.1.

> **NOTE**
>
> Status LEDs are visible only with the outer cosmetic cover removed. After the system is commissioned and in service, use EG4 Connect to check system status and troubleshoot warnings and faults.

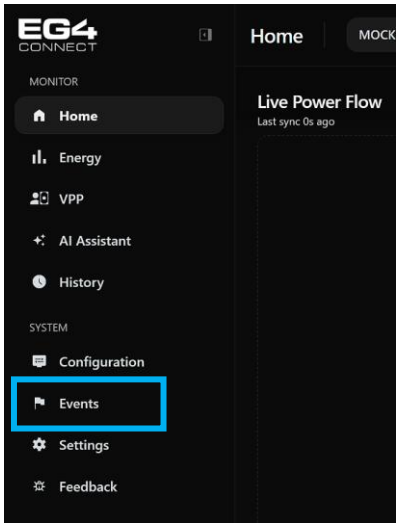
Table 13.1: LED Status Description

LED	Display	Description	Action
Green LED	Solid on	Working normally	No action needed
	Flashing every 1 sec	Standby	No action needed
	Flashing every 0.1 sec	Firmware updating	Wait until the update is complete
Yellow LED	Solid on	Warning, inverter may stop working	Needs troubleshooting
Red LED	Solid on	Fault, inverter will stop working	Needs troubleshooting

13.2 Using EG4 Connect

If a warning or fault occurs, users can troubleshoot according to the warning/fault information found in the “Events” tab on the EG4® Connect app or EG4 Connect website.

Website



Mobile App

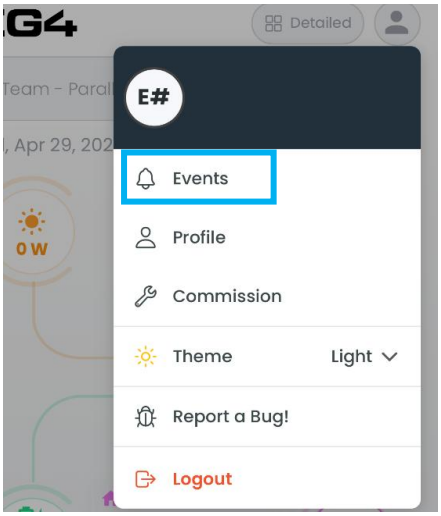


Figure 13.1: System Troubleshooting

13.3 Fault Definitions & Troubleshooting

Table 13.2: Fault Definitions & Troubleshooting

Fault	Meaning	Troubleshooting
M3 Rx failure	M3 microprocessor fails to receive data from DSP	Restart the XR 60. If the error persists, contact the distributor.
Model fault	Incorrect model value	
EPS short circuit	Inverter detected short circuit on load output terminals	1. Check if the L1, L2, and N wires are connected correctly at the load output terminal. 2. Restart the XR 60. If the fault persists, contact the distributor.
EPS power reserved	Inverter detected short circuit on load terminal	Restart the XR 60. If the fault persists, contact the distributor.
Bus short circuit	DC Bus is short circuited	
Relay fault	Relay abnormal	
M8 Tx failure	DSP fails to receive data from M8 microprocessor	
M3 Tx failure	DSP fails to receive data from M3 microprocessor	
Vbus over range	DC Bus voltage too high	Ensure the PV string voltage is within the XR 60 specification. If string voltage is within range and this fault persists, contact the distributor.
EPS connect fault	Load terminal and grid terminal are wired incorrectly or reversed	Check if the wires on load terminal and grid terminal are wired correctly. If the fault persists, contact the distributor.
PV volt high	PV voltage is too high	Check if the PV string voltage is within the XR 60 specification. If string voltage is within range and this fault persists, contact the distributor.
Hard over curr	Hardware level over current protection triggered	Restart the XR 60. If the fault persists, contact the distributor.
Neutral fault	Voltage between N and G is greater than 30V	Verify the neutral wire is connected correctly.
PV short circuit	Short circuit detected on PV input	Disconnect all PV strings from the XR 60. If the error persists, contact the distributor.
Temperature fault	Heat sink temperature too high	Install the XR 60 in a place with good ventilation and no direct sunlight. If the installation site is okay, check if the NTC connector inside the inverter is loose.
Bus sample fault	Inverter detected DC bus voltage lower than PV input voltage.	Restart the XR 60. If the fault persists, contact the distributor.
Inconsistent	Sampled grid voltage values of DSP and M8 microprocessors are inconsistent	
M8 Rx fault	M8 microprocessor fails to receive data from DSP	
Para Comm error	Parallel communication abnormal	1. Check whether the connection of the parallel cable is loose. Connect the parallel cable correctly. 2. Verify the PIN status of the CAN communication cable from the first to the last inverter is connected correctly.

Fault	Meaning	Troubleshooting
Para master loss	No master in the parallel system	1. If a master has been configured in the system, the fault will automatically be removed after the master works. 2. If a master has not been configured and there are only slaves in the system, set the master first. Note: For a single-unit system, the role of the inverter should be set as “1 Phase Master.”
Para rating Diff	Rated power of parallel inverter(s) is inconsistent	Confirm that the rated power of all XR 60 is the same.
Para Phase set error	Incorrect setting of phase in parallel	Confirm the wiring for the parallel system is correct. Once verified, connect each XR 60 to the grid. The system will automatically detect the phase sequence, and the fault automatically resolves after the phase sequence is detected. If the fault persists, contact the distributor.
Para sync loss	Parallel inverter fault	Restart the XR 60. If the fault persists, contact the distributor.

13.4 Warning Definitions & Troubleshooting

Table 13.3: Warning Definitions & Troubleshooting

Warning	Meaning	Troubleshooting
Bat com failure	Inverter fails to communicate with battery	Check if the communication cable pinout is correct. If all is correct but this alarm persists, contact the distributor.
AFCI com failure	Inverter fails to communicate with AFCI module	Restart the XR 60. If the error persists, contact the distributor.
AFCI high	PV arc fault is detected	Check each PV string for correct open-circuit voltage and short-circuit. If the PV strings are in good condition, clear the alarm.
Meter com failure	Inverter fails to communicate with the meter	Check if the communication cable is connected correctly and in good working condition. Restart the XR 60. If the alarm persists, contact the distributor.
Fwm mismatch	Firmware version mismatch between the microprocessors	Attempt to update the firmware again; if the fault persists, contact the distributor.
Fan stuck	A cooling fan is stuck.	Contact the distributor.
Trip by GFCI high	Inverter detected leakage current on AC side	1. Check if there is ground fault on the grid and load side. 2. Restart the XR 60. If the alarm persists, contact the distributor.
Trip by DCI high	Inverter detected high DC injection current on grid terminal	Restart the XR 60. If the alarm persists, contact the distributor.
PV short circuit	Inverter detected a short circuit in PV input	1. Check whether each PV string is connected correctly. 2. Restart the XR 60. If the alarm persists, contact the distributor.
GFCI module fault	GFCI module is abnormal	Restart the XR60. If the alarm persists, contact the distributor.
Bat open	Battery is disconnected from the inverter	Check the battery breaker or fuse. Reconnect as needed.
Off-grid overload	Overload on load terminal	Check if load power on inverter LOAD terminal is within XR 60 specification.

Off-grid overvolt	Load voltage is too high	Restart the XR 60. If the alarm persists, contact the distributor.
Meter reversed	Meter connection is reversed	Check if the meter communication cable is connected correctly on the XR 60 and meter sides.
Off-grid dcv high	High DC voltage component on load output when running off-grid	Restart the XR 60. If the alarm persists, contact the distributor.
RSD Active	Rapid shutdown activated	Check if the RSD switch is pressed.
Para no BM set	Master is not set in the parallel system	Set one of the XR 60s in the parallel system as the master.
Para multi BM set	Multiple masters have been set in the parallel system	There are at least two XR 60s set as the master in the parallel system. Keep one master and set the others as slaves.

14. System Maintenance

The XR 60 continuously monitors its own health and reports system status through the EG4 Connect platform. Under normal operating conditions, no scheduled maintenance is required beyond the routine homeowner care described in section 14.1.

If the system reports a fault, experiences an environmental event, or requires warranty service, contact a Certified Installer or EG4 Field Service Technician. Conditions requiring professional service are described in section 14.4.

14.1 Homeowner Maintenance

The XR 60 requires only minimal routine care from the homeowner. The recommended maintenance tasks below help keep the system operating properly and allow potential issues to be identified before professional service is required.

