



# **USER MANUAL**

**EX-AURA001**

**EX-AURA002**

## **DISCLAIMER**

While every precaution has been taken to ensure the accuracy of the contents of this guide, Expion360 assumes no responsibility for errors or omissions. Note as well that specifications and product functionalities may change without notice.

## **IMPORTANT**

Please be sure to read the entire manual before using the products. Misuse may result in damaging the products, causing harm, or incurring serious injury. Read this manual in its entirety before using the products. Instead of saving this manual, check this manual on the Expion360 website for any updates and future reference.

## **ABOUT US**

- **Safety**

Expion360 lithium batteries use lithium iron phosphate (LiFePO<sub>4</sub>/LFP) chemistry, which is the best choice for RV, marine, and off-grid power storage applications, because of its high degree of safety and long cycle life.

- **Quality**

With all the Li-ion players in the market, Expion360 strives to ensure that our products meet the highest quality standards to maintain our advantage over the competition. Expion360 battery uses cylindrical 26650, stainless steel encased LiFePO<sub>4</sub> cells. The cells are UL 1642 recognized (File No. MH64383). They are certified to the highest standard in safety and performance. Instead of soldering, all internal cables are mechanically connected to reduce resistance and ensure robust connections.

The Expion360 proprietary case contains internal structural support to protect the battery pack and BMS inside from the effects of vibration and movement. The innovative oversized terminals and bus bars provide substantial electrical connections to accommodate high ampacity cables.

**Please Read Each Warning Carefully to Prevent Damage to the Unit and Injury to Operators.**

**Ignoring Warnings Voids Warranty.**

**WARNINGS:**

- **DO NOT connect non-compatible batteries to the unit.**
- **DO NOT drop the unit.**
- **DO NOT open the unit.**
- **DO NOT short-circuit the unit.**
- **DO NOT block vents of the unit.**
- **DO NOT attempt to repair by non-certified parties.**
- **DO NOT insert any foreign objects into any openings.**
- **DO NOT use any third-party electrical parts with the unit.**
- **DO NOT expose the unit to dirt, fire, liquid, extremely hot, or extremely cold.**
- **DO NOT operate/store the unit outside the stated specifications of the manual.**

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# 1. Overview

## 1.1 Parts and Accessories

- **In the Box**

1x	Portable Power Station Module	2x	Portable Mounting Bracket
1x	7A AC Charger	2x	Stationary Mounting Bracket
1x	MPPT Charging Cable Adapter	2x	M8 PH3 Screws
1x	Thank You Card	4x	Hex Screws

- **Tools**

Required: Torque Wrench, 13mm Socket, 2mm HEX Wrench

Optional: 1/2 Socket, 14mm Wrench, 9/16 Wrench, PH3 Driver, Drill

- **Accessories**

The accessories below are not included. Can be purchased separately.

### 1. Mounts

#### AURA Powercap 600

G24 battery Single Mounting Kit (EX-G24-TDS)

#### AURA Powercap 800

G27 battery Single Mounting Kit (EX-G24-TDS)

### 2. Solar Chargers

#### AURA Powercap 600

120W Solar Charging Kit, including:

120W Portable Solar Panel (EX-PSP-120W)

10A MPPT Solar Charger (EX-10ASC)

#### AURA Powercap 800

30A MPPT Solar Charger (EX-30ASC)

