EG4

Installation and Commissioning Guide



EG4® XR 60

All-In-One

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About this guide

This guide covers the planning, installation, commissioning and service of the EG4 XR 60 energy storage system. It is written for EG4 Certified Installers and the distributors who support them.

Use it alongside the XR 60 User Manual and all applicable codes. Where this guide and the User Manual differ, the User Manual governs. The authority having jurisdiction (AHJ) has final say on every installation.

Only EG4 Certified Installers may install and commission the XR 60, and only Certified Installers and EG4 field service may work inside the battery compartment. Installation by a Certified Installer is also a condition of warranty coverage.

Important safety information

The XR 60 contains a 60 kWh lithium iron phosphate battery and high-voltage AC and DC circuits. Read this section before working on the unit.

- **Qualified persons only.** Installation, commissioning and service must be performed by EG4 Certified Installers using appropriate PPE.
- **Work de-energized.** Establish an electrically safe work condition (NFPA 70E Article 120) before opening the unit. Follow the lockout/tagout procedure in Service and maintenance.
- **Never break a circuit under load.** Don't disconnect battery, PV or AC while current is flowing. In an emergency, use the rapid shutdown (ESS disconnect).
- **Wait after shutdown.** After activating rapid shutdown, wait at least 2 minutes before removing any cover.
- **PV voltage.** Cold-corrected string Voc above 550 V will damage the inverter.

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Arc flash

Parameter	Value
Incident energy at 18 in	17.6 cal/cm² (Level D)
Arc flash boundary	8.1 ft
Limited approach boundary, 240 VAC	3.5 ft
Restricted approach boundary	1.0 ft

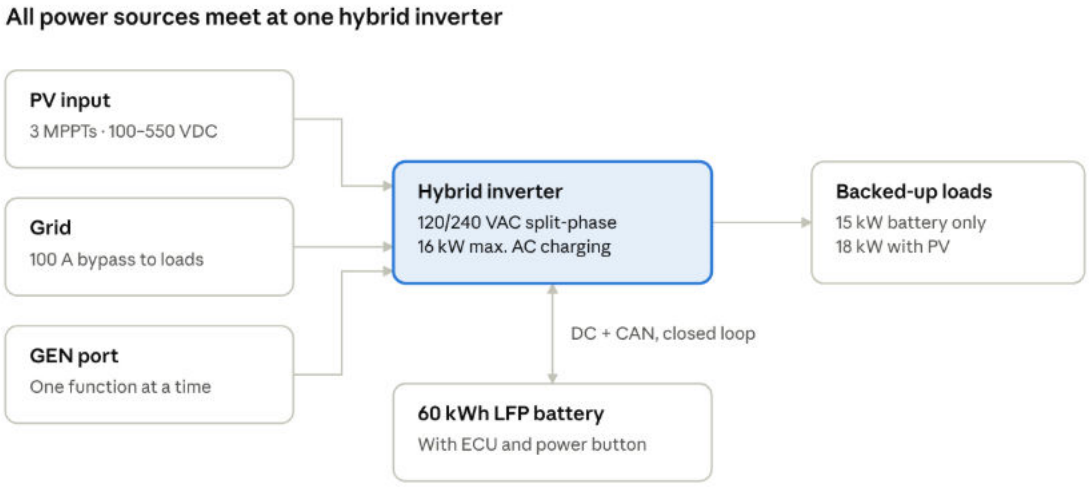
Justified energized work requires arc-rated PPE of at least 17.6 cal/cm² and an energized work permit.

Battery emergency

If you notice swelling, an unusual odor, hissing, heat or smoke, stop work and move away from the unit. Call the fire department, then Chemtrec at 800-262-8200 and EG4 Support.

System overview

The XR 60 is a complete outdoor energy storage system: a 60 kWh LFP battery with its own energy control unit (ECU) and a 120/240 VAC split-phase hybrid inverter in one ground-mounted enclosure. The inverter and battery communicate over CAN in a closed loop, so a single rapid shutdown stops PV, battery and AC output together.



XR 60 power flow · 3 sources, 1 inverter, 1 output

PV, grid and the GEN port all feed the hybrid inverter, which supplies backed-up loads and exchanges power with the battery over a closed DC and CAN link.

