# 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		33.3	3A@240VAC   38	3.5A @208VAC
OUTPUT VOLTAGE			120/240VA0	C; 120/208VAC
NOMINAL POWER OUTPUT				8000W
OUTPUT FREQUENCY				50/60Hz
POWER FACTOR			0.9	99 @ Full Load
REACTIVE POWER ADJUST RANGE				±0.8
MAX CONT. LINE WATTAGE				4000W
	0.5 s	1 s	1 min	12 min
FLAK FOWER	16kW	12kW	10kW	8.8kW
OPERATING FREQUENCY				50/60Hz
THD (V) @FULL LOAD				<3%
		Single		Parallel
		-		
TRANSFER TIME	20 ms – Defa	ault, 10 ms – Se	lectable	20 ms
TRANSFER TIME PV INPUT DATA	20 ms – Defa	ault, 10 ms – Se	lectable	20 ms
TRANSFER TIME PV INPUT DATA NUMBER OF MPPTS	20 ms – Defa	ault, 10 ms – Se	lectable	20 ms 2
TRANSFER TIME PV INPUT DATA NUMBER OF MPPTS INPUTS PER MPPT	20 ms – Defa	ault, 10 ms – Se	lectable	20 ms 2 2 2
TRANSFER TIME          PV INPUT DATA         NUMBER OF MPPTS         INPUTS PER MPPT         MAX. USABLE INPUT CURRENT	20 ms – Defa	ault, 10 ms – Se	lectable	20 ms 2 2 25/25A
TRANSFER TIME PV INPUT DATA NUMBER OF MPPTS INPUTS PER MPPT MAX. USABLE INPUT CURRENT	20 ms – Defa	ault, 10 ms – Se	electable 25A per MPPT	20 ms 2 2 25/25Α Γ   41.6A in total
TRANSFER TIME         PV INPUT DATA         NUMBER OF MPPTS         INPUTS PER MPPT         MAX. USABLE INPUT CURRENT         MAX. SHORT CIRCUIT INPUT CURRENT	20 ms – Defa	ault, 10 ms – Se	electable 25A per MPPT	20 ms 2 2 25/25A 7   41.6A in total 31/31A
TRANSFER TIME PV INPUT DATA NUMBER OF MPPTS INPUTS PER MPPT MAX. USABLE INPUT CURRENT MAX. SHORT CIRCUIT INPUT CURRENT DC INPUT VOLTAGE RANGE	20 ms – Defa	ault, 10 ms – Se	electable 25A per MPPT	20 ms 2 2 25/25A 7   41.6A in total 31/31A 100-600 VDC
TRANSFER TIME         PV INPUT DATA         NUMBER OF MPPTS         INPUTS PER MPPT         MAX. USABLE INPUT CURRENT         MAX. SHORT CIRCUIT INPUT CURRENT         DC INPUT VOLTAGE RANGE         UNIT STARTUP VOLTAGE	20 ms – Defa	ault, 10 ms – Se	electable 25A per MPP1	20 ms 2 2 25/25A 7   41.6A in total 31/31A 100-600 VDC 100 VDC
TRANSFER TIME         PV INPUT DATA         NUMBER OF MPPTS         INPUTS PER MPPT         MAX. USABLE INPUT CURRENT         MAX. SHORT CIRCUIT INPUT CURRENT         DC INPUT VOLTAGE RANGE         UNIT STARTUP VOLTAGE         MPPT OPERATING VOLTAGE RANGE	20 ms – Defa	ault, 10 ms – Se	electable 25A per MPPT	20 ms 2 2 2 25/25A 7   41.6A in total 31/31A 100-600 VDC 100 VDC 120-500 VDC
TRANSFER TIME <b>PV INPUT DATA</b> NUMBER OF MPPTSINPUTS PER MPPTMAX. USABLE INPUT CURRENTMAX. SHORT CIRCUIT INPUT CURRENTDC INPUT VOLTAGE RANGEUNIT STARTUP VOLTAGEMPPT OPERATING VOLTAGE RANGENOMINAL MPP VOLTAGE	20 ms – Defa	ault, 10 ms – Se	electable 25A per MPPT	20 ms 2 2 2 25/25A 7   41.6A in total 31/31A 100-600 VDC 100 VDC 120-500 VDC 360 VDC
PV INPUT DATANUMBER OF MPPTSINPUTS PER MPPTMAX. USABLE INPUT CURRENTMAX. SHORT CIRCUIT INPUT CURRENTDC INPUT VOLTAGE RANGEUNIT STARTUP VOLTAGEMOMINAL MPP VOLTAGEMAXIMUM UTILIZED SOLAR POWER	20 ms – Defa	ault, 10 ms – Se	electable 25A per MPPT	20 ms 2 2 25/25A 7   41.6A in total 31/31A 100-600 VDC 100 VDC 120-500 VDC 360 VDC 12000W