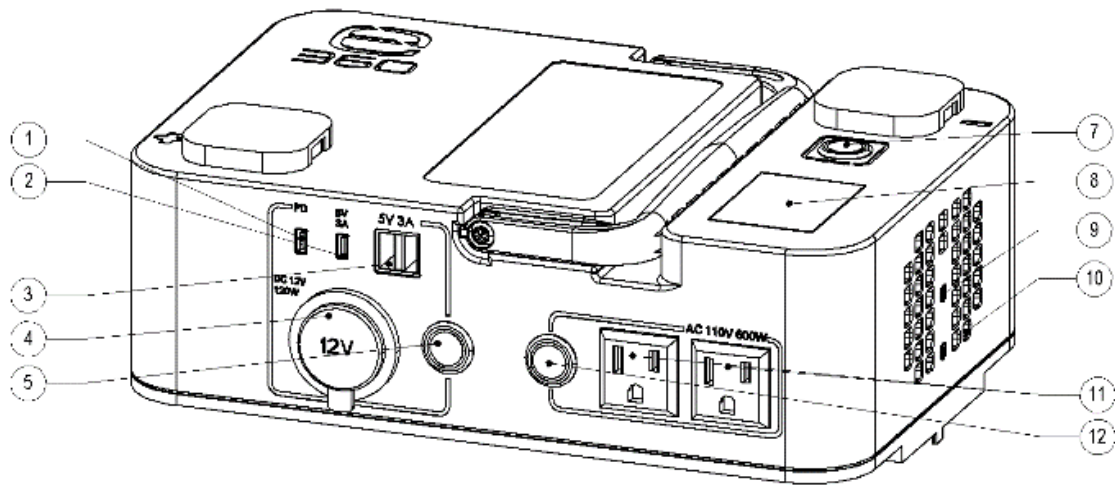
### 3. Cables

Solar Panel Extension Cable – 8ft (EX-CA-SAE001)

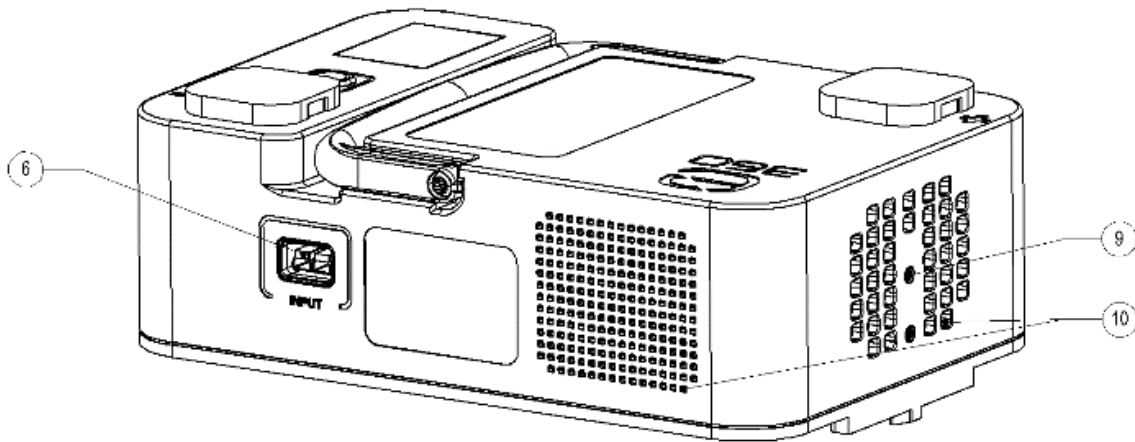
Solar Panel Extension Cable – 16ft (EX-CA-SAE002)