Key design points:

- **No internal AC breaker.** GRID and LOAD each require an external breaker and disconnect.

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- **One auxiliary job.** Without a GridBOSS, the GEN port serves one function: a generator, AC-coupled PV or one smart load.
- **Modular capacity.** Storage is expanded by adding complete XR 60 units. Additional or third-party batteries can't be connected.

Supported configurations

Configuration	Description	Design notes
Standalone	Battery and inverter; operates with or without the grid	Requires a charging source
With solar	Built-in MPPTs charge the battery	Off-grid sites need an array sized for year-round production
Grid-charged	Utility power charges the battery	Confirm charge settings and utility requirements
With a generator	Connects to the XR 60 GEN port, or to the GridBOSS when paired	Size to GridBOSS ratings when paired
With GridBOSS	Up to 3 XR 60s, 200 A pass-through, 4 smart ports	GridBOSS adds control, not storage or inverter power
Multiple units	Up to 3 XR 60s in parallel (180 kWh)	Split-phase systems only
Existing PV	Compatible grid-tie inverters can AC-couple	Confirm the exact inverter model

Specifications

The XR 60 delivers 15 kW continuous from battery alone and 18 kW with PV producing. Values are at 240 V unless noted.

AC output and battery

Parameter	Value
Nominal AC voltage	120/240 VAC, 60 Hz
Continuous output, battery only	15 kW (62.5 A)
Continuous output, PV and battery	18 kW (75 A)
Max. AC output current	75 A

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Peak surge	16–20 kW for 1 min; 20–24 kW for 10 s; above 24 kW for 5 s
Locked rotor (LRA)	160 A for 1 s
Max. AC pass-through (bypass)	100 A
Max. AC charging power	16 kW
Max. generator input current	80 A
Usable capacity	60 kWh

The grid supplies loads through the 100 A bypass. Battery charging from AC is limited separately to 16 kW.

PV input

Parameter	Value
MPPTs	3
Inputs per MPPT	2 / 2 / 1
DC input voltage range	100–550 VDC
Startup voltage	150 VDC
MPPT operating range	120–440 VDC
Full-power MPPT range	250–440 VDC
Nominal MPPT voltage	360 VDC
Max. usable input current	34 A / 34 A / 17 A
Max. short-circuit input current	40 A / 40 A / 19 A
Max. utilized PV power	26 kW

Mechanical and environmental

Parameter	Value
Dimensions (H × W × D)	20.82 × 38.51 × 97.86 in with anchor bracket; 20.82 × 38.51 × 95.11 in without
Weight	1,584 lb
Enclosure rating	NEMA 3R
Operating temperature	-20 to 50 °C (-4 to 122 °F)

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Storage temperature	-20 to 45 °C (-4 to 113 °F)
Relative humidity	0–80%
Operating altitude	Below 2,000 m (6,562 ft)

Certifications

Category	Standards
System	UL 9540, UL 9540A, UL 1973, UL 1741 SA and SB, UL 3141
Arc-fault protection	UL 1699B; NEC 2020 690.11
Canada	CSA C22.2 No. 107.1, CSA C22.2 No. 330, CSA C22.3 No. 9
Interconnection	IEEE 1547-2018, IEEE 1547.1-2020, IEEE 1547a-2020; Hawaii Rule 14H; California Rule 21 Phase I, II, III (with compatible gateway)
EMC and transport	FCC Part 15 Class B; UN38.3

Site planning and delivery

The XR 60 is a permanent outdoor, ground-mounted installation. Confirm the location, base and delivery access during the site survey, before the unit ships.

Site requirements

Requirement	Detail
Location	Outdoors, ground-mounted and level. Not in a garage, on a wall, in a flood zone or in a drainage path
Water exposure	NEMA 3R protects against dust and spray, not standing water
Base	Concrete pad or compacted gravel, as required by the AHJ
Anchoring	Anchor brackets are included; use them where the AHJ requires
Vegetation clearance	Tested and approved for 3 ft. NFPA calls for 10 ft, so 3 ft requires AHJ approval. A maintained lawn is not considered vegetation
Elevation	Below 2,000 m (6,562 ft)
Ambient temperature	-20 to 50 °C (-4 to 122 °F)
Coastal sites	Sites within 3 mi (5 km) of salt or brackish water are excluded from warranty coverage

Site work may include trenching, base preparation, permits and inspections. Plan a one-day installation only after site preparation and any solar work are complete.

