EG4® 12kPV HYBRID INVERTER

FIRMWARE CHANGELOG & UPDATE GUIDE

This document's purpose is to both educate the end-user on the firmware update process for the 12kPV hybrid inverter and to provide a changelog for the latest firmware versions.

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1. TECHNICAL SPECIFICATIONS

AC INPUT DATA	
NOMINAL AC VOLTAGE	120/240VAC; 120/208VAC (L1/L2/N required)
FREQUENCY	50/60Hz
MAX. AC INPUT POWER	12000W
MIN. GENERATOR SIZE	>5000W
MAX. GEN | GRID PASSTHROUGH CURRENT	80A | 80A

AC GRID OUTPUT DATA				
MAX. OUTPUT CURRENT			33.3A@240VAC | 38.5A @208VAC	
OUTPUT VOLTAGE			120/240VAC; 120/208VAC	
NOMINAL POWER OUTPUT			8000W	
OUTPUT FREQUENCY			50/60Hz	
POWER FACTOR			0.99 @ Full Load	
REACTIVE POWER ADJUST RANGE			±0.8	
MAX CONT. LINE WATTAGE			4000W	
PEAK POWER	0.5 s	1 s	1 min	12 min
	16kW	12kW	10kW	8.8kW
OPERATING FREQUENCY			50/60Hz	
THD (V) @FULL LOAD			<3%	
TRANSFER TIME		Single		Parallel
		20 ms – Default, 10 ms – Selectable		20 ms

PV INPUT DATA	
NUMBER OF MPPTS	2
INPUTS PER MPPT	2
MAX. USABLE INPUT CURRENT	25/25A
	25A per MPPT | 41.6A in total
MAX. SHORT CIRCUIT INPUT CURRENT	31/31A
DC INPUT VOLTAGE RANGE	100-600 VDC
UNIT STARTUP VOLTAGE	100 VDC
MPPT OPERATING VOLTAGE RANGE	120-500 VDC
NOMINAL MPP VOLTAGE	360 VDC
MAXIMUM UTILIZED SOLAR POWER	12000W
RECOMMENDED MAXIMUM SOLAR INPUT	15000W

EFFICIENCY	
MAXIMUM EFFICIENCY (PV TO GRID)	97.5%
MAXIMUM EFFICIENCY (BATTERY TO GRID)	94%
CEC WEIGHTED EFFICIENCY	96.4%
MAXIMUM EFFICIENCY (PV TO BATTERY)	99.9%
IDLE CONSUMPTION (STANDBY MODE)	<55W

BATTERY DATA

COMPATIBLE BATTERY TYPES	Lead-Acid/Lithium
MAX. CHARGE/DISCHARGE CURRENT	167A @ 48 VDC
NOMINAL VOLTAGE	48 VDC
VOLTAGE RANGE	40-60 VDC (Lithium); 40-60 VDC (Lead-Acid)
RECOMMENDED BATTERY CAPACITY PER INVERTER	>200Ah

GENERAL DATA

MAX. UNITS IN PARALLEL	10
PRODUCT DIMENSIONS (H×W×D)	29.5×20.5×11.2 in (750×520×285 mm)
UNIT WEIGHT	110 lbs. (50 kg)
DESIGN TOPOLOGY	High Frequency - Transformerless
RELATIVE HUMIDITY	0-100%
OPERATING ALTITUDE	<2000m (<6561 ft)
OPERATING AMBIENT TEMPERATURE RANGE	-13°F – 140°F (-25°C – 60°C)
STORAGE AMBIENT TEMPERATURE RANGE	-13°F – 140°F (-25°C – 60°C)
NOISE EMISSION (TYPICAL)	<50 dB @ 3 ft
COMMUNICATION INTERFACE	RS485/Wi-Fi/CAN
STANDARD WARRANTY	10-year standard warranty**
INGRESS PROTECTION RATING	IP65
SAFETY FEATURES	PV Arc Fault Protection, PV Ground Fault Protection, PV Reverse Polarity Protection, Pole Sensitive Leakage Current Monitoring Unit, Surge Protection Device, integrated PV disconnect

STANDARDS AND CERTIFICATIONS

UL1741 SB

CSA C22.2#107.1:2016

CSA C22.2#330:2017 ED 1

HECO SRD-IEEE-1547.1:2020 ED 2

RAPID SHUT DOWN (RSD) NEC 2020:690.12

FCC PART 15, CLASS B (PENDING)

See EG4 Warranty Registration for terms and conditions

2. SAFETY

2.1   SAFETY INSTRUCTIONS

International safety regulations have been strictly observed in the design and testing of the inverter. Before beginning any work, carefully read all safety instructions, and always observe them when working on or with the inverter. The installation must follow all applicable national or 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

2.2   IMPORTANT SAFETY NOTIFICATIONS

DANGER!   *Hazardous Voltage Circuits!*
AVERTISSEMENT!   *Circuits à tension élevée!*

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.

