



**BigBattery.com**  
Your Source For Power

# USER MANUAL



Applies to:

48V KONG  
(FKONG-48120-G1)

48V KONG Elite Plus  
(FKONG-48170-G1)

48V KONG Elite  
(FKONG-48150-G1)

48V KONG Elite Max  
(FKONG-48190-G1)

Version 1.0

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## 1. Introduction

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Introducing BigBattery's KONG family! Each battery in the 48V KONG family is a massive single battery, packing a whopping 12 kWh of capacity in our KONG, and up to 19 kWh of capacity in our KONG Elite Max! These are the BEST Batteries Money can Buy. These units utilize Lithium Iron Phosphate (LiFePO<sub>4</sub>/LFP), which is the SAFEST battery chemistry in the World. This User Manual is designed to provide you with an understanding of the specs, features, capabilities, and installation of these batteries. Read and take note of all safety information prior to installing or operating your battery. This document applies to the BigBattery KONG (FKONG-48120-G1), KONG Elite (FKONG-48150-G1), KONG Elite Plus (FKONG-48170-G1), and KONG Elite Max (FKONG-48190-G1).

## 2. Features & Applications

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### Applications:

- Solar
- Home
- Cabin Off-Grid
- Backup Power

### Features:

- Advanced BMS (Battery Management System)
- Lithium-Ion LiFePO<sub>4</sub>/LFP Chemistry
- Easy connection to a larger power system
- Multiple layers of safety and battery protection
- High quality & durable steel construction
- Utilizes standardized 175-amp connector for battery power source
- LED Smart Display

BigBattery's KONG family of batteries is the ultimate solution for your solar systems, off-grid power systems, emergency power supplies, and more. These batteries come equipped with an advanced BMS, and can operate safely within a wide temperature range. They will last you at least 3,700 – 8,000 Complete Full Charge/Discharge Cycles, and are incredibly versatile, allowing you to easily connect to and provide power to a variety of larger power systems. The battery utilizes a standard 175 connection, which easily and safely secures power to your battery unit.

You can always monitor your battery's health and performance with the LED interface located on the side of the unit, which will display BMS status codes alerting you to the condition of your battery. Equipped with one of our KONG family batteries from BigBattery, you'll stay powered and prepared!

## 3. Product Specifications

### 3.1 Battery Specs

Parameter	Specification	Unit
<b>Chemistry</b>	Lithium Iron Phosphate,	LiFePO4/LFP
<b>Cell Configuration</b>	16S	n/a
<b>Nominal Voltage</b>	48	Volts (DC)
<b>Capacity(Ah) - KONG</b>	233	Amp-hours
<b>Capacity(Ah) - KONG Elite</b>	300	Amp-hours
<b>Capacity(Ah) - KONG Elite Plus</b>	332	Amp-hours
<b>Capacity(Ah) - KONG Elite Max</b>	372	Amp-hours
<b>Capacity(kWh) - KONG</b>	12.0	Kilowatt-hours
<b>Capacity(kWh) - KONG Elite</b>	15.0	Kilowatt-hours
<b>Capacity(kWh) - KONG Elite Plus</b>	17.0	Kilowatt-hours
<b>Capacity(kWh) - KONG Elite Max</b>	19.0	Kilowatt-hours
<b>Operating Voltage Range</b>	43 – 58.8	Volts (DC)
<b>Charging Voltage Range</b>	55.6 - 58.0	Volts (DC)
<b>Max Charging Voltage</b>	58.8	Volts (DC)
<b>⚠ WARNING: Do NOT exceed max charging voltage.</b>		
<b>Charging Current Limit (Continuous)</b>	90	Amps
<b>Discharging Current Limit (Continuous)</b>	150	Amps
<b>Max Peak Discharge Current (Over 6 seconds)</b>	350	Amps
<b>Charge Temp Range</b>	0 - 55 (32 - 131)	°C (°F)
<b>Discharge Temp Range</b>	-30 - 55 (-22 - 131)	°C (°F)
<b>Optimal Discharge Temp Range</b>	15 - 35 (59 - 95)	°C (°F)
<b>Storage Temperature Range (Max 6 months) (Humidity &lt; 90%)</b>	-5 - 35 (23 - 95)	°C (°F)
<b>Optimal Storage Temp Range</b>	15 - 35 (59 - 95)	°C (°F)
<b>Weight</b>	273 (600)	kg (lb)
<b>Length</b>	64.8 (25.5)	cm (in)