Table 14.1: Homeowner Maintenance

Maintenance Item	Action Item	Where	Recommended Frequency	Approx. Time
Keep the area around the unit clear	Do not store items, place objects, or plant vegetation within the required clearance areas around the XR 60. Refer to section 5.2 for clearance requirements.	At the unit and within the required clearance areas	Quarterly (visual inspection every few months, and any time storage or landscaping changes near the unit)	1 – 2 minutes
Monitor the EG4 Connect app	Keep the EG4 Connect app installed on your phone. The system's status is visible in the app. If the app shows a red alert or a persistent warning, follow the in-app guidance, and if it does not clear, contact your Certified Installer or EG4 Support.	In the app	Check periodically	1 – 2 minutes
Clean the outside of the enclosure and vents	Wipe the enclosure's exterior with a soft, dry, lint-free cloth. Remove dust, leaves, and debris from around the cooling vents. If needed, lightly dampen the cloth with mild soap and water. Do not use solvents, harsh chemicals, or a pressure washer.	At the unit exterior	Quarterly (or at any time the exterior looks visibly dusty or dirty)	5 – 10 minutes

Maintenance Item	Action Item	Where	Recommended Frequency	Approx. Time
Remove Outer Cosmetic Cover for deeper cleaning and visual check	Follow the two-person procedure in section 14.3. With the cover removed, clean dust and debris from behind the cover, then check the cable routing for moisture, corrosion, insects, or pest nesting. Do not touch exposed terminals, busbars, or conductors. Reinstall the cover per procedure.	At the unit (per the subsection below)	Annually (or if vent airflow/cooling performance seems reduced)	20 – 30 minutes (2 people)
Visual check of external wiring routing	Inspect the visible conduit and cabling running between the XR 60 and the home electrical panel or MID panel. Check for physical damage, sagging, kinks, animal damage, or exposed conductors. If exposed conductors or damaged insulation is found, do not touch them. Report any issue to your Certified Installer.	Along the conduit run from unit to home	Annually	5 minutes
Annual safety label check	Once a year, inspect the warning labels and safety stickers on the enclosure. If any are faded, damaged, or missing, contact the Certified Installer for replacements.	At the unit	Annually	2 minutes

CAUTION

Do not lean on, place objects on, or hang items from the ESS, including its associated wiring or conduit.

To clean the exterior, gently wipe with a soft, lint-free cloth. If needed, dampen the cloth with mild soap and water.

Avoid chemical cleaners and solvents, and exposure to flammable or corrosive chemicals or vapors.

14.2 Externally Accessible Controls

The XR 60 provides two externally accessible controls that can be operated without opening the enclosure or removing any covers.

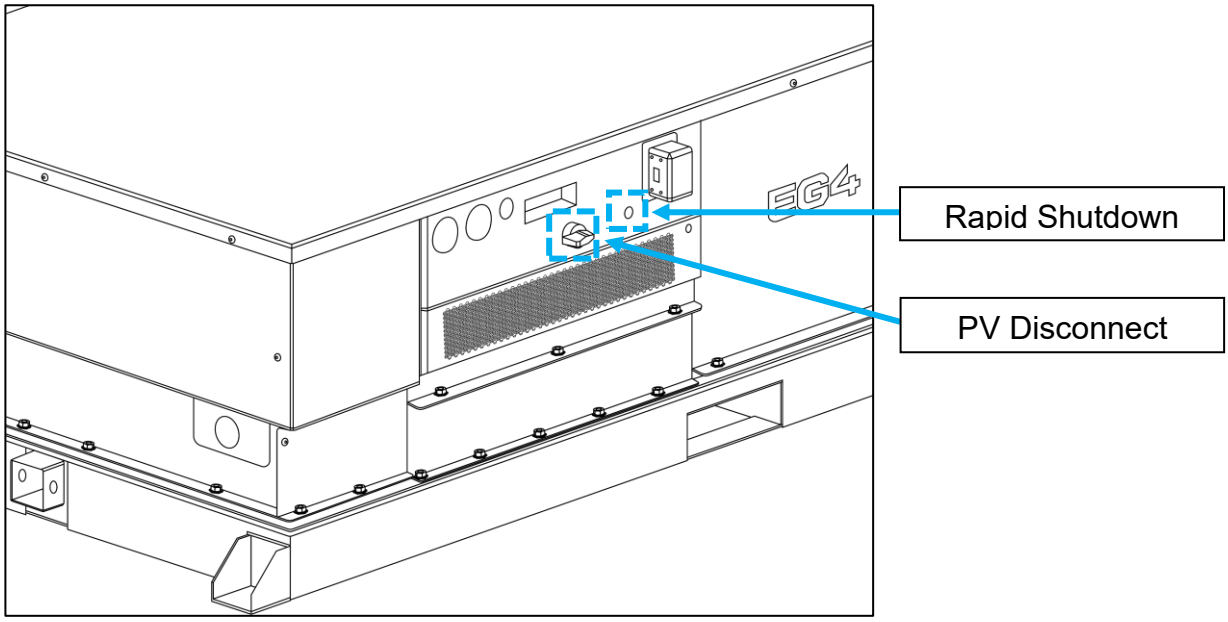


Figure 14.1: Externally Accessible Controls

Table 14.2: Externally Accessible Controls

Control	Purpose	Intended User
Rapid Shutdown (RSD)/Emergency Stop	Initiates a controlled shutdown of the XR 60 during an emergency.	Homeowner, Certified Installer, EG4 Field Service Technician, or emergency responders
PV Disconnect	Isolates the PV input circuit for service or maintenance of the solar array.	Homeowner, Certified Installer, or EG4 Field Service Technician

Use the RSD/Emergency Stop button to shut down the system in the following situations:

- Before performing homeowner maintenance that requires shutting down the system, such as removing the outer cosmetic cover.
- Fire, smoke, or excessive heat is present at the unit.
- Water intrusion is visible on or around the enclosure.
- An unusual burning, plastic, or chemical odor is detected.
- EG4 Support or emergency responders gave instructions to shut down the system.

After performing Rapid Shutdown, wait at least five minutes to allow the internal capacitors to discharge before removing the outer cosmetic cover. Contact EG4 Support or your Certified Installer if additional service is required.

14.3 Outer Cover Maintenance Procedure

The cleaning procedure below applies to the outer cover of XR 60. Do not open the Battery Compartment. Only a Certified Installer or EG4 Field Service Technician may open the Battery Compartment. Refer to Figure 14.3 for the outer cosmetic cover and its screw locations.

Required Personnel and PPE

NOTICE

If any part of this procedure cannot be completed safely or as described, stop immediately. Reinstall the outer cosmetic cover if it has been removed, do not restart the system, and contact EG4 Support or the Certified Installer. Do not attempt to force components into place.

Prerequisites

Before removing the outer cosmetic cover:

- Verify that weather conditions are dry. Do not perform this procedure during rain, snow, or high winds.
- Gather the required tools and PPE listed below.
- Notify household occupants that backup power will be unavailable while the system is shut down.

Required Tools and PPE

- T25 Torx screwdriver
- Soft cloth, soft brush, or handheld vacuum
- Appropriate personal protective equipment (PPE)

Procedure

To shut down the system:

1. On the exterior of the XR 60, press the RSD button to begin the system shutdown sequence.
2. In the EG4 Connect mobile app or Connect web app, check the system status indicator to confirm the system is shut down and offline. Refer to Figure 14.2.

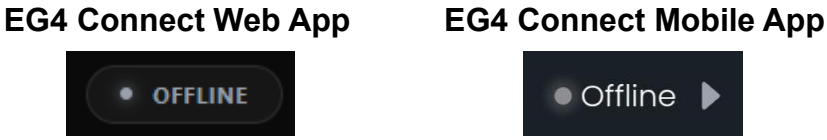


Figure 14.2: Offline System Status Indicator

3. Wait at least five minutes for the internal capacitors to discharge before removing the outer cosmetic cover.

After completing the steps above, remove the outer cosmetic cover as described below.

To remove the Outer Cover:

1. Remove the 7 button head Torx screws from the outer cosmetic cover using a T25 Torx screwdriver, as shown in Figure 14.3.

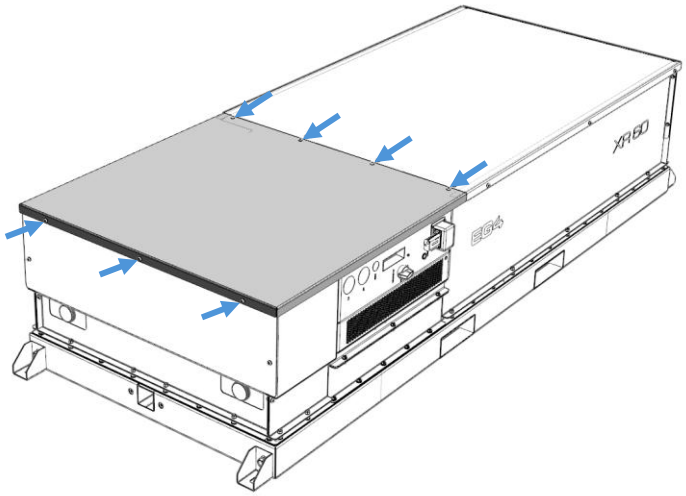


Figure 14.3: Outer Cover Removal

2. Carefully lift the cover straight up and place it flat on a stable surface to prevent damage.

Inspection and Cleaning

With the cover removed:

- Remove dust and debris with a soft cloth, soft brush, or handheld vacuum.
- Inspect accessible areas for moisture, corrosion, insect activity, pest nesting, damaged cable insulation, or other visible damage.
- Do NOT touch wiring, terminals, connectors, or electrical components.
- Do NOT use compressed air, solvents, or a pressure washer.

NOTICE

If moisture, corrosion, pest damage, burning, unusual odors, damaged components, or any other abnormal condition is observed, reinstall the outer cosmetic cover, do not restart the system, and contact the Certified Installer or EG4 Support.

Outer Cover Reinstallation

Reinstall the outer cosmetic cover:

1. Reseat the outer cosmetic cover on the enclosure.
2. Reinstall and tighten all fasteners. Refer to Table 6.1 for cover fastener torque specifications.
3. Restart the system by pressing the RSD button to deactivate the RSD, then press and hold the power switch, accessible through the conduit box opening, for ~5 seconds until the indicator turns solid green.
4. Verify normal system operation using EG4 Connect.