## 1.2 Unit Diagram

- Front View

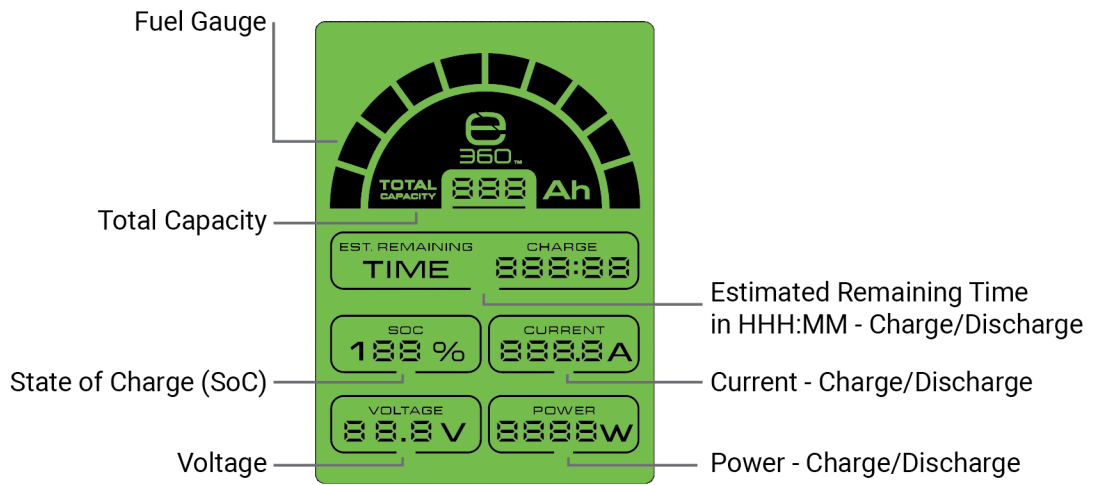


- Back View



- |   |                     |    |                             |
|---|---------------------|----|-----------------------------|
| 1 | PD Port             | 7  | Power Switch                |
| 2 | USB-C Port          | 8  | Display                     |
| 3 | USB-A Port          | 9  | Mounting Bracket Nut Insert |
| 4 | 12V DC Port         | 10 | Vent                        |
| 5 | DC/Converter Switch | 11 | 110V AC Output              |
| 6 | Input Port          | 12 | AC/Inverter Switch          |

### 1.3 Display

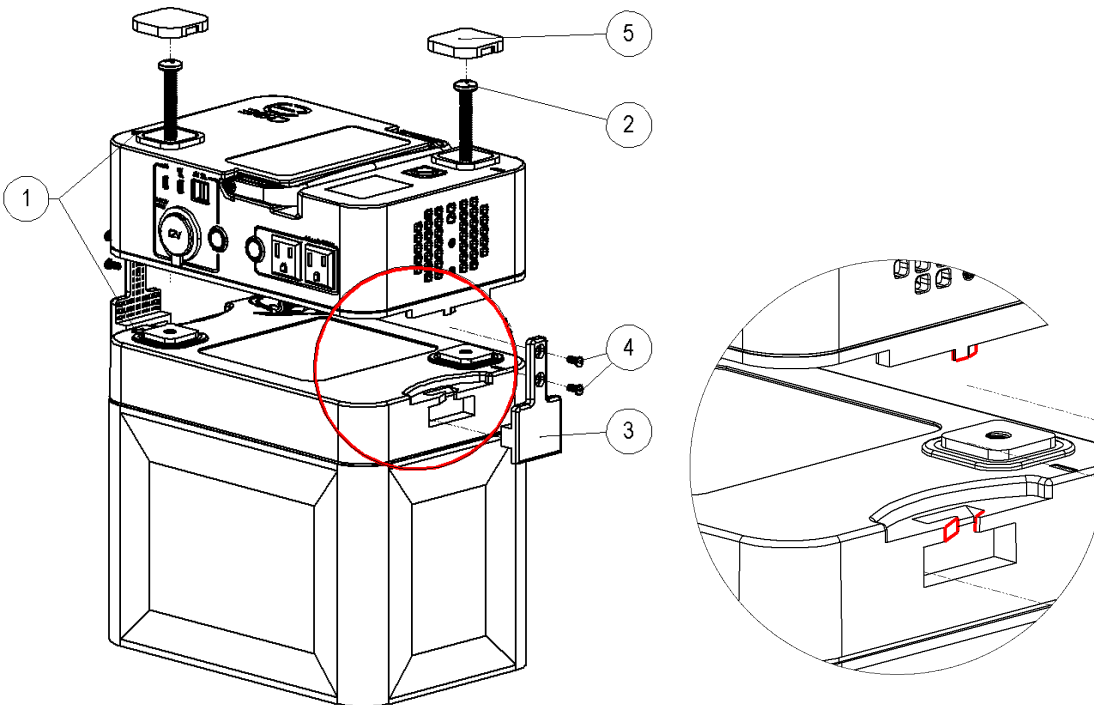


## 1.4 Installation

**AURA Powercap 600 Portable Power Station 600W Module is Only Compatible with Expion360 Group 24 batteries.**

**AURA Powercap 800 Portable Power Station 800W Module is Only Compatible with Expion360 Group 27 batteries.**

- **Portable Installation**



**Before installation, make sure all the switches are in the OFF position (flush and LED off).**

**Do Not tighten two terminals at the same time.**

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P1 Make sure Aura and the Expion360 battery are in the same orientation. The **POSITIVE** terminal of Aura must align the **POSITIVE** terminal ① on the battery. The anti-fool feature on Aura and battery (highlighted in the detail view) helps the correct alignment. If Aura is not resting securely on the battery, stop installing. Turn Aura 180° and check the alignment before proceeding.