TRANSFER TIMEPV INPUT DATANUMBER OF MPPTSINPUTS PER MPPTMAX. USABLE INPUT CURRENTMAX. SHORT CIRCUIT INPUT CURRENTDC INPUT VOLTAGE RANGEUNIT STARTUP VOLTAGEMPPT OPERATING VOLTAGE RANGENOMINAL MPP VOLTAGEMAXIMUM UTILIZED SOLAR POWERRECOMMENDED MAXIMUM SOLAR INPUT	20 ms – Defa	ault, 10 ms – Se	electable 25A per MPPT	20 ms 2 2 2 25/25A 7   41.6A in total 31/31A 100-600 VDC 100 VDC 120-500 VDC 120-500 VDC 360 VDC 12000W 15000W
TRANSFER TIME PV INPUT DATA NUMBER OF MPPTS INPUTS PER MPPT MAX. USABLE INPUT CURRENT MAX. SHORT CIRCUIT INPUT CURRENT DC INPUT VOLTAGE RANGE UNIT STARTUP VOLTAGE MPPT OPERATING VOLTAGE RANGE NOMINAL MPP VOLTAGE RACOMMENDED MAXIMUM SOLAR INPUT EFFICIENCY	20 ms – Defa	ault, 10 ms – Se	electable 25A per MPPT	20 ms 2 2 25/25A 7   41.6A in total 31/31A 100-600 VDC 100 VDC 120-500 VDC 12000W 12000W
PV INPUT DATANUMBER OF MPPTSINPUTS PER MPPTMAX. USABLE INPUT CURRENTMAX. SHORT CIRCUIT INPUT CURRENTDC INPUT VOLTAGE RANGEUNIT STARTUP VOLTAGE RANGENOMINAL MPP VOLTAGE RANGEMAXIMUM UTILIZED SOLAR POWERRECOMMENDED MAXIMUM SOLAR INPUTEFFICIENCYMAXIMUM EFFICIENCY (PV TO GRID)	20 ms – Defa	ault, 10 ms – Se	electable 25A per MPPT	20 ms 2 2 2 25/25A 7   41.6A in total 31/31A 100-600 VDC 100 VDC 120-500 VDC 360 VDC 360 VDC 12000W 15000W
TRANSFER TIME <b>PV INPUT DATA</b> NUMBER OF MPPTSINPUTS PER MPPTMAX. USABLE INPUT CURRENTMAX. SHORT CIRCUIT INPUT CURRENTDC INPUT VOLTAGE RANGEUNIT STARTUP VOLTAGEMPPT OPERATING VOLTAGE RANGENOMINAL MPP VOLTAGEMAXIMUM UTILIZED SOLAR POWERRECOMMENDED MAXIMUM SOLAR INPUT <b>EFFICIENCY</b> MAXIMUM EFFICIENCY (PV TO GRID)MAXIMUM EFFICIENCY (BATTERY TO GRID)	20 ms – Defa	ault, 10 ms – Se	electable 25A per MPPT	20 ms 2 2 2 25/25A 7   41.6A in total 31/31A 100-600 VDC 100 VDC 120-500 VDC 120-500 VDC 12000W 15000W 97.5%
TRANSFER TIMEPV INPUT DATANUMBER OF MPPTSINPUTS PER MPPTMAX. USABLE INPUT CURRENTMAX. SHORT CIRCUIT INPUT CURRENTDC INPUT VOLTAGE RANGEUNIT STARTUP VOLTAGEMPPT OPERATING VOLTAGE RANGENOMINAL MPP VOLTAGERECOMMENDED MAXIMUM SOLAR INPUT <b>EFFICIENCY</b> MAXIMUM EFFICIENCY (PV TO GRID)MAXIMUM EFFICIENCY (BATTERY TO GRID)CEC WEIGHTED EFFICIENCY	20 ms – Defa	ault, 10 ms – Se	electable 25A per MPPT	20 ms 2 2 25/25A 7   41.6A in total 31/31A 100-600 VDC 100 VDC 120-500 VDC 12000W 360 VDC 12000W 97.5% 94% 94%
TRANSFER TIMEPV INPUT DATANUMBER OF MPPTSINPUTS PER MPPTMAX. USABLE INPUT CURRENTMAX. SHORT CIRCUIT INPUT CURRENTDC INPUT VOLTAGE RANGEUNIT STARTUP VOLTAGE RANGEMPPT OPERATING VOLTAGE RANGENOMINAL MPP VOLTAGEMAXIMUM UTILIZED SOLAR POWERRECOMMENDED MAXIMUM SOLAR INPUTEFFICIENCYMAXIMUM EFFICIENCY (PV TO GRID)CEC WEIGHTED EFFICIENCYMAXIMUM EFFICIENCY (PV TO BATTERY)	20 ms – Defa	ault, 10 ms – Se	electable 25A per MPPT	20 ms 2 2 2 25/25A 7   41.6A in total 31/31A 100-600 VDC 100 VDC 120-500 VDC 120-500 VDC 360 VDC 360 VDC 12000W 97.5% 94% 94%