14.4 Conditions Requiring Service or Support

Contact the Certified Installer or EG4 Support if any of the following conditions occur. Some conditions are reported through the EG4 Connect platform, while others may be observed around the installation.

- EG4 Connect displays a red alert or a persistent warning message.
- EG4 Connect has not reported new system data for several days, indicating a possible communication or connectivity issue.
- Unusual noises, such as clicking, buzzing, high-pitched whining, or grinding, are heard coming from the unit.
- An unusual odor, such as burning, plastic, or chemical smells, is detected near the unit.
- Visible damage to the enclosure, including dents, cracks, or signs of impact, is observed.
- The system has been exposed to flooding, a nearby fire, a nearby lightning strike, a seismic event of magnitude ≥6.0, or another significant event that could affect system operation.

WARNING

If smoke, fire, or excessive heat is present at the XR 60, evacuate the area immediately and call 911. After contacting emergency services, contact EG4 Support. Do not approach, open, move, or attempt to extinguish the unit.

14.5 Professional Service

The XR 60 does not require scheduled maintenance under normal operating conditions. Professional service is performed only when one of the conditions listed in Table 14.3 occurs. During each service visit, the Certified Installer or EG4 Field Service Technician should complete the inspection checklist provided in Table 14.5.

WARNING

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

Table 14.3: Professional Service Triggers

Trigger	Response	Performed By
Fault trip requiring on-site diagnosis	Inspect the affected subsystem, review system logs, and perform corrective actions in accordance with the Professional Service Guide.	Certified Installer/EG4 Field Service
Seismic event ≥ magnitude 6.0 within 31.1 mi (50 km)	Inspect the enclosure and electrical connections, perform an insulation resistance test, and review system logs.	Certified Installer/EG4 Field Service
Flood or water intrusion	Perform a complete electrical safety inspection. Decommission the system if damage or contamination is identified.	Certified Installer/EG4 Field Service
Fire within 98 ft. (30 m) of the unit	Inspect the enclosure, battery system, and structural components. Decommission the system if damage is identified.	Certified Installer/EG4 Field Service
Any warranty service call	Address the reported issue and complete the professional service checklist in Table 14.5.	Certified Installer/EG4 Field Service
Homeowner service request	Perform the requested service and complete the professional service checklist in Table 14.5.	Certified Installer/EG4 Field Service

Service Call Checklist

The checklist in Table 14.5 is completed during each professional service visit. The specific inspection items performed depend on the reason for the service visit and the recommended inspection intervals shown in the “When Performed” column. The inspection intervals are recommended maximum intervals and are not warranty requirements. Each interval is reset when the corresponding inspection is completed.

Table 14.4: Professional Service Maintenance Intervals

Performed	Description
Every visit	Performed during every professional service visit.
Every 3 years (recommended maximum)	Perform if three years have elapsed since the previous inspection.
Every 5 years (recommended maximum)	Perform if five years have elapsed since the previous inspection.
Event-driven	Perform when required by the triggering event, such as a fault, flooding, fire, seismic event, or warranty service.
If enclosure is opened	Perform whenever the enclosure is opened during the current service visit.

Table 14.5: Professional Maintenance Checklist

Check	What to Verify	Tool	Pass Criteria	Performed
System status via portal	System serial number, fault history, firmware revision, previous service actions, and active alerts.	EG4 Installer Portal	No unresolved alerts; firmware matches current release.	Every visit
External visual inspection	Enclosure condition, dents, cracks, impact damage, corrosion, and unobstructed ventilation openings.	Visual inspection and photos	Enclosure intact, no damage, vents unobstructed.	Every visit
Cooling system	Cooling fan operation, bearing noise, and unobstructed air intake and exhaust.	Visual and auditory inspection	All fans operating normally, no abnormal noise, airflow unobstructed.	Every visit
Rapid Shutdown & Emergency Stop	Rapid Shutdown/Emergency Stop button is unobstructed, clearly labeled, and functions correctly when tested.	Manual test and Installer Portal verification	Button accessible, properly labeled, and successful trip confirmed.	Every visit
Firmware compliance	Installed firmware revision and availability of current firmware release.	EG4 Installer Portal/Dongle	Firmware updated to current release and recorded in the Installer Portal.	Every visit
Protection settings audit	Current protection settings compared with the commissioned baseline.	EG4 Installer Portal	Settings match the commissioned configuration, or documented changes are provided.	Every visit

Check	What to Verify	Tool	Pass Criteria	Performed
Warning label check	Safety labels, warning labels, and emergency response labels are present and legible.	Visual inspection	All labels present and legible; damaged labels replaced.	Every visit
Internal visual inspection	Internal gaskets, seals, corrosion, moisture, pest intrusion, and cable routing after the enclosure has been opened.	Visual inspection and photos	No moisture or corrosion; seals intact; cables properly routed.	Every 3 years (recommended maximum) or Event-driven
IR thermal scan	Power terminals, breaker connections, contactors, battery interconnections, and communication connections under load.	Infrared camera (minimum 320 × 240, ±2°C)	No connection exceeds 36°F (20°C) above ambient or 18°F (10°C) above adjacent connections.	Every 3 years (recommended maximum) or Event-driven
Torque verification	Torque of power terminals and electrical connections per Tables 6.3 and 10.1.	Calibrated torque wrench	All fasteners within specification.	Every 3 years (recommended maximum) or Event-driven
Insulation resistance	DC power circuits and AC output circuits following de-energization and lockout procedures.	1000 VDC insulation resistance tester	Minimum 1 MΩ per conductor.	Every 3 years (recommended maximum) or Event-driven
Grounding integrity	Continuity between the enclosure grounding system and service grounding system. Verify grounding electrode system in accordance with NEC 250.53.	Insulation resistance tester and multimeter	Enclosure to service ground ≤ 0.1 Ω; grounding electrode system ≤ 25 Ω.	Every 5 years (recommended maximum) or Event-driven
Breaker functional test	Manual operation and reset of all breakers.	Manual operation and multimeter	All breakers trip and reset correctly.	Every 5 years (recommended maximum) or Event-driven
Communication cable inspection	Communication cable condition, connector seating, and signs of discoloration or damage.	Visual inspection	All connectors fully seated; no cable or connector damage.	Every 3 years (recommended maximum) or Event-driven
Enclosure resealing	Gasket placement, enclosure sealing surfaces, and fastener installation after enclosure reassembly.	Visual inspection and torque wrench	Gaskets properly seated; fasteners tightened to specification; enclosure sealing maintained.	If enclosure opened
Service report	Service report, inspection results, photographs, measurements, findings, and corrective actions recorded in the Installer Portal.	EG4 Installer Portal	Service report completed and submitted before leaving the site.	Every visit

15. Decommissioning

Follow the steps below to safely decommission the XR 60:

1. Shut down the ESS:
   a. Shut down the ESS following the procedure in section 9.2.
   b. Verify all system components are powered off.
2. Disconnect the AC and DC power sources:
   a. Turn off (open) the main AC breaker supplying each ESS.
   b. Use a multimeter to verify zero voltage across all AC and DC connection points before proceeding.
3. Wiring removal:
   a. Disconnect and remove all AC input and output wiring.
   b. Disconnect and remove all battery wiring from the inverter and battery terminals.
   c. Disconnect and remove all PV wiring.
   d. Disconnect and remove all communication and control wiring.
   e. Follow manufacturer instructions for safe battery terminal disconnection.
   f. Prevent battery terminals and conductors from contacting each other or other conductive surfaces.
4. Component Storage or Disposal:
   a. Batteries: See section 15.1.
   b. Inverters & Wiring: Recycle in accordance with local e-waste regulations.

15.1 ESS End of Life

Every EG4® product is designed for a long service life. EG4 batteries are built for thousands of cycles, and EG4 inverters are engineered to run reliably for over a decade. But when any EG4 product in the system is ready for retirement, how it is disposed of matters. Lithium batteries, inverter electronics, and power conversion equipment cannot go in the trash. These products contain materials that require proper handling, and most jurisdictions regulate their disposal. Recycling options are widely available, often at little or no cost. This section explains how to handle EG4 equipment at end of life, including EG4 inverters, battery systems, or both installed together, and points to the appropriate resources.

NOTICE

Do not dispose of these products in household or municipal solid waste. EG4 inverters, batteries, and power conversion equipment contain printed circuit boards, electrolytic capacitors, metals, and lithium electrochemical cells. These components are classified as regulated electronic waste or hazardous materials under United States federal law, Canadian federal and provincial law, and applicable state and local regulations. None of these products may be placed in household trash, municipal solid waste bins, or general recycling containers at end of life. Improper disposal of lithium batteries poses a fire and chemical hazard and may result in fines or penalties under applicable regulations.

Batteries

Lithium iron phosphate (LFP) battery products are designed to operate for more than 15 years when used correctly and limited to no more than one full charge/discharge cycle per day. These batteries are engineered to retain their charge capacity over thousands of cycles. When a battery reaches the end of its service life, the following guidance applies. LFP batteries are regulated materials and must not be disposed of in household trash, municipal solid waste, or standard recycling streams. Recycle end-of-life batteries through an approved battery recycling program in accordance with applicable local

regulations. Many certified recycling programs accept lithium batteries for safe processing, often at little or no cost.