<b>Width</b>	38.1 (15)	cm (in)
<b>Height</b>	118.1 (46.5)	cm (in)
<b>Safety Features</b>	BMS (Battery Management System), Over Voltage, Under Voltage, Over-Current Protection, Thermal Management System, 300A Fuse	
<b>Max Battery Connections</b>	Series: Not series capable Parallel: Max. 8 connections	

## 3.2 BMS Specs

Category	Function	Specification	Unit
<b>Charge Voltage Protection</b>	<b>Maximum Charger Voltage (CC-CV)</b>	58.8	Volts (DC)
	<b>Overcharge Voltage Limit Cutoff Protection (each cell)</b>	3.8	Volts (DC)
	<b>Overcharge Voltage Limit Protection Delay Time</b>	2000	Milliseconds
	<b>Overcharge Protection Recovery Voltage</b>	3.45	Volts (DC)
<b>Discharge Voltage Protection</b>	<b>Low Voltage Protection Limit Range</b>	2.5 - 2.7	Volts (DC)
	<b>Low Voltage Protection Delay Time</b>	2000	Milliseconds
	<b>Low Voltage Protection Recovery</b>	3.0	Volts (DC)
<b>Overcurrent Protection</b>	<b>Charge Overcurrent Protection Value Range</b>	270 - 330	Amps
	<b>Charge Overcurrent Delay</b>	10	Seconds
	<b>Charge Overcurrent Release Recovery Condition</b>	Reconnection delayed 120 seconds	
	<b>Scenario 1: Discharge Overcurrent Protection</b>	300	Amps
	<b>Scenario 1: Discharge Overcurrent Protection Delay</b>	10	Seconds
	<b>Scenario 2 (Short Circuit):</b>	800 - 1200	Amps









	<b>Discharge Overcurrent Protection Range</b>		
	<b>Scenario 2 (Short Circuit): Discharge Overcurrent Protection Delay Range</b>	600 - 1800	Milliseconds
	<b>Discharge Overcurrent Protection Recovery Condition</b>	Reconnection delayed 120 seconds	
<b>Balance Function</b>	<b>Minimum Cell Voltage to Activate Cell Balancing</b>	3.35	Volts (DC)
	<b>Voltage Difference to Activate Cell Balancing</b>	10	Millivolts (DC)
	<b>Balancing Mode</b>	Balance when charging	
	<b>Balancing Current Range</b>	100 - 260	Milliamps
<b>Temperature Protection</b>	<b>High Temperature Protection Value when Charging</b>	65 (149)	°C (°F)
	<b>High Temperature Protection Release Value when Charging</b>	55 (131)	°C (°F)
	<b>Low Temperature Protection Value when Charging</b>	-2 (28.4)	°C (°F)
	<b>Low Temperature Protection Release Value when Charging</b>	3 (37.4)	°C (°F)
	<b>High Temperature Protection Value when Discharging</b>	75 (167)	°C (°F)
	<b>High Temperature Protection Release Value when Discharging</b>	65 (149)	°C (°F)
	<b>Low Temperature Protection Value when Discharging</b>	-20 (-4)	°C (°F)
	<b>Low Temperature Protection Release Value when Discharging</b>	-10 (14)	°C (°F)
<b>Resistance</b>	<b>Resistance in the Discharge Circuit Range</b>	5 - 10	Milliohms
<b>Self-Power Consumption</b>	<b>Operating Mode Range (relay closed)</b>	35 - 50	Microamps
	<b>Sleep Mode</b>	0.5	Microamps
	<b>Sleep Conditions</b>	No current, communication, or prolonged protection states	
	<b>Time to Sleep Mode</b>	18 hours	

## 4. Warnings & Precautions








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Lithium Iron Phosphate (LiFePO<sub>4</sub>) batteries are an inherently safe chemistry. However, safety measures should always be taken. Adhere to the instructions within this User Manual for safe handling and operation.

