EG4® FLEXBOSS SCREEN KIT

QUICK-START GUIDE



1. PRODUCT OVERVIEW

1.1 PACKING LIST

- Remote LCD Screen
- Ribbon Cable Extension
- Cable Adapter
- 3M Clips (x3)
- Mounting Plate





2. INSTALLATION

1. While the FlexBOSS is de-energized, remove the three screws on the plastic arc flash cover.



2. Locate the ribbon cable on the communication board. There will be a "CN 21" silk screened to the bottom right of the point of connection. Carefully open the clamps by spreading both sides of the clamp and unplug the topmost ribbon cable. See image below.



DANGER!

Do not disconnect any other wiring/cabling on the communications board. This will void the warranty!



- 3. Connect the provided cable adapter to the end of the inverter's ribbon cable and close both sides around the cable.
- 4. Connect the end of the LCD's ribbon cable to the cable adapter and close both sides around the cable.



NOTE:

Check all cable connections. If the clamps around the cables are not secure, the LCD screen will not function properly.

5. Using the hole in the arc flash cover, carefully thread the ribbon cable through, then reattach the cover using the three screws from step 1.



IMPORTANT:

At this point, it is recommended to attach the 3M clips together and apply the sticky side to the back of the screen, and then the other sticky side to the temporary mounting location (optional).

- 6. Connect the end of the ribbon cable extension to the top of the LCD screen.
- 7. *Optional*: Mount the LCD screen to a temporary mounting location to complete commissioning.







- 8. Turn on the FlexBOSS by following the steps below and ensure the LCD screen turns on:
 - a. Turn on the BAT breaker located in the cable box of the inverter and then power on the battery system one battery at a time.
 - b. Turn on the PV isolator switches between the inverter and array and then turn on the PV switch on the side of the inverter.
 - c. Turn on the grid power breaker if applicable.



NOTE:

If the LCD screen does not turn on, re-perform steps 1-8 checking that all cable connections are secure.

- 9. Once commissioning is complete, perform the following:
 - a. De-energize the FlexBOSS.
 - b. Remove the plastic arc flash cover.
 - c. Disconnect the LCD cable in Step 2 from the adapter, and re-install onto the communication board. Ensure the retention clamps are closed and the cable is secure.
 - d. Remove the LCD, LCD ribbon cable extension and cable adapter from the FlexBOSS.
 - e. Reattach the arc flash cover using the 3 screws from Step 1.
 - f. Power on the FlexBOSS following the instructions from Step 8.

3. LCD SETTING DESCRIPTION

Touch the screen to wake it up. There are four (4) icons along the bottom to navigate to each of the areas described below.



3.1 HOME

After waking up the screen, the home page will show on the screen by default. Users will see a system overview diagram along with the real-time information of each component, such as battery SOC, battery charging/discharging power, grid import/export power, load power, etc. On the right side of the screen, users can view:



- 1. PV Energy: The amount of PV energy produced, both daily and accumulated.
- 2. Charge Energy: The amount of DC energy added to battery storage, both daily and accumulated.
- 3. Export: The amount of AC energy exported to the grid, both daily and accumulated.
- 4. Consumption: The amount of AC energy consumed by loads, both daily and accumulated.

3.2 STATUS

Select the pie icon at the bottom of the screen to view detailed real-time system information; used for system monitoring by installers and distributors. Visit eg4electronics.com for more detailed information.

Solar

The voltage (V), power (W), and amount of energy (kWh) created by each string currently, per day, and over the lifetime of the system.



Battery

Detailed battery data, including battery voltage (V), current (I), and power (W).

	Vbat	Ibat	
Solar	Pchg	Pdischg	
Battery	Vbat_Inv	BatState	
Buttery	SOC/SOH	CycleCnt	
Grid	Vchgref/Vcut	Bat capacity	
<u></u>	I maxchg	I maxdischg	
UPS	Vcellmax	Vcellmin	
	Tcellmax(°C)	Tcellmin(°C)	
Other	BMSEvent1	BMSEvent2	
	Echg_day	Edischg_day	
	Echg_all	Edischg_all	
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Grid

Detailed information about energy imported and exported from the grid.