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P2 Insert M8 screw ② into each terminal.

Use a 13mm Socket to tighten screws to 8lb-ft/96lb-in (10.85Nm). Do not overtight.

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P3 Insert the Portable Mounting Bracket ③ on each side.

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P4 Tight the bracket with HEX screws ④ on each side to 30lb-in (3.5Nm). Do not overtight.

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P5 Snap the dust cover ⑤ back to each terminal.

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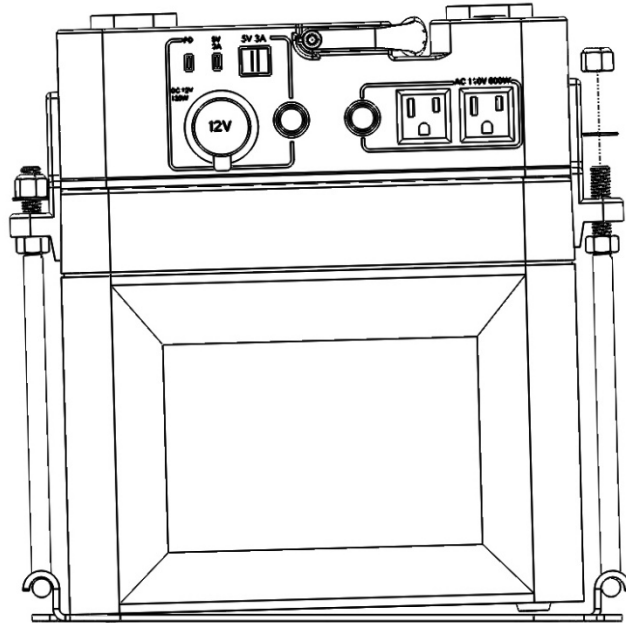
Follow the same procedure for installing AURA Powercap 800 with Expion360 Group 27 batteries.



- **Stationary Installation**

**AURA Powercap 600 Portable Power Station 600W Module is Only Compatible with Expion360 Group 24 batteries.**

**AURA Powercap 800 Portable Power Station 800W Module is Only Compatible with Expion360 Group 27 batteries.**



**Before installation, make sure all the switches are in the OFF position (flush and LED off).**

**Do Not tighten two terminals at the same time.**

- 
- S1 Replace the Portable Mounting Bracket with the Stationary Mounting Bracket. Then follow the same procedure from P1 to P5.

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  - S2 Slightly lift one side.  
Insert the T-bolt through the tab on the Mounting Base Plate, the Stationary Mounting Bracket, and a flat washer. Loosely tight the nut.  
Do the same on another side.

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  - S3 Lay the unit flat and tighten the nuts on both sides using a 14mm or 9/16" wrench. Do not over-tight.

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  - S4 Before securing the fully assembled unit, Leave at least 2in (5cm) from each side to the closest objects. Make sure the installation location is vented and above 32°F (0°C).

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  - S5 The installation orientation is limited to upward only. Do not install the unit on its side or upside down. Fasteners for securing the Mounting Base Plate are not included. Depending on the different types of surfaces, use the proper fasteners. Drill pilot holes if needed and follow the fastener manufacturer's guide.

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Follow the same procedure for installing AURA Powercap 800 with Expion360 Group 27 batteries.