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Delivery and handling

Item	Detail
Unit weight	1,584 lb
Shipping weight	Approximately 1,976 lb
Delivery vehicle	Flatbed or lift-gate truck. The unit may be too long for a standard lift gate; confirm with the carrier
Crew	Plan for 3 people to unbox and position the unit
Moving equipment	EG4 installer kit (sold separately), for on-site moves only; not for road towing

Inspect the unit on arrival and note any damage on the delivery receipt before signing.

Hardware reference

The inverter side of the enclosure holds the cable box and communication board. The battery side holds the conduit box, which contains the system power button.

Cover removal

1. Cosmetic cover: a split design that one person can remove.
2. Inverter cover: 6 Phillips screws.
3. Cable box cover: 10 T25 screws.
4. Arc flash shield: 4 Phillips screws.

After activating rapid shutdown, wait at least 2 minutes before removing any cover.

Inverter cable box

Component	Function
AC terminals	GEN, LOAD and GRID lugs (L1/L2); no internal breaker
Tigo RSS	PV module-level rapid shutdown
Communication board	CTs, parallel, meter, battery communications, DIP switches, RSD
Neutral busbar (N)	Common neutral for grid, load and generator
Battery breaker	Integrated overcurrent protection for the battery
Battery terminals	DC connection from the battery
PV input	Spring-clamp terminals for 3 MPPTs; 8 AWG max.

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Ground busbar (PE)	Equipment grounding

Communication board

Ref.	Port or switch	Function
A / H	Meter collar DIP switches and ports	Meter collar installations
C	Parallel DIP switches	CAN termination on the first and last unit
I	Parallel communication ports	Grey parallel cable
D	Battery communication (RS485 and CAN)	Inverter to battery
J	Battery TCP	Battery communications
F	CT interface	RJ45 from the included CTs
N	485B / 485A	Eastron or WattNode meter
G	Modbus TCP	Network integration
L	RSD terminals	External emergency stop (SW, +12)
O	DC power output	Accessory power, 1.5 A max.

Ports not listed above are reserved and must not be used.

Battery conduit box

Component	Function
+ / − 250 A terminals	250 A Amphenol connection, battery to inverter
+ / − 150 A terminals	Used only to measure battery voltage during pre-checks
COM port	CAN communication to the inverter
Power button	Hold about 5 s to turn the system on or off. Its indicator shows whether the XR 60 is live (solid green when on)
GND	Equipment grounding conductor for the battery
Dry contact, 8-pin	1 NO-A · 2 NO-B · 3 NC-A · 4 NC-B · 5 GND · 6 12V+ · 7 RSD · 8 RSD

The conduit-box power button is the only system power switch.

Controls and indicators

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Control or indicator	Meaning
Rapid shutdown / E-stop (exterior)	Stops PV, battery and AC output
PV disconnect (side of inverter)	Isolates the PV input
Status LED: green, solid	Normal operation
Status LED: green, 1 s flash	Standby
Status LED: green, 0.1 s flash	Firmware update in progress; don't power off
Status LED: yellow, solid	Warning; operation may pause
Status LED: red, solid	Fault; the system has stopped to protect itself

The status LED sits behind the outer cover. Use the Events tab in EG4 Connect to review system status without opening the unit.

AC wiring and grounding

Provide an external breaker (100 A max.) and a disconnect for both GRID and LOAD; the XR 60 has no internal AC breaker.