Dispose of end-of-life battery modules through one of the following pathways:

- **Battery Recyclers of America.** Battery Recyclers of America provides recycling services for large-format lithium batteries, including lithium iron phosphate (LFP) energy storage batteries. Contact Battery Recyclers of America at https://batteryrecyclersofamerica.com to request recycling services.
- **The Battery Network.** The Battery Network operates across North America as a lithium battery recycling network. Locate recycling services at https://batterynetwork.org. Contact the facility in advance to confirm it is open, currently accepting materials, and able to handle the specific equipment type and size.
- **Local search**: Search online for "Lithium Battery Recycling Near Me" or "LFP Battery Disposal" to locate approved facilities in the area. Call the facility in advance to confirm it is open and currently accepting materials.

United States (California residents): Lithium batteries are subject to the California Hazardous Waste Control Law and California DTSC regulations. Visit www.dtsc.ca.gov or www.calrecycle.ca.gov/batteries for disposal options and requirements specific to California.

Canada: Lithium batteries are regulated under provincial Extended Producer Responsibility (EPR) programs in most Canadian provinces. Call2Recycle operates a Canada-specific program at www.call2recycle.ca. Contact the local provincial waste authority or EG4 customer service for province-specific guidance.

Damaged, swollen, or thermally compromised battery modules are subject to special handling and shipping restrictions under DOT 49 CFR 173.185 (United States) and IATA Dangerous Goods Regulations (international). Do not attempt to ship a damaged EG4 battery module without first contacting EG4 customer service and confirming compliance with applicable transport regulations.

Inverters and Power Conversion Equipment

EG4 inverters, inverter-chargers, and power conversion equipment contain printed circuit boards, electrolytic capacitors, and metallic components that require specialized end-of-life processing. These products must be disposed of through a certified electronic waste recycler and must not be placed in household trash or municipal solid waste.

Dispose of end-of-life EG4 inverter products through one of the following pathways:

- **Certified E-waste recycler**: Locate an R2 or e-Stewards-certified electronics recycler in the area at www.sustainableelectronics.org or www.e-stewards.org.
- **Municipal hazardous waste collection**: Many municipalities operate household hazardous waste (HHW) drop-off sites or scheduled collection events that accept household electronics. Contact the local waste authority to confirm eligibility and scheduling.

United States (California residents): This product may be subject to the California Electronic Waste Recycling Act. Visit www.calrecycle.ca.gov/electronics for a list of approved collection and recycling locations.

Canada: Extended Producer Responsibility programs governing electrical and electronic equipment are in effect in most Canadian provinces. Contact the local provincial recycling authority or EG4 customer service for province-specific disposal guidance.

Packaging Materials

Dispose of packaging materials, including cardboard, foam inserts, plastic wrap, and wooden pallets, in accordance with local recycling programs. Many municipalities accept cardboard and clean plastics in standard curbside recycling. Foam and wooden pallets may require separate disposal. Canadian residents should refer to provincial packaging EPR requirements, which may impose specific obligations on commercial installers and businesses.

Contact EG4 for Disposal Assistance

If a safe and approved disposal or recycling facility cannot be located for any EG4 product, contact EG4 before discarding the product or disposing of it in a manner that may not comply with applicable regulations. EG4 is committed to supporting responsible end-of-life management of all products EG4 manufactures.

16. Warranty Information

For information regarding warranty registration on EG4® Electronics products, please navigate to https://eg4electronics.com/warranty/ and select the corresponding product to begin the registration process.

Appendix A: Technical Specifications

System Specifications	
Nominal AC Voltage	120/240 VAC
Frequency	60Hz
Max. AC Input Power (Charging Battery)	16kW
Continuous AC Output (Battery only)	15kW (62.5A @240V)
Continuous AC Output (PV + Battery)	18kW (75A @240V)
Rated Output Power	16kW
Peak Surge Power	16kW<Load<20kW for 1 min 20kW<Load<24kW for 10 Seconds Load>24kW for 5 Seconds
Max. Gen Input Current	80A
Max. AC Passthrough Bypass	100A
Max. AC Output Current	75A (PV and Battery)
LRA (A)	160A (1 sec)
Usable Capacity	60kWh
Max. Parallel Units	3
Min. Rest Period Between Full Charge/Discharge Cycles	2 hours

Photovoltaic Input Specifications	
Number of MPPTs	3
Inputs Per MPPT	2/2/1
Max. Usable Input Current	34A/34A/17A
Max. Short Circuit Input Current	40A/40A/19A
DC Input Voltage Range	100 – 550 VDC
Unit Startup Voltage	150 VDC
MPPT Operating Voltage Range	120 – 440V
Full Power MPPT Voltage Range	250 – 440V
Nominal MPPT Voltage	360 VDC
Max. Utilized PV Power	26kW

Mechanical & Environmental Specifications	
Dimensions (H × W × D)	With Anchor Bracket - 20 3/4 × 38 1/2 × 97 7/8 in. (527 × 978 × 2486 mm) w/o Anchor Bracket - 20 3/4 × 38 1/2 × 91 7/8 in. (527 × 978 × 2333 mm)
Weight	1584 lbs. (718 kg)
Enclosure Rating	NEMA 3R
Relative Humidity	5 – 85% Relative
Operating Altitude*	<6,562 ft. (2000 m)
Continuous Operating Temperature Range*	-13°F – 104°F (-25°C – 40°C) Ambient Temperature
Cell temperature warranty limit	Up to 122°F (50°C)
Storage Ambient Temperature Range	-4°F – 113°F (-20°C – 45°C)

**Product warranty is based on cell temperature only. Unit is thermally restricted during operation to 122°F.*

Certifications (pending)

Arc-Fault Circuit Interrupter (AFCI) NEC 2020:690.11/UL 1699B
CSA 22.2#107.1+U1, CSA 22.2#330, CSA C22.3#9
IEEE 1547.1:2020 / IEEE 1547:2018 / IEEE 1547a:2020
California Rule 21 Phase I, II, III (with compatible gateway)
Hawaii Rule 14H
FCC Part 15, Class B / CAN ICES-003(B) / NMB-003(B)
UN 38.3
UL 1741/SA/SB; UL 3141; UL 1973; UL 9540; UL 9540A

Appendix B: Compliance Information

NOTE

The system shall be installed in accordance with local electrical, building, fire, and other codes or utility requirements as applicable.

Appendix B compliance information provides EG4® XR 60 equipment compliance information for AHJs, designers, and installers and is in accordance with ANSI/CAN/UL 9540 Annex H.

Item Number	ESS16K60KWH2PHVXX (XX is 00 – 99)		
	Important Safety Information Parameter	**Format**	**Value**
1	Unit Model Number	Text	ESS16K60KWH2PHVXX (XX is 00 – 99)
2	Module model number(s) (if applicable)	Text	N/A
3	Unit maximum capacity	kWh	60
4	Maximum permissible number of modules per unit	Text	1
5	Minimum separation from other ESS (side to side) for ground mount	in. (mm)	ESS must be separated on all sides by a minimum of 12 in. (305 mm)
6	Minimum separation from other ESS (front to back) for ground mount	in. (mm)	ESS must be separated on all sides by a minimum of 12 in. (305 mm)
7	Minimum separation from other ESS (above) for ground mount or interior wall mount	in. (mm)	ESS shall be installed outdoors and ground-mounted only
8	Minimum separation from other ESS (below) for ground mount or interior wall mount	in. (mm)	ESS shall be installed outdoors and ground-mounted only
9	Separation from other ESS configurations other than mentioned above (if applicable)	in. (mm)	N/A
10	Minimum separation from exposures (e.g. combustibles, structures)	in. (mm)	ESS must be installed a minimum of 3 ft. (1 m) from combustible vegetation and other combustible materials.
11	Minimum separation between ESS mounted side to side on exterior wall	in. (mm)	ESS shall be installed outdoors and ground-mounted only
12	Minimum separation between ESS mounted front to back on exterior wall	in. (mm)	ESS shall be installed outdoors and ground-mounted only

13	Minimum separation between ESS mounted above or below another ESS on exterior wall	in. (mm)	ESS shall be installed outdoors and ground-mounted only
14	Minimum separation from other openings (e.g. doors, windows, HVAC inlets, and other operable openings) mounted on exterior wall	in. (mm)	ESS must be installed a minimum of 3 ft. (1 m) from openings such as doors, windows, HVAC inlets, gas meter, etc.
15	Additional fire suppression as identified in the test report as required by UL 9540A	Text	N/A
16	Additional fire protection as identified in the test report as required by UL 9540A	Text	N/A
17	Additional explosion protection information as identified in the test report as required by UL 9540A	Text	N/A
18	Any additional limitations on ESS siting for indoor residential installations	Text	ESS shall be installed outdoors only
19	Limitations on ESS siting in Canada	Text	Consult AHJ for additional site-specific requirements.
20	Suitable for use in residential habitable space	YES or NO	ESS shall be installed outdoors only.
21	Suitable for use in residential non-habitable space	YES or NO	ESS shall be installed outdoors only.
22	Restricted Access Locations	Text	ESS shall be installed outdoors and ground-mounted only
23	Other ESS installation location limitations not covered above	Text	Derate ESS to 90% above 13,123 ft. (4000 m)
24	Environmental restrictions	Text	ESS must be installed a minimum of 3 ft. (1 m) from combustible vegetation and other combustible materials.
25	Contact information for servicing of the system	Text	EG4 Support: (903) 609-1988 support@eg4electronics.com
26	If system is a DC ESS, list specified equipment	Text	N/A
27	Instructions for required residential fire detection equipment for indoor installations	Text	N/A
28	UL 9540A testing organization(s), report designation (report number(s)), report date(s), and edition of UL 9540A	Text	Intertek Testing Services NA, Inc. Report #: 106435375CRT-001 Issued: 05-29-2026 ANSI/CAN/UL 9540A: 5th Edition
29	Optional: UL 9540 edition number, testing organization, and evaluation date	Text	(Pending) To be filled in once UL 9540 report released.