## 2. Specifications - AURA Powercap 600

<b>General</b>	
Unit Dimensions (Power Module Only)	10.2 in * 6.9 in * 3.8 in (258 mm * 177 mm * 97 mm)
Install Dimensions (With EX-G24 Battery Only)	10.6 in * 6.9 in * 12.1 in (270 mm * 177 mm * 306 mm)
Unit Weigh (Power Module Only)	6 lb (2.8 kg)
Install Weigh (With EX-G24 Battery)	25 lb (11.5 kg) with EX-G24-60C 30 lb (13.7 kg) with EX-G24-80C 31 lb (14.2 kg) with EX-G24-95XDP
Idle Power Loss	≤ 10 W
Communication	Build-in Display / BT
Operating Temperature	-4 °F to 104 °F (-20 °C to 40 °C)
Cooling	Push-Pull Fans
<b>Charging</b>	
Charging Temperature	32 °F to 104 °F (0 °C to 40 °C)
AC Charger	100 W
Solar Charger (not Included)	120 W
<b>DC Input</b>	
Nominal Voltage	12.8 V
Rated Current	80 A @ 12 V
Compatible Battery	EX-G24-60C/80C/95XDP
<b>DC Output</b>	
12 V DC Port	120 W (12 V 10 A)
USB-A	15 W (5 V 3 A)
USB-C / Type-C	15 W (5 V 3 A)
Power Delivery (PD) 3.0	100 W (5/9/15 V 3 A, 20 V 5 A)
<b>AC Output</b>	
Nominal Voltage	110 Vac
Nominal Frequency	60 Hz
Rated Power	600 W @ 77°F (25 °C)
Surge	660 W (3 s) / 900 W (50 ms)
<b>Protection</b>	
DC Input Over Current	110 A
DC Input Low Voltage	10.6 V
DC Input Over Voltage	15.0 V
AC Output Over Current	6 Aac
Input Short Circuit	Internal Fused
Output Short Circuit	Programmed
<b>Display</b>	
Current Tolerance	± 1 A

## 3. Operation

### 3.1 Initialization

Depending on the application, AURA Powercap 600 and 800 can be installed with different capacities of Expion360 Group 24 and 27 batteries. The pre-set total capacity on AURA Powercap 600 or 800 may not match the battery capacity.

Expion360 Group 24 battery has capacities of 60, 80, and 95Ah.

Expion360 Group 27 battery has capacities of 100 and 120Ah.

It is very important to update the total capacity for accurate reading of the Fuel Gauge, Estimated Remaining Time of Charging or Discharging, and State of Charge (SoC). Please refer to [Sec. 4 Bluetooth and App](#) for details about updating total capacity.

After updating the total capacities of the AURA Power Station, turn on the power and charge the unit until the voltage is higher than 14.2V so that SoC is initialized correctly.

### 3.2 Charging

The unit can be charged with AC or solar panels. Make sure the batteries are above 32°F (0°C) before charging. For accurate SoC calculation, disconnect loads, turn off the AC and DC switches, and turn on the power switch.

- **AC Charging**

Plug the Anderson port (the port with red and black) into the AURA Powercap Input port. Plug the AC plug into the wall outlet. The LED indicator on the charger will turn red when charging. The charger will automatically stop charging, and the LED indicator will turn green when finished.

The estimated charging time is calculated as

*Charging time = Total Capacity/Charging Current.*

E.g.,  $60Ah/7A = 8.6h$ .

For faster AC charging, please upgrade to 20A AC Charger.

- **Car Charging**

For vehicles with an onboard inverter, check the power rating of the onboard inverter and AC Charger. If the onboard inverter power rating is lower than the AC Charger power rating, stop immediately. Otherwise, follow the instructions of vehicle manufacturers for AC Charging.

- **Solar Charging**

1. **Solar Charging Kit**

The solar charging kit is not included in the package. Please refer to [Sec. 1.1 Parts and Accessories](#) for details. The AURA Powercap 600 is limited to use with one 10A Maximum Power Point Tracking (MPPT) Solar Charger (EX-10ASC) and one 120W Portable Solar Panel (EX-PSP-120W). For a higher solar charge rate, please choose AURA Powercap 800 with one 30A MPPT Solar Charger (EX-30ASC). For the details about MPPT Solar Charger, please refer to the MPPT Solar Charger Manual.

The Solar Panel Extension Cables have 8ft and 16ft two different lengths. Choose the correct length for the installation or connect multiple cables for a longer extension. Try to minimize the length and quantity of extension cable for the best performance.