### Warnings:

-  Indoor use only.
-  Do not charge with a charge voltage above 58.8V.
-  Do not charge nor discharge battery when ambient temperature is above **55 °C (131 °F)**.
-  Do not install battery where it may contact conductive materials, water, seawater, strong oxidizers, nor strong acids.
-  Do not install battery in a location exposed to direct sun, hot surfaces, nor hot locations. Do not install batteries in a tight clearance compartment, overheating may result.
-  Keep any flammable/combustible material (e.g. paper, cloth, plastic, etc.) that may be ignited by heat, sparks, flames, or any other heat source at a minimum distance of two feet away from the batteries.
-  Disconnect batteries immediately if, during operation or charging, they emit an unusual smell, develop heat, or behave abnormally.
-  Have a Class ABC or Class BC fire extinguisher on the premises.

### Precautions:

-  Handle batteries and/or battery-powered devices cautiously to not damage the battery casing or connections.
-  Do not charge battery if ambient temperature is below **0 °C (32 °F)**, nor discharge battery if ambient temperature is below **-30 °C (-22 °F)**.
-  Before storing battery for more than 6 months, charge the battery to 53V or above.
-  For long-term storage, disconnect batteries from your power system. Always wear protective gear when handling batteries.
-  Do not place any objects on top of batteries.
-  Make sure all cable connections are properly tightened.
-  Install and remove batteries using the handles provided.



## 5. Parts & Components

**⚠ WARNING:** Before installing, make sure to review all warnings and precautions in Section 4, as well as the installation safety guidelines in Section 5.1 below.

### 5.1 Installation Safety Guidelines

- Inspect batteries upon receipt for any signs of damage before use.
- Check to ensure that all cables are in good condition.
- Use a screwdriver with a rubber coated handle.
- When your battery has been charging and has come to maximum charge (up to 58.8V max.), your battery may experience a slight voltage drop either immediately or within the hour after unplugging. This is normal and should be no cause for concern.

### 5.2 Parts & Components

General	
<p><b>Battery Unit (1)</b> 64.8 x 38.1 x 118.1 cm (25.5 x 15 x 46.5 in)</p>	
<p><b>Ring Terminal to 175-amp connector cable (1)</b> 101.6 cm (40 in)</p>	



## 5.3 Battery Installation

### Step 1:

Determine the best location to accommodate your battery unit for operation.

### Step 2:

Connect the ring terminals of your 175-amp Ring Terminal connector cable to the rest of your power system.

### Step 3:

Connect the standardized connector side of your 175-amp Ring Terminal connector cable to the receiving connector located on the battery unit.

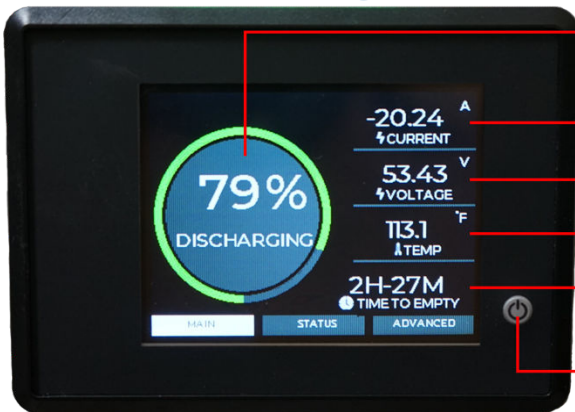
### Step 4:

Turn the battery on by pressing the power button located on the LED screen.