Appendix C: Abbreviations

A

A	Ampere(s)
AC	Alternating Current
AFCI	Arc-Fault Circuit Interrupter
AHJ	Authority Having Jurisdiction
ANSI	American National Standards Institute
ASTM	ASTM International (formerly American Society for Testing and Materials)
AWG	American Wire Gauge

B

Bat	Battery

C

CAN	Controller Area Network
CAT5	Category 5 (Ethernet cable)
CFR	Code of Federal Regulations
CO	Common (relay contact)
COM	Communication
CSA	Canadian Standards Association (CSA Group)
CT	Current Transformer

D

DC	Direct Current
DCI	DC Injection
DIP	Dual In-line Package
DOT	U.S. Department of Transportation
DSP	Digital Signal Processor
DTSC	California Department of Toxic Substances Control

E

E-Stop	Emergency Stop
ECU	Electronic Control Unit
EGC	Equipment Grounding Conductor
EPR	Extended Producer Responsibility
EPS	Emergency Power System
ESS	Energy Storage System
ETL	Electrical Testing Laboratories (Intertek listing mark)

F

FCC	Federal Communications Commission
ft-lbs.	Foot-pounds

G

GEN	Generator
GFCI	Ground Fault Circuit Interrupter
GHz	Gigahertz

H

HHW	Household Hazardous Waste
HVAC	Heating, Ventilation, and Air Conditioning
Hz	Hertz

I

IATA	International Air Transport Association
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IFC	International Fire Code
Imp	Maximum Power Point Current
in-lbs.	Inch-pounds
INV	Inverter
IR	Infrared
Isc	Short-Circuit Current

K

kVA	Kilovolt-ampere
kW	Kilowatt
kWh	Kilowatt-hour

L

L1	Line 1
L2	Line 2
LED	Light-Emitting Diode
LFP	Lithium Iron Phosphate
LRA	Locked Rotor Amperage

M

MID	Microgrid Interconnection Device
mm	Millimeters
MPPT	Maximum Power Point Tracking

N

N	Neutral
NC	Normally Closed
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association

NFPA	National Fire Protection Association
Nm	Newton-meters
NO	Normally Open
NTC	Negative Temperature Coefficient (thermistor)

O

OCPD	Overcurrent Protection Device
OSHA	Occupational Safety and Health Administration

P

PCS	Power Control System
PE	Protective Earth
PIN	Personal Identification Number
PPE	Personal Protective Equipment
PV	Photovoltaic

R

RJ45	Registered Jack 45 (8-pin modular connector)
RS485	Recommended Standard 485 (serial communication)
RSD	Rapid Shutdown

S

SN	Serial Number
SOC	State of Charge
SSID	Service Set Identifier (Wi-Fi network name)
STC	Standard Test Conditions

T

TCP	Transmission Control Protocol
THD	Total Harmonic Distortion
TOU	Time of Use

U

UL	Underwriters Laboratories
UN	United Nations

V

V	Volts
VAC	Volts Alternating Current
VDC	Volts Direct Current
Vmp	Maximum Power Point Voltage
Voc	Open-Circuit Voltage
VPP	Virtual Power Plant

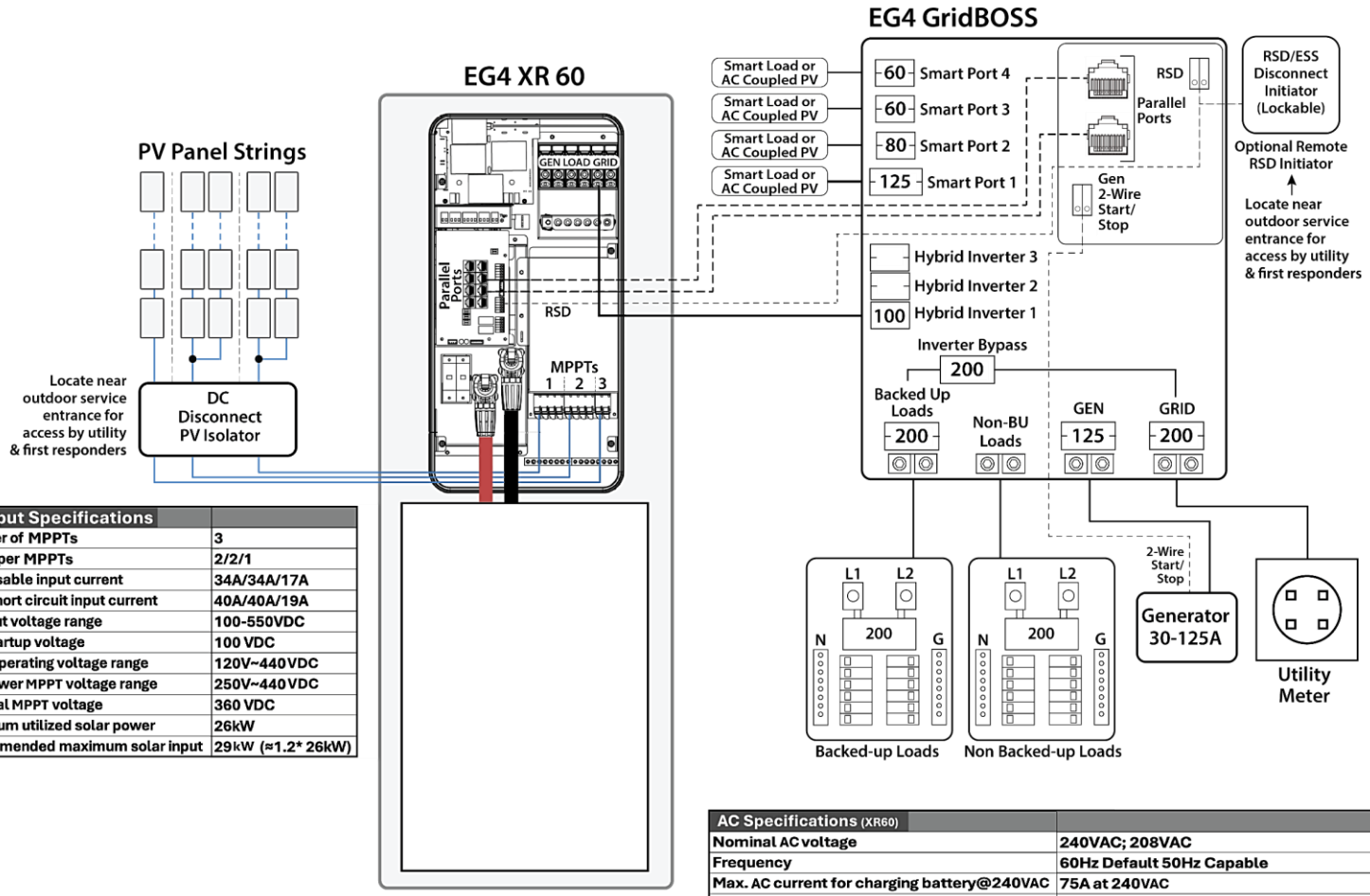
W

WPA	Wi-Fi Protected Access

Appendix D: Wiring Diagrams

The diagrams on the following pages illustrate supported wiring configurations for the XR 60 Energy Storage System and are provided for reference only; all installations must comply with applicable codes and AHJ requirements.

XR 60 and GridBOSS



PV Input Specifications	
Number of MPPTs	3
Inputs per MPPTs	2/2/1
Max. usable input current	34A/34A/17A
Max. short circuit input current	40A/40A/19A
DC input voltage range	100-550VDC
Unit startup voltage	100 VDC
MPPT operating voltage range	120V~440VDC
Full power MPPT voltage range	250V~440VDC
Nominal MPPT voltage	360 VDC
Maximum utilized solar power	26kW
Recommended maximum solar input	29kW (≈1.2* 26kW)