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 <u>www.eg4electronics.com</u> 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.

8:38 🗭	
	5G ⊿ 🔒
A Password	
Remember username	Auto login
LOGIN	
	Eornet password?
	roiger passiona.
- or -	
REGISTE	·
DONGLE CON	NECT
( PRODUCT WARRANTY ) (	LOCAL CONNECT
DOWNLOAD FIR	MWARE
Version 1.	
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<	
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connection of your phone to dongle I	ocal hotspot first
CONNECT DEVICE A	ND OPDATE
FAAB-13xx_20230809_App.hex	
FAAB-xx12_Para075_20230801.hex	
fAAB-xx12_Para375_20230801.hex	
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8:38 •	5G⊿ 🕯
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833 •	56⊿ ₽
833 ●	SG Z 🕯
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B33 ► Username Password Remember username LOGIN	SG 2 2
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€33	SG 2 Q
B33 ● Baseword Password Cogin C	SG 2 Q

#### 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.

EGUELECTRONICS	Ø Monitor	) Data	Configu	ation	Overview	<b>E</b> Maintenance				(9) E	nglish 👻	
Remote Set	Station Seria	I number X	Q 🛛 Online	Device 🗹 A	uto Reload							
Weether Ortinia	Serial number	Dongle	Firmware version	Connect Sta	Action	Serial num	er Mode	Firmware	Start Time	Update Status Rate of Progress	Stop Time	Action
weather Optimize	1		7 FAAB-0E0E	Lost	Standard Update							
Remote Update	2		? fAAB-1A1A	Connected	Standard Update							
	3		? fAAB-1818	Lost	Standard Update							
	4		? fAAB-181A	Connected	Standard Update							
	5		? cCaa-175F66	Lost	Standard Update							
	6		? cCaa-186169	Lost	Standard Update							
	7		? ccaa-160B0B	Lost	Standard Update							
	8		? cCaa-18626B	Connected	Standard Update							
	9		? eAAB-1919	Connected	Standard Update							

**Step 2:** Log into the EG4 Electronics Monitor System. Select "Maintenance," and then select "Remote Update."

EGUELECTRONICS		Ø Monitor	) Data		Configuration	n O	88 verview	ස් Maintenance			
Remote Set		Station Serial	number 🗙	Q	Online De	vice 🗹 Auto F	Reload				
	Fin	mware File: Plea	ise choose a file	(	Choose file Uple	oad File Uplo	ad BMS File				
Batch Set	Serial number Dongle		FW Code		Connect Statu Action			Serial number	Mode	Firmv	
Set Record	1	1234567890	XX12345678	?	XXXX-XXXX	Connected	Update	Standard Update			20
	2			?			Update	Standard Update			
Remote Update	3			?			Update	Standard Update			
Lindata Dacard	4			?			Update	Standard Update			
update Record	5			?			Update	Standard Update			
UL Compliance	6			?			Update	Standard Update			
	7			?			Update	Standard Update			
	8			?			Update	Standard Update			
	9			?			Update	Standard 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.

# CHANGELOG

#### Version 1.0

• First version completed



# CONTACT US

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