1. **Beware of high PV voltage.** Please install an external DC disconnect switch or breaker and ensure it is in the "off" or "open" position before installing or working on the inverter. Use a voltmeter to confirm there is no DC voltage present to avoid electric shock.
2. **Beware of high grid voltage.** Please ensure the AC switch and/or AC breaker are in the "off" or "open" position before installing or working on the inverter. Use a voltmeter to confirm there is no voltage present to avoid electric shock.
3. **Beware of high battery current.** Please ensure that the battery module breakers and/or on/off switches are in the "open" or "off" position before installing or working on the inverter. Use a voltmeter to confirm there is no DC voltage present to avoid electric shock.
4. **Do not open the inverter while it is operating to avoid electric shock and damage from live voltage and current within the system.**
5. Do not make any connections or disconnections (PV, battery, grid, communication, etc.) while the inverter is operating.
6. An installer should make sure to be well protected by reasonable and professional insulative equipment [e.g., personal protective equipment (PPE)].
7. Before installing, operating, or maintaining the system, it is important to inspect all existing wiring to ensure that it meets the appropriate specifications and conditions for use.
8. Ensure that the PV, battery, and grid connections to the inverter are secure and proper to prevent damage or injuries caused by improper installation.
9. Some components of the system can be very heavy. Be sure to utilize team-lift among other safe lifting techniques throughout the installation.

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 servicing other than those specified in the operating instructions unless qualified to do so.

1. Read all instructions before installing. For electrical work, follow all local and national wiring standards, regulations, and these installation instructions.
2. Make sure the inverter is properly grounded. All wiring should be in accordance with the National Electrical Code (NEC), ANSI/NFPA 70.
3. The inverter and system can inter-connect with the utility grid only if the utility provider permits. Consult with the local AHJ (Authority Having Jurisdiction) before installing this product for any additional regulations and requirements for the immediate area.
4. All warning labels and nameplates on the inverter should be clearly visible and must not be removed or covered.
5. The installer should consider the safety of future users when choosing the inverter's correct position and location as specified in this manual.
6. Please keep children from touching or misusing the inverter and relevant systems.
7. **Beware!** The inverter and some parts of the system can be hot when in use, please do not touch the inverter's surface or most of the parts when they are operating. During operation, only the LCD and buttons should be touched.

DISCLAIMER

EG4 reserves the right to make changes to the material herein at any time without notice.
Please refer to www.eg4electronics.com for the most updated version of our manuals/spec sheets.

3. FIRMWARE UPDATES

3.1   FIRMWARE UPDATE VIA EG4 ELECTRONICS APP

NOTE: When updating the firmware through the EG4 app, be sure to have plenty of battery life on the device and do not close the Application. Make sure you have the Wi-Fi dongle connected securely and correctly configured *(see the Connections & Paralleling Guide for Wi-Fi Dongle connection steps)* for the inverter before performing the following steps.

Step 1: Open the EG4 Electronics app on the mobile phone and select the "DOWNLOAD FIRMWARE" button.

Step 2: Choose the correct firmware file (contact the distributor for most up to date files) and select "DOWNLOAD" on the right side to download the file to the mobile device.

Step 3: Keep the app running and go to the phone's Wi-Fi settings. Connect the mobile device to the Dongle's network. The Dongle's Network ID will be the same as the Dongle's Serial Number.

Step 4: Return to the home screen of the app and select "LOCAL CONNECT". Select the "Set" button on the bottom right side and proceed to the next step.

Step 5: After completing step 4, the Local Set Interface as shown above will Appear. Swipe upward on the phone screen until the "Update Firmware" button is visible at the bottom of the app's display.

Step 6: Choose the correct installation package in the dropdown box and click "UPDATE FIRMWARE" to begin the updating process.