UPS

Detailed information about energy used on loads (Line 1 to Neutral and Line 2 to N), including voltage (V), power (W), and energy (kWh).

Other

Detailed information about the inverter.

3.3 ALARM/FAULT

Select the bell icon at the bottom of the screen to see historical and current fault and alarm information. If the dot on the left of the fault item is red, the fault is active. When the dot is grey, the fault is inactive.

Model fault rsed Bus short circuit M3 Tx failure PV volt high PV short circuit In consistant ror Para master loss ParaPhase set error MID Breaker open Fault C	Eps short circuit Relay fault Vbus over range Hard over Curr Temperature fault M&Rx fault Para rating Diff Para Gen unAccord Fault A Fault D SN: LCD Version:	Fault st Alarm st Fault rec Alarm rec	atus Bat Com failu Meter Com failu Lcd Com failu Bat reversed Trip by Fac abm Cord Bat volt high Offgrid overloo Offgrid dov hig Para Phase los	re AFCI Com failure Bat fault Trip by no AC armal Trip by iso low h PV short circuit Bat volt low ad Offgrid overvolt gh RSD Active is Para no BM set	AFCI high Auto test failure Fan stuck Trip by Vac abnorm Trip by gfci high GFCI module fault Bat open MID Com failure Gen over load Para multi BM see SN : LCD Version:
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Fault C	Fault D SN : LCD Version:	a	Para Phase los	Para no BM set	Para multi BM set SN : LCD Version:
•	SN : LCD Version:		&	<u></u>	SN : LCD Version:
					LOD Version.
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de Erro	or time	Fault st	atus	code	Alarm time
		Alarmst	atus 3		
		Faultree	cord 4		
			5		
		Alarm re	ecord 6		
			7		
			8		
			9		
	~		9 10		
			Alarm re	Alarm record 7 8	Alarm record 7 8

Solar	VgridL1N	VgridL2N
Battery		
Dattery	Pimport	Pexport
Grid	Pinv	Prec
	Pload	
UPS	Eimport_day	Eexport_day
	Eimport_all	Eexport_all
Other	Einv_day	Erec_day
	Einv_all	Erec_all
	Eload_day	Eload_all





3.4 SETTINGS

Select the gear icon at the bottom of the screen to alter inverter settings.

Basic

Basic	Standby:		Restart inverte	r [Reset
Charge					
Discharge					
Advanced					
Debug					
Device info.					
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- **"Standby**": This setting is to set the inverter to normal or standby status. In standby status, the inverter will stop any charging, discharging, or solar feed-in operations. Some settings and features will require the system to be in standby mode before enabling.
- "**Restart Inverter**": This selection restarts the system. Restarting the inverter will also reset the screen when connected.

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NOTE:

Power will be interrupted when the unit is restarted.

Charge

Basic	Operating Mode Use S	SOC % Use Bat V S	set
Charge	Bat charge current limit(A)		
Discharge	AC charge	According to SOC/Volt	et
	AC charge power(kW)	Start AC charge SOC(%)	
Advanced	Time 1	Start AC charge Volt (V)	
Debug	Time 2	Stop AC charge SOC(%)	
Device info.	Time 3	Stop AC charge Volt (V)	~
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- "Operating Mode": Users can choose "Use SOC%" or "Use Bat V" to control the battery charge logic.
- **"Bat**. charge current limit (A)": Set the maximum charge current. Limit can be set up to 250A. Follow battery manufacturer's recommendations for this setting.
- "AC Charge": Grid charge configuration. Enable AC Charge to use grid power to charge the battery bank and set up to three different time periods (in 24-hour format) when AC charging can happen. Set "AC charge power (kW)" to limit grid charging power. Set "Stop AC charge SOC (%)" as the target SOC for grid charging or set "Stop AC charge Volt (V)" as the target battery voltage for grid charging.