Terminal	Conductor	Torque	Max. breaker
Ground (PE)	4 AWG max.	26 in-lb (2.9 Nm)	—
Neutral (N)	2/0 AWG max.	136 in-lb (15.36 Nm)	—
LOAD L1/L2	2 AWG max.	93 in-lb (10.5 Nm)	100 A
GRID L1/L2	2 AWG max.	93 in-lb (10.5 Nm)	100 A
GEN L1/L2	4 AWG min.	97–106 in-lb (11–12 Nm)	—

- Terminate the ground conductor first.
- Verify GRID and LOAD conductors land on the correct lugs, and that L and N aren't reversed. Miswiring causes faults and can damage parallel units.
- In parallel systems, use equal-length AC conductors from each XR 60 to the main and loads panels.

Neutral-to-ground bonding

The installation must have exactly one neutral-to-ground bond, normally the main bonding jumper at the service entrance.

- AC input and output neutrals are common inside the unit.
- The neutral is never switched in any operating mode.
- The inverter does not create a neutral-to-ground bond, on-grid or off-grid.

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- On off-grid and GridBOSS installations, identify and document the location of the single bond.

A neutral-to-ground voltage above 30 V produces a Neutral fault.

PV array design

Design each string so cold-corrected Voc stays below 550 V and short-circuit current stays within the MPPT limit; exceeding either will damage the inverter. Operating current above the usable limit is safe and simply goes unused.

Design rule	Requirement
Open-circuit voltage	Correct nameplate Voc for the site's lowest expected temperature; must stay below 550 V
Operating voltage	Vmp within 120–440 V; 250–440 V for full power. Use the EG4 Solar Panel String Sizer
Startup	150 V to start; above 140 V to supply loads
MPPT 1 and 2	Two strings each, paralleled; 17 A max. per string; 40 A max. Isc per MPPT
MPPT 3	One string; 17 A usable, 19 A max. Isc
Matched strings	Strings on a shared MPPT use the same module, brand, count and orientation
Parallel systems	Each string terminates on its own MPPT on one XR 60
Array size	Up to 26 kW of PV is utilized

Item	Requirement
Conductor	10–8 AWG, 600 V insulation; 8 AWG max. at the terminals
Termination	Strip 1/2–2/3 in; orange spring clamp; ferrules for fine-strand conductors
Overcurrent protection, if required	600 V / 20 A per string
Disconnect	External PV disconnect recommended, in addition to the unit's PV switch

Measurement, monitoring and communications

The XR 60 measures grid import and export with the included CTs or a supported meter, and reports through EG4 Connect. On GridBOSS installations, the GridBOSS handles measurement and the XR 60 CTs are not installed.

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Current transformers

Item	Requirement
Model	CTSA024-300A/100mA, 240/208 V; two CTs on one RJ45
Ratio	3000:1; set Sample Ratio to 1/3000 (1000:1 and 2000:1 also supported)
Placement	CT1 on L1 and CT2 on L2 at the service entrance, near the utility meter
Orientation	Arrow points toward the inverter
Conductors	One conductor per CT; never on neutral or ground
Parallel systems	Master unit only
Extension	Shielded CAT5 or better, straight-through, with an RJ45 coupler; 300 ft total max.

RJ45 pin	1–4	5	6	7	8
Signal	Reserved	CT2N	CT2P	CT1N	CT1P

Meters

Eastron and WattNode meters connect to terminals 485B/485A on the communication board.

Monitoring

Each XR 60 connects through its own XR 60 dongle, and is monitored and configured in the EG4 Connect app or website. Systems must stay online to maintain warranty coverage.

Connection	Requirements
Wi-Fi	2.4 GHz band (5 and 6 GHz not supported); WPA2 or WPA3; network name 19 characters or fewer; password 24 characters or fewer, with no spaces or @ # $ % & * ? _ /
Ethernet	Ethernet dongle on shielded CAT5e
Cellular	4G dongle with an active data plan
Offline Mode	Local connection only, one system at a time

The dongle indicators light in sequence: Wi-Fi (hotspot ready), Cloud (server reached), INV (communicating with the system). An unlit indicator shows where the connection stops.

Parallel installations

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Up to three XR 60s can operate in parallel for 180 kWh, including with a GridBOSS. One unit is the master, and CAN termination is enabled only on the first and last units.