After selecting the "UPDATE FIRMWARE" button, the update will begin. Update progress can be viewed via the app as well as the inverter's LCD screen. Once the update is completed, a notification will appear confirming that the firmware has been successfully updated (as shown in photo). After successfully updating firmware, the inverter will restart itself.
Make sure to update all inverters installed in the same ESS to the latest firmware.
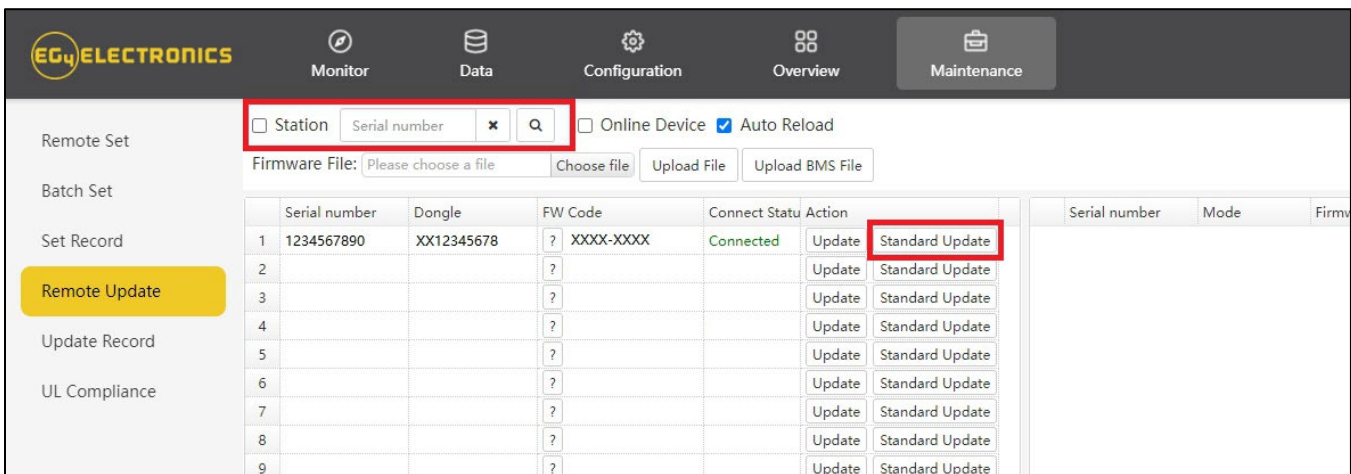
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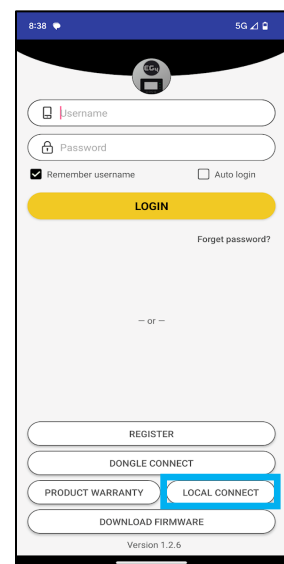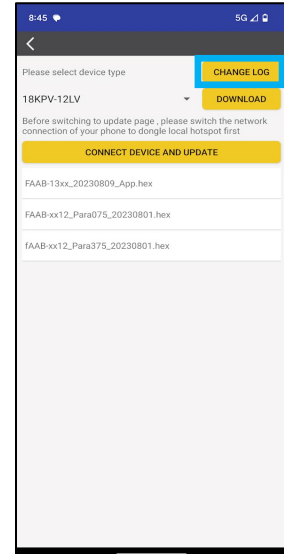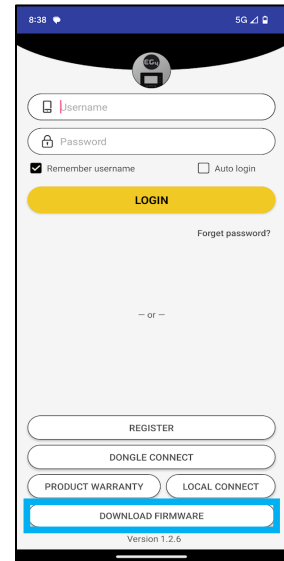
3.2 FIRMWARE UPDATE VIA MONITOR CENTER (WEBSITE)

Step 1: Distributors and installers can update the firmware for their inverters by using the EG4 Electronics website monitoring system. Please contact EG4 to confirm the correct files.
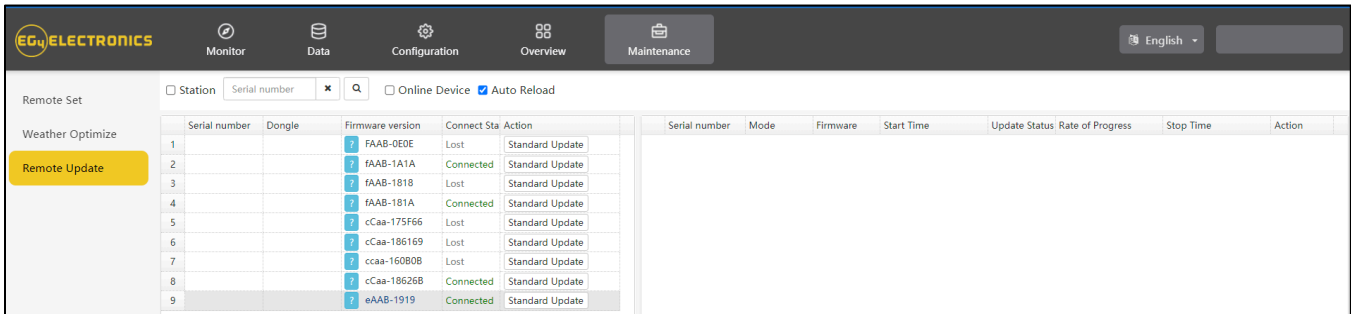
Step 2: Log into the EG4 Electronics Monitor System. Select "Maintenance," and then select "Remote Update."

Step 3: Choose the desired inverter to update and then select "Standard Update". The Monitor Center will begin updating both firmware files in the inverter. The latest version of the firmware will be displayed in the bottom right window.

C H A N G E L O G

Version 1.0
- First version completed

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