2. **Solar Charging Quick Guidance**

Solar charging performance is affected by many factors, such as solar irradiation, cloud overage, shade, solar panel tilt angle, solar panel temperature, solar panel dust coverage, etc. For any factor changes, the MPPT charger takes about 30s to find the new maximum power point before starting to charge.

To maximize the solar charging performance, try to set up the solar panel where it is clear of clouds, with no shading, and wipe off the dust from the surface if needed. When setting up the solar panel at the optimal location, make sure the solar panel is tilted and normal to the sun. The back side of the panel needs to be clear of obstacles with good airflow.

As the sun moves throughout the day, the solar panel's normal direction may need to be adjusted for maximum charging performance.

If the charging process is unattended throughout the day, ensure the unit is secured from wind, rain, and theft. Position the solar panel to the south and tilt the panel based on the latitude and the day of year.

### **3.3 Discharging**

Turn on the DC/Converter switch to enable the DC output ports. Turn on the AC/Inverter switch to enable the AC output ports. Turn off the DC/Converter or AC/Inverter switch when DC or AC ports are not in use to reduce power loss.

DO NOT exceed the power rating on each port. Always check the power rating of the load before connecting.

### **3.4 Storage**

Power off the unit and store at 14°F to 104°F (-10°C to 40°C) and RH 5% to 90%. Always check the voltage and recharge the unit before the next trip.

### 3.5 Warning

- **DC Switch LED off**

The whole DC output encounters over current, overload, low voltage, or over temperature protections.

- **AC Switch LED off**

AC output encounters over current, low voltage, high voltage, over temperature, or output short circuit protections.

### 3.6 Trouble Shooting

- **Input Low Voltage**

Turn off DC and AC switches. Disconnect the load and connect Aura to the charger. Turn on the switches when the voltage is higher than 11V.

- **Input Over Voltage**

Turn off the AC switch. Disconnect charger. Turn on the AC switch when the voltage is lower than 14.6V.

- **Input Over Current**

Turn off the DC or AC switches. Wait for 3 seconds. Turn on the DC or AC switch.

- **Output Over Current**

Turn off the DC or AC switch. Disconnect load. Wait for 3 seconds. Turn on the DC or AC switch.

- **Over Temperature**

Turn off the DC or AC switch. Disconnect load. Cool down the unit to 195 °F (90°C). Do not block the vents. Check the load power rating. Turn on the DC or AC switch. Operate the unit in a cooler location.

- **Output Short Circuit**

Turn off the AC switch. Disconnect the load. Turn on the AC switch.

- **Input Short Circuit**

Warranty voided. Contact Expion360 technical support for further assistance.

## 4. Bluetooth and App

Please refer to the Expion360 App Walkthrough for details.

## 5. Warranty

The AURA Powercap 600 and AURA Powercap 800 have a 2-year limited warranty which begins on the date of purchase for the original owner solely. Product registration and Return Merchandise Authorization (RMA) are required for warranty claims. Valid warranty claims can only be applied once. Upon receiving the unit, Expion360 will repair or replace the unit if defects in material or workmanship are determined to be the cause of the malfunction, or Expion360 will deny or charge a reasonable amount for repair and shipping.

The warranty does not cover normal wear, non-quality issues, and misuse - especially the warnings stated in this manual. The warranty also does not cover the following conditions, including but limited to:

- Improper installation.
- No valid proof of purchase (stolen/free unit, purchased from unauthorized dealer/seller)
- Damage caused by mother nature (e.g., fire, flood, earthquake, ...) or accident (e.g., drop, loss, ...).

### WARRANTY DISCLAIMER

This limited warranty represents the total liability of Expion360. All other warranties implied by law applicable to the unit shall be limited to the warranty period stated. Expion360 makes no other warranties, express or implied, including the implied warranties of merchantability or fitness for a particular purpose. Expion360 shall not be liable for any indirect, special, incidental, or consequential damages.

### LEGAL RIGHTS

Some states do not allow limitations on how long an implied warranty lasts or exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights that vary from state to state. This warranty shall be governed by and interpreted by the laws of the State of Oregon. This warranty is understood to be the exclusive agreement between the parties relating to the subject matter hereof. No employee or representative of Expion360 is authorized to make any warranty in addition to those made in this agreement.