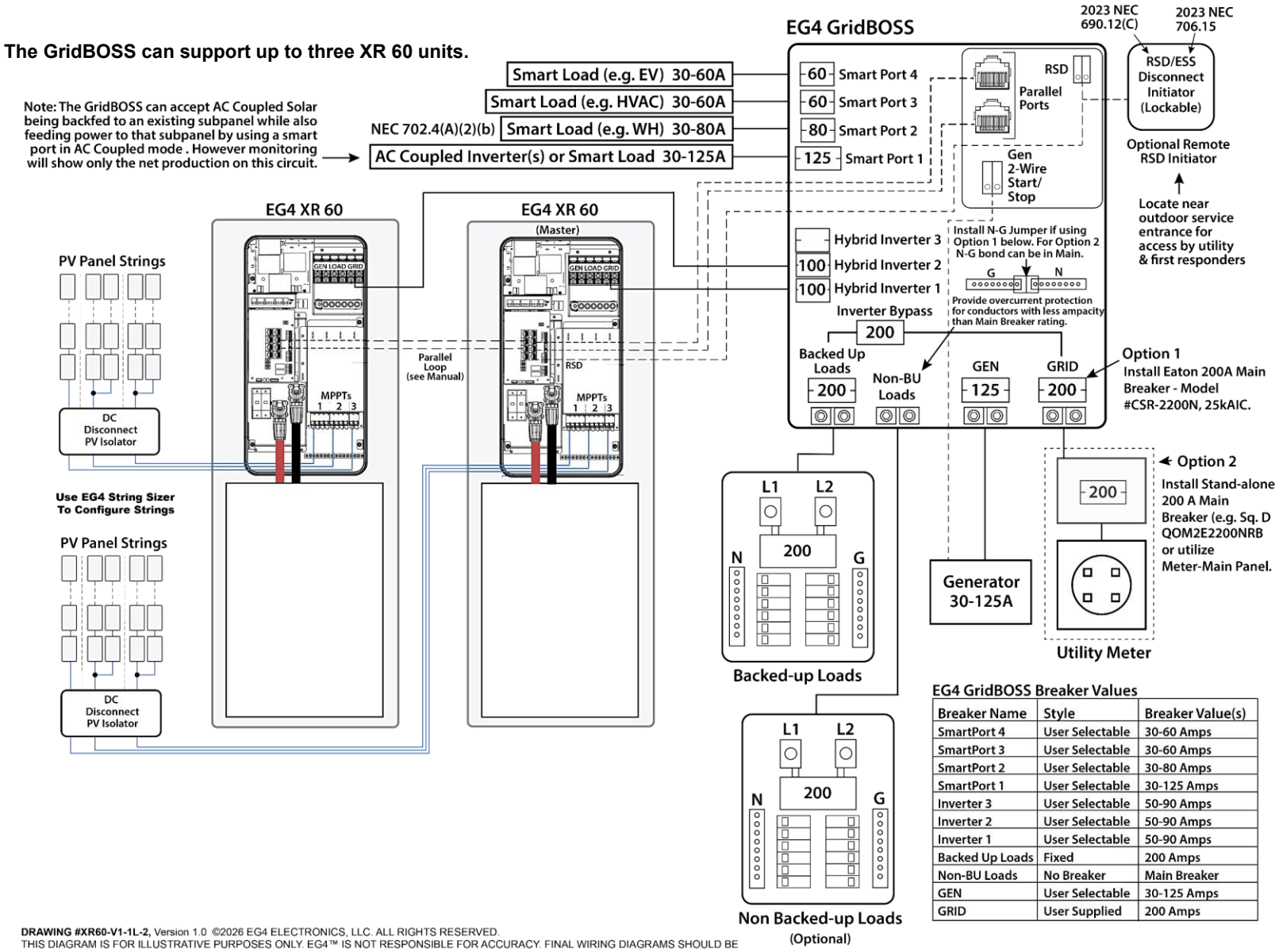
Battery Specifications	
Battery voltage (nominal)	102.4 VDC
Battery voltage(range)	70-118 VDC
Usable capacity	60 kWH
Configuration	4P30S
Capacity (min)	636.8 AH, Cell voltage 2.5~3.65V)
Max Charge/Discharge	160 A (16 kW)

AC Specifications (XR60)	
Nominal AC voltage	240VAC; 208VAC
Frequency	60Hz Default 50Hz Capable
Max. AC current for charging battery@240VAC	75A at 240VAC
Max. AC input power for charging battery	16kW
Max. AC current for charging battery@208v	75A at 208VAC
Max gen input current	80A
Max AC passthrough bypass	100A(120A relay)
Continuous output (with battery only)	16 kW (66.7A @240VAC)
Continuous output (with PV and battery)	18 kW (75A @240VAC)
Peak surge power	24 kVA /5sec, 20kVA/10 sec,16.2kVA/1 min
LRA (A)	160 A

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XR 60 and GridBOSS with Notes

The GridBOSS can support up to three XR 60 units.



EG4 GridBOSS Breaker Values

Breaker Name	Style	Breaker Value(s)
SmartPort 4	User Selectable	30-60 Amps
SmartPort 3	User Selectable	30-60 Amps
SmartPort 2	User Selectable	30-80 Amps
SmartPort 1	User Selectable	30-125 Amps
Inverter 3	User Selectable	50-90 Amps
Inverter 2	User Selectable	50-90 Amps
Inverter 1	User Selectable	50-90 Amps
Backed Up Loads	Fixed	200 Amps
Non-BU Loads	No Breaker	Main Breaker
GEN	User Selectable	30-125 Amps
GRID	User Supplied	200 Amps

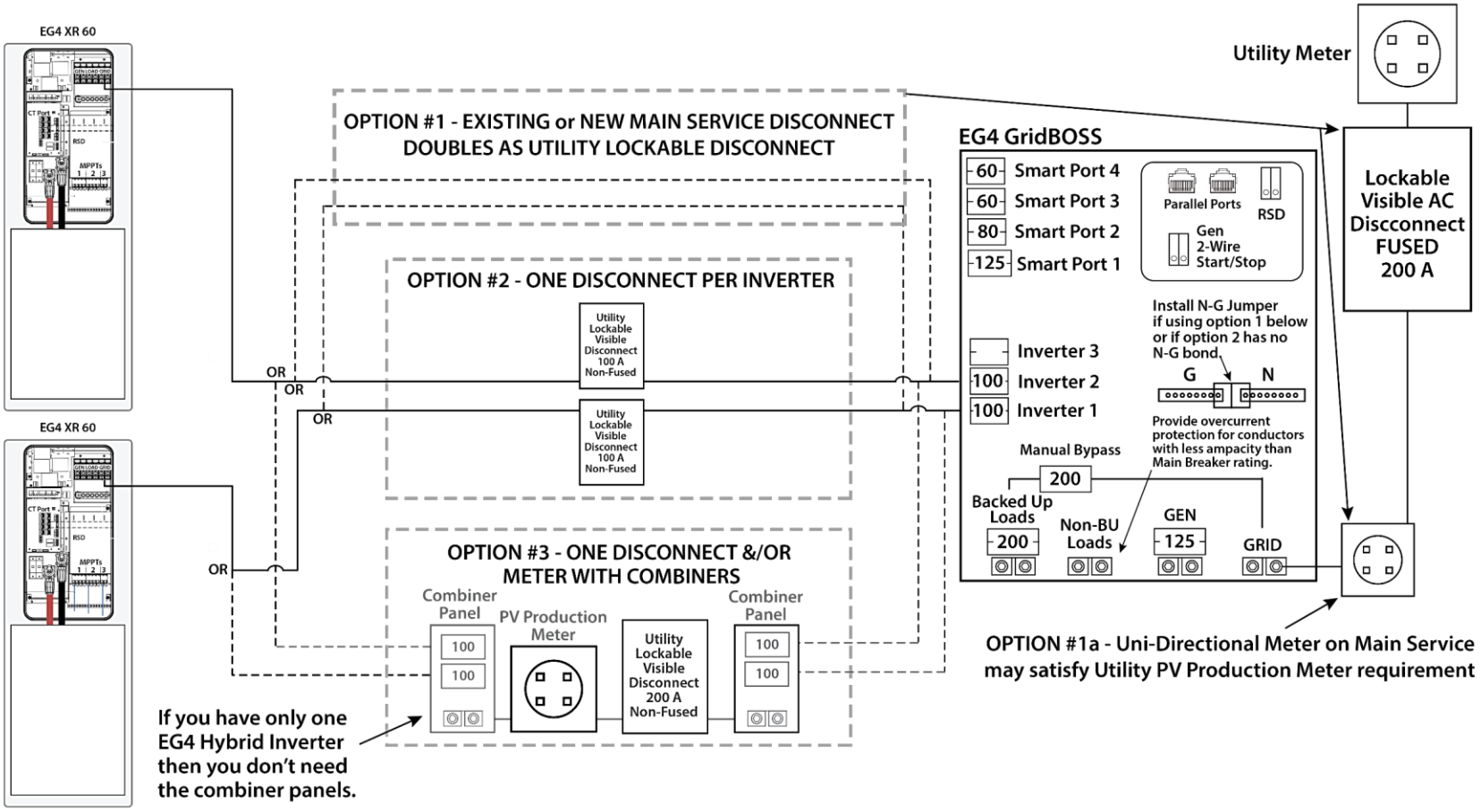
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XR 60 and GridBOSS: Utility Lockable Disconnects & Meter Requirements

Some Utilities will approve using the Inverter (1,2 & 3) Breakers in the GridBOSS as the Utility PV System Disconnect(s). The GridBOSS door is lockable. In this case you can connect the Inverter's GRID ports directly to the Hybrid Inverter Breakers.