Position	Role	CAN DIP switches	Notes
Unit 1 (first)	Master	ON (address 1)	CTs connect here
Unit 2 (middle)	Slave	OFF (address 0)	—
Unit 3 (last)	Slave	ON (address 1)	—

- Connect units with the included grey parallel cable. On two-unit systems, a second cable adds redundancy.
- For longer runs, use shielded straight-through RJ45 cable wired to T568B.
- All units must have the same rated power.
- Select the master during commissioning; only one unit may be master.
- Use equal-length AC conductors from each unit.
- Connect a generator to each XR 60's GEN port individually; don't daisy-chain GEN ports.
- Terminate each PV string on its own MPPT on a single unit.

Contact EG4 technical support before designing three-phase or larger multi-unit systems.

Rapid shutdown and emergency stop

Rapid shutdown on the XR 60 stops PV, battery and AC output together. Operating through the closed-loop inverter-battery communications, it exceeds PV-only rapid shutdown and serves as the ESS disconnect for NEC 706 and UL 9540.

To install an external emergency stop:

1. Use a normally closed switch that opens when pressed.
2. Remove the factory jumper from the RSD terminals (communication board, L).
3. Connect the switch to SW and +12.
4. Mount the switch outdoors in a readily accessible location, as required by the AHJ.

An RSD Active warning means the shutdown button or emergency stop is engaged, or the jumper was removed without a switch installed.

GridBOSS integration

When paired with a GridBOSS, the generator, AC-coupled PV, smart loads, backed-up loads and grid measurement move from the XR 60 to the GridBOSS. Each XR 60 continues to provide its own inverter and battery.

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Function	XR 60 only	XR 60 with GridBOSS
Generator	XR 60 GEN port	GridBOSS generator port, using data from all XR 60s
AC-coupled PV	XR 60 GEN port (Existing PV Link)	GridBOSS, using aggregated data from all XR 60s
Smart loads	XR 60 GEN port, one load	GridBOSS Smart Ports 1–4 (total SOC, TOU, PV)
Measurement	XR 60 CTs or meter	GridBOSS; XR 60 CTs not installed
Backed-up loads	XR 60 LOAD terminals	GridBOSS backed-up loads; XR 60 LOAD not used
Inverter and battery	XR 60	Each XR 60

Requirements

- XR 60 firmware 1E1E or later. Firmware updates can't be reversed.
- Don't install the XR 60's included CTs.
- Don't use the XR 60 LOAD terminals.
- Connect the generator, AC-coupled PV and smart loads to the GridBOSS.
- Mount the GridBOSS on a wall rated for its weight.

Setup sequence

1. Configure all parallel XR 60s: master selection, DIP switches and parallel cables.
2. Configure the GridBOSS.
3. In the XR 60 commissioning wizard, answer Yes to GridBOSS. The CT/Meter step is skipped.

GridBOSS breakers

Breaker	Type	Rating
Smart Port 1	User selectable	30–125 A
Smart Port 2	User selectable	30–80 A
Smart Ports 3 and 4	User selectable	30–60 A
Inverters 1, 2 and 3	User selectable	50–90 A
GEN	User selectable	30–125 A
Backed-up loads	Fixed	200 A
Non-backed-up loads	None (fed by main breaker)	—
GRID	User supplied	200 A

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Main breaker options: an Eaton 200 A CSR-2200N (25 kAIC) installed in the GridBOSS with the neutral-to-ground jumper installed, or a standalone 200 A main breaker or meter-main, where the neutral-to-ground bond may be located.

Smart Port 1 accepts an AC-coupled inverter or a smart load. AC-coupled subpanels may be backfed; monitoring then reports net production only.

Commissioning

Complete the pre-checks, power up in sequence with loads disconnected, then run the commissioning wizard in EG4 Connect. Warnings for missing PV or AC are expected during power-up; faults are not.

Pre-checks

- ☐ All breakers open: AC input, load panel and battery
- ☐ Dongle installed on every unit; parallel cables connected
- ☐ PV voltage measured with only the external PV disconnect closed
- ☐ Battery voltage measured at the 150 A terminals
- ☐ Each AC line-to-neutral voltage verified

Power-up sequence

1. Close the battery breaker in the cable box.
2. Hold the conduit-box power button for about 5 s until it shows solid green.
3. Confirm the inverter status LED shows normal operation.
4. Close the external PV disconnect, then the unit's PV switch.
5. Close the external AC input breaker.
6. Keep loads off until commissioning is complete.