Basic	Charge first(PV)		Set
	Time 1	Charge first power(kW)	
Charge	Time 2	Stop charge first SOC(%)	
Discharge	Time 3	Stop charge first Volt(V)	
	Lead-acid		
Advanced	Absorb voltage(V)	Float voltage(V)	Set
Debug	Start derate Volt(V)		
Device info.			^
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- "Charge first (PV)": PV charge configuration. PV will charge the battery bank first. Set up to three different time periods when PV charge can happen. "Charge first power (kW)" sets PV charge power. "Stop charge first SOC(%)/Volt(V)" sets the target SOC/Volt for PV Charge First Priority.
- "Lead-Acid": When using a lead-acid battery, charging parameters will be input here. Follow the battery manufacturer's recommendations for these settings.

Discharge

Basic	Operating Mode Use	SOC % Use Bat V Set
Charge	Discharge current limit(A)	Discharge start power(W)
	On-grid Cut-off(%)	Off-grid Cut-off(%)
Discharge	On-grid Cut-off(V)	Off-grid Cut-off(V)
Advanced	Forced discharge	Set
Debug	Time1	Discharge power(kW)
	Time 2	Stop discharge SOC(%)
Device info.	Time 3	Stop discharge Volt(V)
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- "Operating Mode": Users can choose "Use SOC%" or "Use Bat V" to control the battery discharge logic.
- "Discharge current limit(A)": The maximum discharge current from the battery. Limit can be set up to 250A. Follow battery manufacturer's recommendations for these settings.
- "Discharge start power(W)": When the inverter detects the import power from the grid is higher than this value, the battery will take the loads; otherwise, the battery will stay in standby. The minimum value can be set to 50.
- "On-grid Cut-off(%), Off-grid Cut-off(%)/On-grid Cut-off(V), Off-grid Cut-off(V)": Choose when to stop discharging the battery bank when on or off-grid based on SOC or voltage. The on-grid values should be greater than the off-grid value.
- **"Forced discharge**": This setting will force the battery to discharge within the programmed time periods. During the time period, the inverter will discharge the battery at the power set by **"Discharge Power(kW)**" until battery SOC or voltage reaches **"Stop discharge**" value.

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NOTE:

When using EG4[®] batteries with the FlexBOSS inverter, it is recommended to set the cut-off SOC to 20% to maintain the 80% Depth of Discharge (DOD).

Basic	Grid peak-shaving		Set
Charge	Time1	Time2	
Charge	Power1(kW)	Start SOC1(%)	Start Volt1(V)
Discharge	Power2(kW)	Start SOC2(%)	Start Volt2(V)
Advanced			
Debug			
Device info.			^
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• "Grid peak-shaving": Peak-shaving is used to avoid peak demand charges from the grid. Peak-shaving can be accomplished by halting grid usage at Time1 and Time2, and Power1(kW) and Power2(kW). Grid peak-shaving can start at Start SOC 1 and Start SOC2(%), or Start Volt1 or Volt2(V).

Advanced

IMPORTANT:

The following settings may need to be adjusted by the installer after installation. Consult with the installer/distributor before making any changes to avoid conflicting settings or **damage to the system**!

Basic	Grid ty	/pe		~	Grid Freq	~	Set
Charge	Grid r	egulation		~	Reconnect time(S)	
Charge	HV1	V	S HV2	V	S HV3	V	S
Discharge	LV1	V	S LV2	V	S LV3	V	S
Advanced	HF1	Hz	S HF2	Hz	s HF3	Hz	S
Advanced	LF1	Hz	S LF2	Hz	s LF3	Hz	S
Debug	Batter	y type		~		Set	^
Device info.	Lithiur	m brand		~ L	ead capacity(Al	n)	
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- "Grid type": Choose the grid type 240/120V or 208/120V.
- "Grid Freq": Default frequency is 60Hz. If the grid frequency is nominal at 50Hz, then the inverter's frequency will be adjusted to 50Hz automatically. If there is no grid power, and frequency is read as 50Hz, but the devices are 60Hz, set to 60Hz manually. This is based on the rated frequency of the local grid regulation and devices.
- "Grid regulation": Select the correct grid safety regulation.
- "Reconnect time(S)": Select the amount of time in seconds to reconnect to the grid after connection is lost. EG4[®] recommends setting this at 300 seconds to avoid damage to the system.