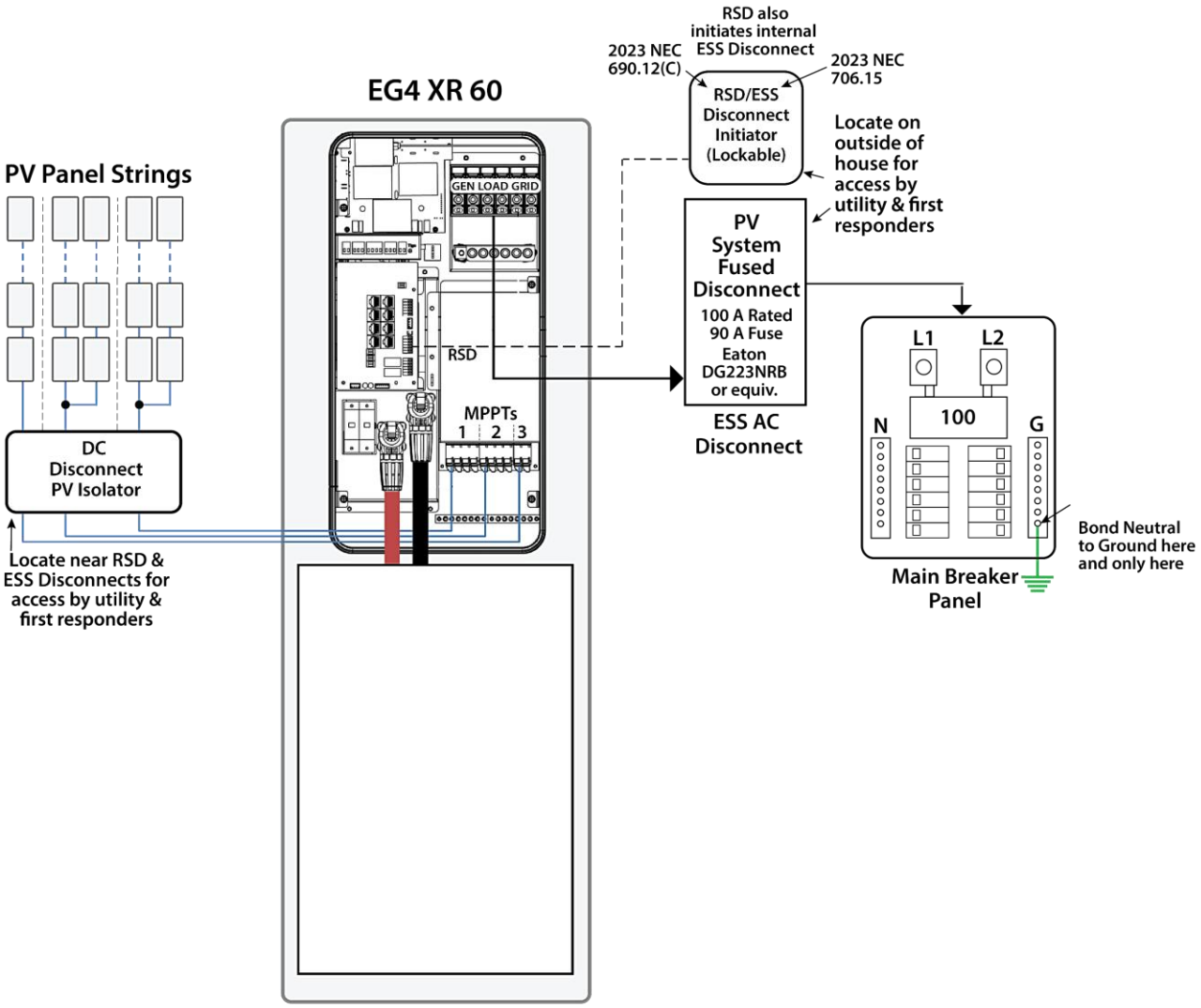
Other Utilities require Lockable, Visible Knife-Switch Type Disconnects- if your utility requires this then you have these 3 options below.

If your utility requires a dedicated PV Production meter you have two options - either Option #1a or Option #3 below:



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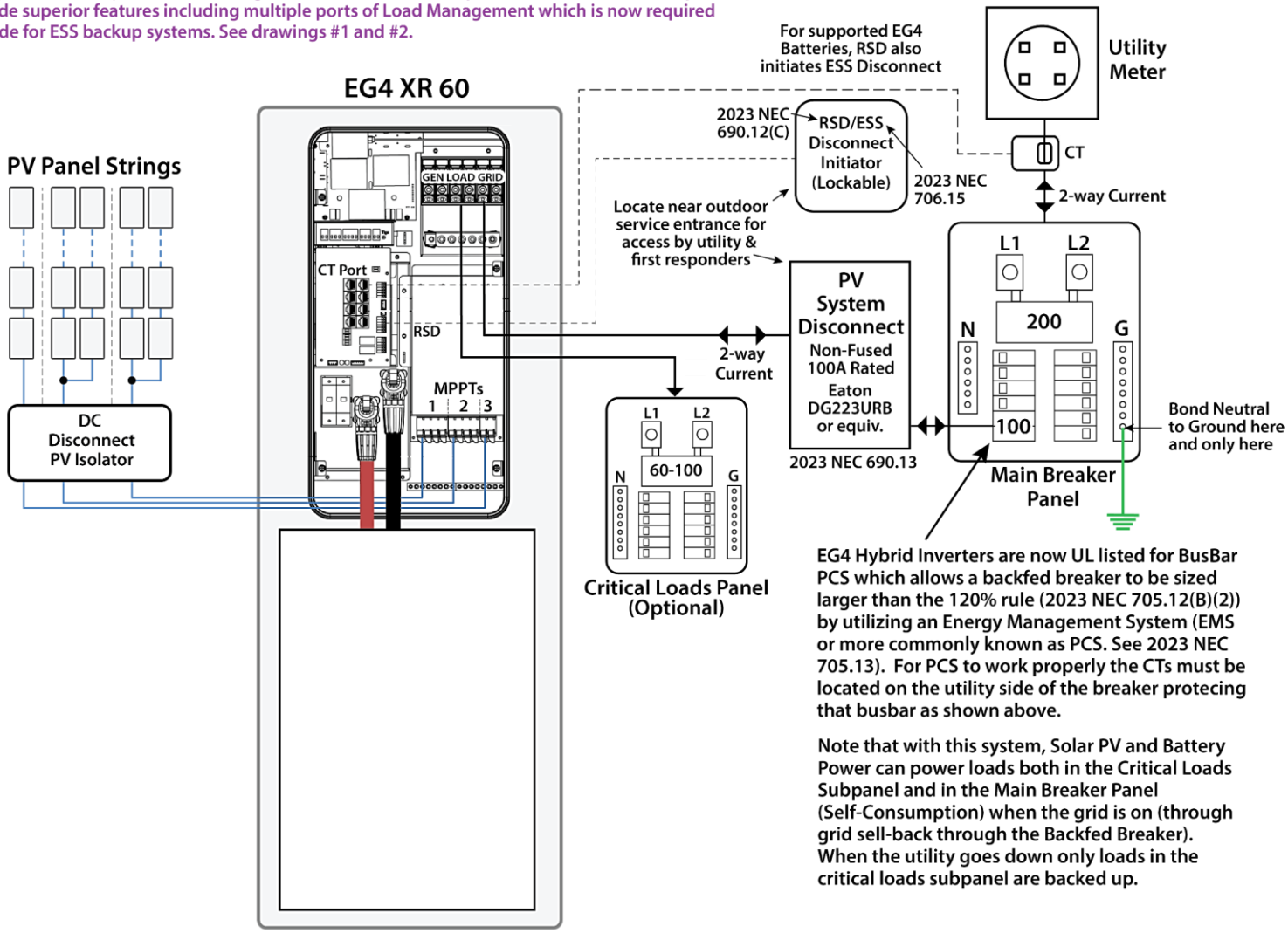
XR 60 Off-Grid



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XR 60 with Busbar PCS

Note that while BusBar PCS is a viable option to interconnect an XR60 system with the utility we highly recommend you consider using an EG4 GridBOSS. It will provide whole home backup and provide superior features including multiple ports of Load Management which is now required by code for ESS backup systems. See drawings #1 and #2.