Commissioning wizard

New accounts require a Customer Code (app) or Installer Code (website) from the distributor, plus the serial number and PIN from the dongle label.

Step	Setting	Guidance
1	Station and inverters	Select every parallel unit and choose the master
2	Phase type	Match the site; a single unit operates as "1 Phase Master"
3	GridBOSS	Selecting Yes skips the CT/Meter step
4	CT or meter	CT: Sample Ratio 1/3000 and CT Power Offset. Meter: Eastron or WattNode

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5	Export to grid	Requires a utility interconnection agreement. Set max. export kW and Solar Only or Solar + Battery
6	Operating mode	Time of Use, Self-Consumption or Off-Grid Only
7	Smart Ports / Aux	One device: Smart Load, Existing PV Link or Generator
8	Review and commission	On the website, export the configuration (JSON) and keep it with the job records

Register the system with EG4 within 30 days of commissioning.

Operating modes and GEN port

Each operating mode holds a Reserve SOC for outages, so the battery won't always discharge fully.

Mode	Settings	Typical use
Time of Use	Reserve SOC across all blocks; Grid Charging, Battery Export, Peak Limit and PV Priority blocks, each set by Time Fixed or SOC% Threshold	Shifting energy to match utility rates
Self-Consumption	Reserve SOC plus a priority: Battery First (solar charges the battery to target first) or Home First (solar supplies loads, then the battery)	Maximizing use of on-site solar
Off-Grid Only	Reserve SOC; Time Only or SOC% + Time; Grid Charging blocks in an AC charging schedule	Systems operating independently of the grid

GEN port functions

Without a GridBOSS, the GEN port performs one of the following functions.

Function	Behavior	Key settings
Generator	Starts when the grid is down and SOC or voltage falls below Start; stops above End	Gen Boost, Microgrid Link, Cooldown, Charge Limit (A), Rated Power (W)
AC coupling	Engages below Start after about 5 minutes; curtails the grid-tie inverter by frequency shifting	Add an Existing PV Link device; change settings in standby; keep Start and End within 5–10%
Smart load	On when PV exceeds the PV Power setting and SOC reaches Start; off at End SOC or when PV drops below the setting	Grid Always On keeps the load powered while the grid is available

Generator requirements

- Size the generator at 1.5 times output or more: 20 kW minimum for one XR 60, 40 kW for two. THD below 3%.

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- Max. generator input current is 80 A, including load and charging current combined.
- Wiring: 4 AWG minimum, torqued to 97–106 in-lb. Ground to PE, L1/L2 to GEN, neutral to N.
- In parallel systems, connect the generator to each XR 60's GEN port.
- Confirm auto-start compatibility with the specific generator model.

Auto-start contacts

Both contact sets are rated 250 VAC, 5 A. Connect a two-wire start to CO1/NO1.

Unit	Grid	Battery SOC or voltage	Warning (CO2/NO2)	Generator start (CO1/NO1)
Off	—	—	Open	Open
On	Down	Below Start	Closed	Closed
On	Down	Above End	Open	Open
On	Up	Below Start	Closed	Open
On	Up	Above End	Open	Open

The generator start contact closes only when the grid is down. A generator that doesn't start while the grid is available is operating as designed.

Troubleshooting

Begin with the Events tab in EG4 Connect, then verify configuration and wiring before replacing parts. Most issues trace to CT placement, DIP switches, master selection, firmware, GridBOSS selection or GRID and LOAD wiring.

A warning means operation may pause; a fault means the system has stopped. For internal faults, restart the inverter once. If the fault returns, contact EG4 technical support.