• "Battery type": Select "No battery", "Lead-acid", or "Lithium". If "Lead-acid" battery is selected, input the correct "Lead capacity (Ah)". If "Lithium" battery is selected, choose the "Lithium brand" in the drop-down list.

Basic	PV input	✓ Meter or CT	~	Set
Charge	MODBUS addr	Meter type CT ratio	* *	
Discharge	Offgrid output	CT direction reversed		Set
Advanced	Seamless switch	Charge last RS	D disable	
Debug	No Battery	Micro-grid		
	Run without grid		Set	
Device info.	PVArc	PV Arc fault clear	Set	~
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- "PV input": The connection type for solar modules.
- "Meter or CT": Select how energy is measured coming in and out of the inverter. If using a third-party meter, select "Meter". If using the CTs that come with the inverter, select "CT".
- "MODBUS addr": Communication settings.
- "Meter type": The type of third-party meter used to measure energy production/consumption.
- "Vpv start (V)": Voltage at which the MPPT utilizes solar for loads/charging.
- "CT ratio": Select 3000:1, 2000:1, or 1000:1. The CTs provided with the inverter are 3000:1.
- "Offgrid output": Enabling this setting will cause the inverter to provide backup power if the grid is lost and batteries are charged or PV is present.
- "CT direction reversed": Occurs when both CTs are installed in the wrong direction; the installer can remedy this by checking this box.
- "Seamless switch": Must be enabled to transfer the load seamlessly to the inverter backup power if the grid is lost.
- "Charge last": Uses solar power in the following order: 1. Loads > 2. Grid export > 3. Battery charging.

Note: Grid export limits must be set through grid peak-shaving settings under "Discharge Settings".

- **"RSD disable**": When this box is checked, the RSD function will not work. *Note:* Only use this when performing maintenance on the RSD wiring or switch (button).
- "No Battery": If users do not have a battery bank installed yet, but still wish to have inverter backup power with only solar panels connected, this setting can be enabled. Use solar power to supply load when the grid fails, or during Grid Peak-shaving periods.
- "Micro-grid": Only set when a generator is connected to the inverter's grid terminal. With this option enabled, the inverter will use AC power to charge the battery bank and will not export any power through the grid terminal if AC power is present.

- **"Run without grid":** Enable for nominal off-grid operations while utilizing AC input as a backup power source, allowing for absolute zero export.
- "**PV Arc**": The inverter will detect when there is an arc fault on the PV inputs in order to protect itself from potential damage.
- "PV Arc fault clear": Clear the records of PV arc fault.

Basic	Export to Grid Max Export to Grid(kW) Set
Charge	Zero Export
	Parallel system
Discharge	Role v Phase v Set
Advanced	Parallel battery
Debug	Share battery Set Auto Detect Phase Reset
Device info.	Grid Boss Set
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- "Export to Grid": This selection is to set a zero-export function. If exporting power is not allowed, disable the "Export to Grid" option. If a user's grid meter is tripped with minimal export, "Zero Export" can be enabled, thus, the export detection and adjustment will take place every 20ms, which will effectively avoid any power being exported. If export is allowed, users can enable "Export to Grid" and set a maximum allowable export limit in "Max. Export to Grid(kW)".
- "Role": In a parallel system, only one inverter is allowed to be set as "Master", and the others are set as "Slaves". Inverter is set to "1 phase master" by default.
- **"Phase**": The phase code setting of the load output. The system will automatically detect the phase sequence of the inverter (consistent with the phase sequence of the connected the grid mains) and display it on the inverter after it is connected to the grid.
- "Share battery": If all inverters are connected to the same battery bank when configured as a parallel system, this setting must be enabled. If the inverters are configured as a parallel system, and are connected to independent battery banks, this setting must be disabled.
- "Auto Detect Phase": Autodetect the phase for three-phase systems.
- "Grid Boss": Set when using with GridBOSS.