## 6. Battery Interface

### 6.1 Overview

#### Main Page



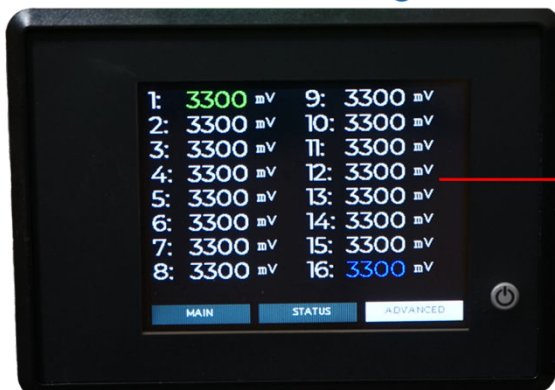
- Energy percentage
- Charging/Discharging amperage (+ when charging, - when discharging)
- Voltage
- Temperature (F°)
- Est. time until empty
- Display wake-up button

#### Status Page



- Total Ah charged/discharged this cycle
- On/Off button (discharging)
- On/Off button (charging)
- Cycle count
- Max./Min. temp. (F°) since turning on
- Battery status (see code descriptions below)

#### Advanced Page



- Voltage for each cell

## 6.2 BMS Codes

Symbol	Category	Description
COV	Voltage Protection	Over voltage protection by battery cell level
CUV	Voltage Protection	Under voltage protection by battery cell level
POVP	Voltage Protection	Whole pack over voltage protection
PUVP	Voltage Protection	Whole pack under voltage protection
COCP	Temperature Protection	Over temperature protection while charging
CUTP	Temperature Protection	Under temperature protection while charging
DOCP	Temperature Protection	Over temperature protection while discharging
DUTP	Temperature Protection	Under temperature protection while discharging
COTP	Current Protection	Overcurrent protection while charging
SC	Short Circuit	Short circuit protection
LOCK	Status	Lock status
NOMAL	Status	Normal status

## 7. Recycling

Please dispose of LiFePO4 batteries at an authorized lithium recycling facility, or return to BigBattery. We can take care of recycling your batteries for you.

## 8. Warranty & Returns

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In the unlikely event you are having an issue with one of our batteries we have developed a straightforward warranty & return policy which includes the following:

- For all returns or warranty claims contact [support@bigbattery.com](mailto:support@bigbattery.com).
- 30-day money back guarantee. Returns of undamaged batteries unrelated to warranty claims may be issued full refunds less a 20% restocking fee.
- We have a 10-year warranty on all new batteries. For more information, visit the Policies page at BigBattery.com.
- We offer a 30-day warranty on all cells, accessories & complimentary products (Anderson connectors, wires, chargers, etc.).
- Warranty only applies to original owner (non-transferable).
- Warranties can be used for an exchange of a component only once per component.
- Operating the battery outside of acceptable parameters, according to our listed battery specs (ref. Section 3.1) will void your warranty.
  - Example: Using an incorrect charger may exceed max. charging voltage specifications.
  - **WARNING:** Make sure to use the appropriate charger for your battery.
- Customer pays return shipping on returns or warranted component inspections initiated after the first 30 days of ownership. Please note some battery returns may require special documentation and packaging, and these instances will encounter extra fees. This is to correctly comply with lithium battery shipping regulations.
- If you have a quality issue with a product, please contact our support team to help properly diagnose the problem. If the product you receive does not meet our rigorous quality standards, then we will issue you a replacement component or fix the original at no additional cost. Replacement batteries or components will only be sent after we have received your returned battery or component and finished an inspection to determine the cause of any problems. BigBattery is not responsible for return shipping.
- DIY modifications or damage due to gross negligence or abuse are not covered by the warranty.

For all returns, please mail your package in a traceable method to the address below. Include a note with your name, your order number and describing your situation and/or request.

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