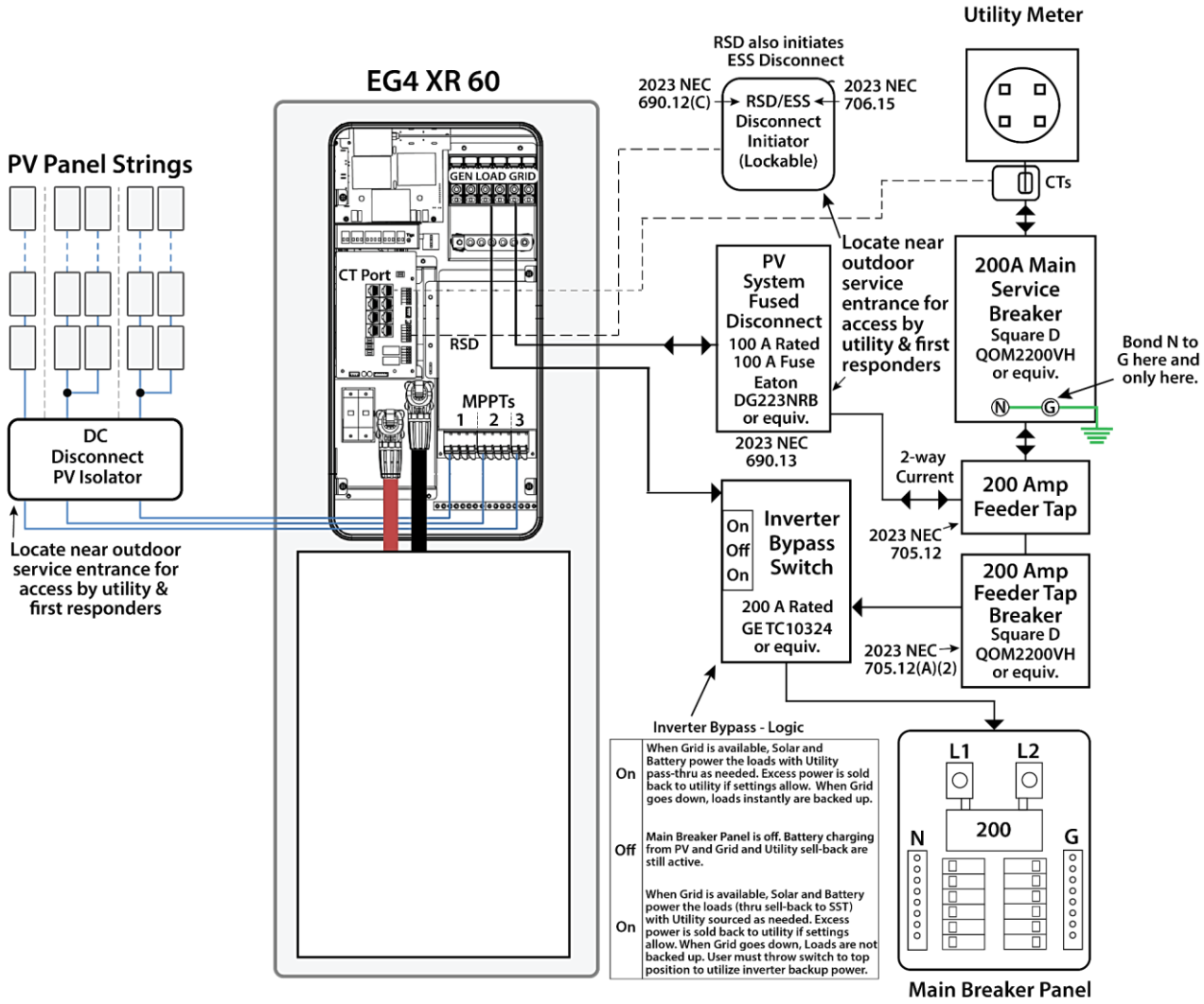
EG4 Hybrid Inverters are now UL listed for BusBar PCS which allows a backfed breaker to be sized larger than the 120% rule (2023 NEC 705.12(B)(2)) by utilizing an Energy Management System (EMS or more commonly known as PCS. See 2023 NEC 705.13). For PCS to work properly the CTs must be located on the utility side of the breaker protecing that busbar as shown above.

Note that with this system, Solar PV and Battery Power can power loads both in the Critical Loads Subpanel and in the Main Breaker Panel (Self-Consumption) when the grid is on (through grid sell-back through the Backfed Breaker). When the utility goes down only loads in the critical loads subpanel are backed up.

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XR 60 with Feeder Tap and Whole Home Backup

If you want to do Whole Home Backup we strongly suggest you use an EG4 GridBOSS. It will be less expensive, will take up less wall space and provide superior features including Load Management which is now required by code for ESS backup systems. See drawings #1 and #2.



IF FOR SOME REASON YOU CANNOT USE AN EG4 GRIDBOSS. FEEDER TAPS ARE THE NEXT SAFEST WAY TO TIE YOUR INVERTER TO THE UTILITY GRID while achieving whole home backup, full solar backfeed, and full battery charging capability while fully protecting your home's wiring. However, Feeder Taps must be installed correctly.

Refer to 2023 NEC Code: 705.12(B)(1&2)

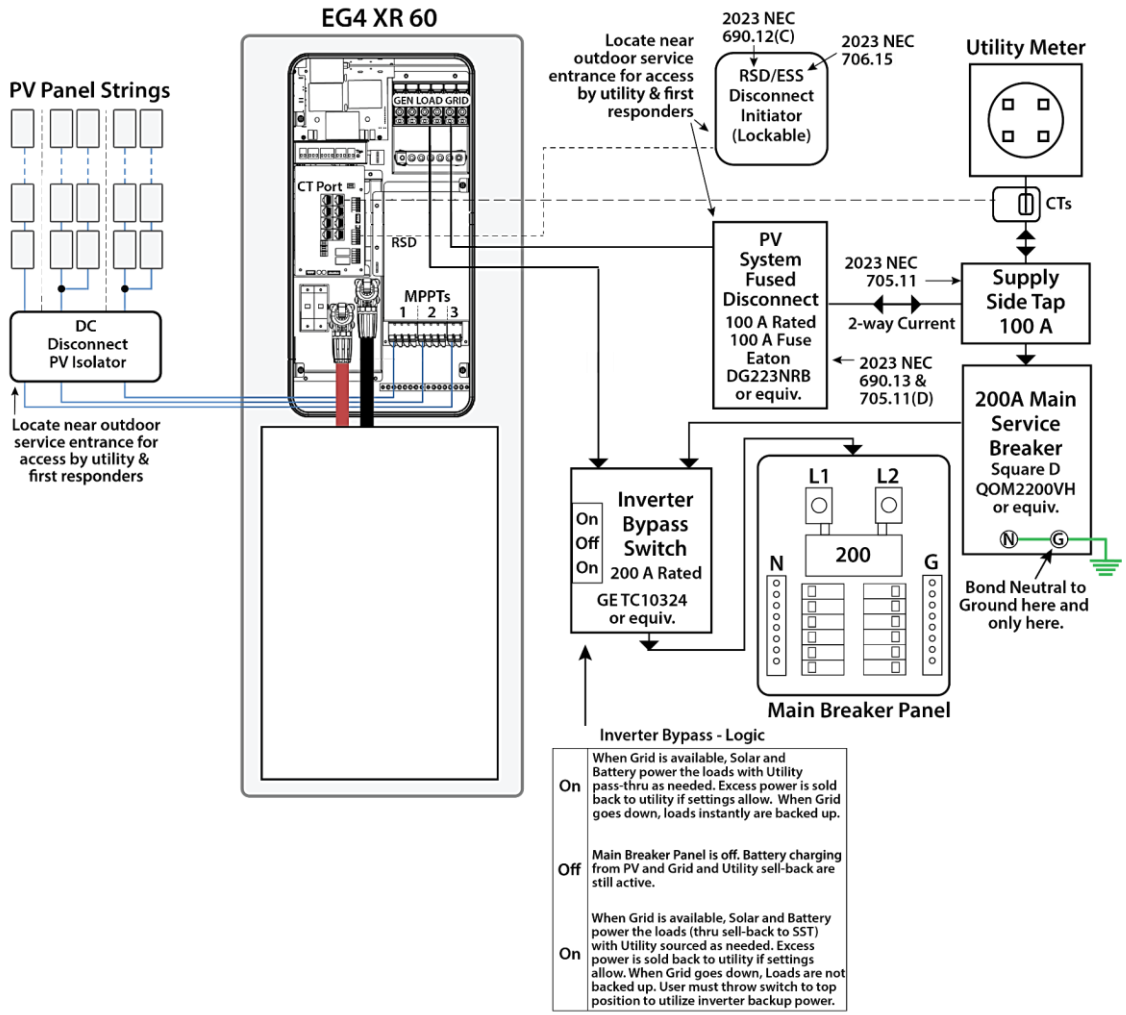
The Main Service Breaker and the Feeder Tap Breaker must be a stand-alone breaker -not a load center. **There can be no loads between the Utility Meter and the Feeder Tap.** If the Main Breaker Panel has a Main 200 Amp Breaker and it is within 10' of the Feeder Tap then some inspectors will allow omitting the 200 Amp Feeder Tap Breaker. However if this is done the conductors between the Feeder Tap and the Main Breaker Panel - as well as the Inverter Bypass Switch are subject to the combined amperage of the Utility (200 Amps) and the backfeed capability of the Inverter (50 Amps) while only being rated to 200 Amps. It's best to include that breaker as shown.

Feeder Taps should be installed by a professional electrician. Ilsco KUP-L-Taps are recommended, but installer must adhere strictly to installation instructions with proper torque applied (as measured with a torque wrench). Alternatively, a Polaris or Burnby Insulated MultiTap Connector can be used, but these need to be torqued twice - once upon installation and once 24 hours later.

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XR 60 with Supply Side Tap and Whole Home Backup

Note: If you want to do Whole Home Backup we strongly suggest you use an EG4 GridBOSS. It will be less expensive, will take up less wall space and provide superior features including Load Management which is now required by code for ESS backup systems. Multiple inverters then become easy to wire and/or add later. See drawings #1 and #2.



Caution: A Supply Side Tap will essentially add loads to your Service Entrance since the XR60 adds 75 A to the total house loads with it's battery charger. With this increased load there is the very real danger of overloading the Service Entrance conductors if the home is already using the full capacity of a 200 A Service. Do this only under advisement of your electrician and/or Electrical Inspector. Alternatively use a Feeder Tap to mitigate this risk. Feeder taps locate this extra load on the load side of the Main Breaker - thus protecting all Service Entrance Conductors. (See Feeder Tap Diagram).

Supply Side Taps should be installed by a professional electrician. Ilsco KUP-L-Taps are recommended, but the installer must adhere strictly to installation instructions with proper torque applied (as measured with a torque wrench). Alternatively, a Polaris or Burnby Insulated MultiTap Connector can be used, but these need to be torqued twice - once upon installation and once 24 hours later. Refer to 2023 NEC Code 705.11 and 705.12.

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Revision History

Revision	Date	Description of change
Version 1.0	11-12-2026	Initial Release



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