REMINDER:

- When configuring two or more inverters in parallel, the inverters must be in standby mode.
- If the system is connected to a lithium battery, the host of the battery bank needs to communicate with the inverter that is set as Master in the parallel system.
- Ensure all settings are the same between each inverter in parallel!

Debug

Frequently asked questions for simple troubleshooting issues. Press the question on the screen to see the answers for each question. If an issue is not addressed on this page, contact the distributor.

Basic	FAQ:	
	Why doesn't the battery discharge?	
Charge		
Discharge	Why doesn't the battery charge?	
Advanced	Why does no power flow out from Grid terminals?	
Debug		
Device info.	why is there no output from the EPS terminal?	
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Device Info.

Basic	Time Set yyyy-mm-dd hr:min:sec
Charge	Backlight time(S) Set
	Model
Discharge	Serial number
Advanced	Firmware version
	Build version
Debug	LCD version
Device info.	Image version 9
	Icon version
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- **"Time**": The format for inputting the time is the four-digit year, two-digit month, two-digit day. Followed by the two-digit hour, two-digit minute, and two-digit second (in 24-hour format).
- "Backlight time(S)": How long the backlight on the LCD will stay lit.
- "Inverter information": This information is not editable. It will update as the inverter is updated. For more information on how to update the inverter, see the inverter's documentation.
- "LCD Version": This information is not editable. For more information on how to update the LCD screen, see the following section.

Expand

#4

#5

#6

#8

#9

#7

Open in new tab

Pin to Quick access Pin to Start

7 Open in new

🐣 Format...

Liect

Properties

Capacity:

3.74 GE

File syst

FAT32 (Default

4096 bytes Restore device defaults Volume label

Format options

Start

67 Show more option

4. UPDATING THE LCD SCREEN

To update the screen, follow the steps below:



NOTE:

The callout numbers below correlate to the steps taken.

FORMATTING FLASH DRIVE:

Ensure the USB flash drive is ≤16GB for file system compatibility.

- 1. Plug in a USB drive to a Windows computer.
- 2. Navigate to "File Explorer".
- 3. Locate the USB drive location in the left side pane of File Explorer.
- 4. Right-click the USB drive and select "Format".
- 5. The capacity should reflect the size of the USB drive automatically but if not, ensure "Capacity:" is set to 2, 4, 8 or 16GB.
- 6. File system: Set to FAT32.
- 7. Allocation unit size: Set to 4096 bytes.
- 8. Deselect the "Quick Format" checkbox.
- 9. Click "Start".



- 1. Download the latest LCD firmware from eg4electronics.com.
- 2. Once downloaded, right-click and unzip the downloaded file to the desktop.
- 3. Once unzipped, open the folder located on the desktop.
- 4. Select the "DWIN_SET" folder and copy it.
- 5. Navigate to the USB drive through File Explorer.
- 6. Paste the "DWIN_SET" folder to the USB Drive.
- 7. Safely remove the USB drive.

INSTALLING THE UPDATE:

- 1. Power off the inverter and plug the flash drive into the USB port on the side of the LCD screen.
- 2. Power on the inverter. The update should begin automatically. The unit will display the start-up screen for several minutes while applying the update.
- 3. After several minutes (~3), the screen will restart itself and will then point to the standard home screen.
- 4. Remove the USB drive from the screen.
- 5. To ensure the update went through successfully, the user can check the LCD Version number in the lower-right hand corner of the physical display, or on the Device Info. screen. The Version number will go up by one digit if the update was successful.



5. CHANGELOG

v1.0.3

- Modified packing list from 3M Dual Lock Re-Closable Fasteners to 3M Clips
- Modified step 2 in section 2 for clarity

v1.0.2

- Modified step 9 in section 2 for additional clarity
- Added step 10 to section 2 for additional clarity

v1.0.1

• Modified final screen mounting location in section 2

v1.0

• Published v1.0



CONTACT US

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