Internal faults

Fault	Description
M3 Rx failure	M3 processor not receiving from the DSP
M3 Tx failure	DSP not receiving from the M3 processor
M8 Rx fault	M8 processor not receiving data
M8 Tx failure	DSP not receiving from the M8 processor

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Inconsistent	Processors report different grid voltages
Model fault	Incorrect model setting
Relay fault	Internal relay malfunction
Bus short circuit	Short circuit on the internal DC bus
Bus sample fault	Internal DC bus reads lower than PV input
Hard over curr	Hardware overcurrent protection tripped
Temperature fault	Heat sink over temperature. Check ventilation and direct sun exposure, then the NTC connector inside the inverter

Wiring faults

These typically appear after installation or other electrical work. If wiring is verified and the fault returns, contact EG4 technical support.

Fault	Description	Corrective action
EPS short circuit	Short circuit on the backup (LOAD) side	Check L1, L2 and N at LOAD; restart
EPS power reserved	Short circuit on the backup side	As for EPS short circuit
EPS connect fault	GRID and LOAD conductors swapped	Verify GRID and LOAD terminations
Vbus over range	Internal DC voltage too high	Check PV string voltage against specifications
PV volt high	PV voltage too high	Confirm cold-corrected Voc is below 550 V
PV short circuit	Short circuit in PV wiring	Disconnect all strings and test each
Neutral fault	Neutral-to-ground voltage above 30 V	Verify neutral wiring and the single N-G bond

Parallel system codes

Code	Type	Description	Corrective action
Para Comm error	Fault	Units can't communicate	Reseat the parallel cable; check CAN DIP switches
Para master loss	Fault	No master unit	Set a master; single units use 1 Phase Master

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Para no BM set	Warning	No master selected	Set one unit as master
Para multi BM set	Warning	More than one master	Keep one master; set others to slave
Para rating Diff	Fault	Units have different rated power	Confirm all units share the same rating
Para Phase set error	Fault	Incorrect phase setting	Verify wiring; reconnect to the grid to auto-detect
Para phase loss	Warning	Phase missing	Check master phase setting against unit count
Para sync loss	Fault	Units out of synchronization	Restart; contact support if it returns

Battery, meter and AFCI warnings

Warning	Description	Corrective action
Bat com failure	No communication with the battery	Check communication cable pinout at both ends
Bat fault	Battery can't charge or discharge	Check communication cable and battery status
Bat volt high	Battery voltage above 117.9 V	Verify battery voltage
Bat volt low	Battery voltage below 70 V	Verify battery voltage
Bat open	Battery disconnected	Check the battery breaker; reconnect
Meter com failure	No communication with the meter	Check the cable and its condition; restart
Meter reversed	Meter wired in reverse	Check the meter cable at both ends
AFCI com failure	Arc-fault module not responding	Restart; contact support if it returns
AFCI high	Possible arcing in PV wiring	Check each string's Voc and Isc

Grid, off-grid and system warnings

Warning	Description	Corrective action
Trip by GFCI high	Leakage current on the AC side	Check for a ground fault; restart
Trip by DCI high	DC component on the grid side	Restart; contact support if it returns
GFCI module fault	Leakage-detection module fault	Restart; contact support if it returns
PV short circuit	Short circuit in PV wiring	Check each string connection; restart

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Off-grid overload	Load exceeds output rating	Reduce load to within 15 kW on battery alone
Off-grid overvolt	AC output voltage high	Restart; contact support if it returns
Off-grid dcv high	DC component on AC output	Restart; contact support if it returns
Fwm mismatch	Firmware versions don't match	Retry the firmware update; contact support
Fan stuck	Cooling fan obstructed or failed	Contact support
RSD Active	Rapid shutdown engaged	Check the shutdown button and external E-stop

Symptoms

Symptom	Likely cause	Corrective action
System won't power on	Rapid shutdown engaged, battery breaker open, system off, PV below 150 V	Check RSD and E-stop, battery breaker, conduit-box power button and PV voltage
No PV input	Open circuit, loose MC4 connector, blown fuse	Check connectors, fuses and breakers
Low PV voltage	Low irradiance or string sizing	Compare string voltage to the MPPT range
MPPT not starting	Below startup voltage	Confirm 150 V startup; restring if needed
PV overvoltage	String exceeds max. DC input	Disconnect, verify Voc and restring
Import and export reversed	CT orientation or placement	Arrows toward inverter, CT1 on L1, ratio 1/3000, master unit only
System offline	Wi-Fi band, credentials or internet	Identify the unlit dongle indicator; confirm 2.4 GHz and credential requirements
Generator doesn't start	Grid available, SOC above Start, wiring	Confirm grid is down, SOC is below Start and CO1/NO1 is wired
Existing PV not charging	AC coupling configuration	Confirm Existing PV Link is added, allow about 5 minutes, keep Start and End within 5–10%

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Output shuts off under load	Overload or surge limit exceeded	Check load against 15 kW without PV and the surge ratings
Battery not cycling	Loose or failed CAN/RS485 communication	Inspect communication cables
Battery overheating	High load or poor ventilation	Clear vents and improve airflow
Breaker trips repeatedly	Overcurrent or short circuit	Find the root cause before resetting

Service and maintenance

The XR 60 has no scheduled maintenance. Service is performed after the trigger events below, following the lockout/tagout procedure.

Lockout/tagout procedure

1. Put on PPE and notify occupants that backup power will be unavailable during service.
2. Remove the cosmetic and cable box covers.
3. Open and lock the external AC input.
4. Open and lock the external PV disconnect.
5. Open the unit's PV switch.
6. Open the battery breaker.
7. Hold the conduit-box power button for about 5 s until its indicator turns off.
8. Verify zero AC and DC voltage; lock and tag each isolation point.

Each tag records the technician's name, date and reason, per OSHA 29 CFR 1910.147. To return the system to service, reverse the sequence: battery breaker, power button, PV disconnect, PV switch, AC input, AC output.

Service triggers

- A fault that requires on-site diagnosis, or no new monitoring data for several days
- Unusual noise or odor, or visible damage
- An earthquake of magnitude 6.0 or greater within 31 mi
- Flood or water intrusion
- A fire within 98 ft
- A warranty claim or a homeowner service request

Service inspection

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Check	Pass criteria	Interval
Portal status and firmware	No open alerts; current firmware	Every visit
RSD / E-stop	Labeled, accessible and trips correctly	Every visit
Protection settings	Match the commissioned configuration	Every visit
Service report	Submitted before leaving the site	Every visit
IR thermal scan	Below 68 °F above ambient; below 50 °F above adjacent components	3 years or after a trigger event
Insulation resistance	1 MΩ min. per conductor at 1000 VDC	3 years or after a trigger event
Torque	Per the AC and generator terminal torque values	3 years or after a trigger event
Grounding	0.1 Ω or less to service; electrode 25 Ω or less	5 years or after a trigger event

Recommended between visits: check communication connections every 6 months, battery temperatures quarterly, and DC connections and breakers annually.

Warranty and homeowner handoff

Warranty coverage depends on installation by an EG4 Certified Installer, registration within 30 days of commissioning, and the system remaining online. The summary below is for planning; the published EG4 Limited Warranty governs.

Term	Summary
Coverage	15 years, factory parts; labor not included
Capacity	70% retained at 15 years or 272 MWh throughput, whichever comes first
Registration	Within 30 days of commissioning
Installer	Installed and commissioned by an EG4 Certified Installer
Connectivity	A system offline more than 90 days and not reconnected within 30 days of EG4's notice loses capacity coverage
Location	United States and Canada; excludes sites within 3 mi (5 km) of salt or brackish water
Relocation	Requires prior written approval from EG4; permits don't transfer

Homeowner orientation

Before leaving the site, walk the homeowner through these points:

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- On battery alone, the system supplies about 15 kW at once; more is available while solar is producing.
- Backup duration depends on what is running and how the system is configured.
- A reserve is held for outages, so the battery won't always discharge fully.
- The system connects to 2.4 GHz Wi-Fi only and must stay online to keep warranty coverage, including off-grid systems.
- The exterior rapid shutdown button and PV switch can be used without opening the unit.
- An automatic generator starts only during an outage, once the battery falls to the set level.
- After a flood, nearby fire or large earthquake, a technician should inspect the unit even if it appears normal.

Support and resources

For equipment faults, warranty claims and design questions such as three-phase or multi-unit systems, contact EG4 technical support.

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

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