

# Emberpulse™

BBBA-US-BE-01

embertec®



## User Manual

PATENTS GRANTED AND PATENTS PENDING

V1

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# Introduction

Congratulations on your purchase of an Emberpulse™.

Your Emberpulse™ constantly monitors the energy usage in your home, showing you how much you are consuming and how much you are paying. Together with the Emberpulse™ cloud system, it shows you ways to manage your energy usage to save money on your electricity bill and help the environment.

The Emberpulse™ also provides you with advanced home automation, enabling lights, air conditioning and other home appliances to be monitored and controlled automatically and conveniently whether you are at home or not.\*

\*home automation features may require additional equipment.

# Prerequisites

Before continuing with the installation of your Emberpulse™, please confirm you have the minimum requirements below:

1. An active Internet connection
2. Router with working Wi-Fi or Ethernet connection
3. A computing device such as a notebook, desktop computer, smartphone or tablet, loaded with a web browser such as Internet Explorer, Google Chrome, Mozilla Firefox, Opera or Safari.

## Packing List

1. Emberpulse™
2. Emberpulse™ stand
3. AC power adapter
4. Ethernet cable
5. User manual

## Safety Instructions

- Not to be used outside or in wet areas. Warning: Failure to comply with this warning may result in injury or death.
- Avoid impact or rough handling that will lead to damage.
- Do not disassemble. No user serviceable parts inside.
- To ensure exposure limits to radio frequency fields, the product should be placed not closer than 8 inches from body during operation.

# Hardware



Number	Interface	Description
1	Pulse light	The pulse light provides a simple customizable visual reference to show you: <ul style="list-style-type: none"><li>• your current electricity tariff</li><li>• your usage compared to typical homes</li><li>• your usage compared to your budget</li><li>• your usage compared to your past usage.</li></ul>
2	Hand wave sensor	Wave hand within 0.5 inches of this sensor to activate the pulse light if it has timed-out
3	Reset button	Used to reset the Emberpulse™
4	Power jack	Connection for AC power adapter
5	Ethernet port	Connection for Ethernet cable, to allow connection to home router

# Initial Setup

## 1. Sign up to Emberpulse™ cloud

To enjoy the full experience of your Emberpulse™ you must create an account at emberpulse.com or have an existing Emberpulse™ cloud login.

## 2. Plug in your Emberpulse™

- Plug the jack of the AC power adapter into the rear of the Emberpulse™.
- Plug the AC power adapter into a standard wall outlet, and ensure the outlet is turned on.
- The pulse light should glow a magenta color.

## 3. Connecting your Emberpulse™ to Emberpulse™ cloud

To access your Emberpulse™, you must connect it to your home's Internet router.

The Emberpulse™ can be connected to your home router via Ethernet cable or Wi-Fi.

You can access Emberpulse™ cloud via an Apple or Android smartphone or tablet, or via another computing device such as a notebook or desktop computer.

### 3.1 Connect via cable

- Connect the supplied Ethernet cable between Emberpulse™ and your home router.
- The pulse light will change from a steady magenta to a flashing magenta to indicate successful internet connection. If this change does not happen, check that your home router has an internet connection.

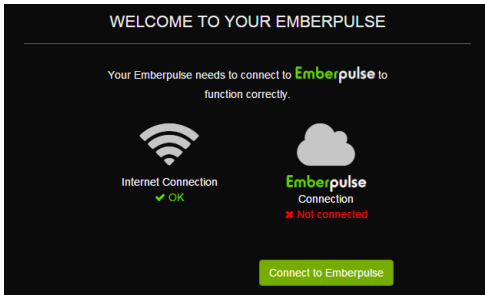
### If accessing Emberpulse™ cloud using an Apple or Android smartphone or tablet:

- Download the Emberpulse™ app from either the Apple Store (iOS) or the Google Play store (Android).
- Ensure your smartphone or tablet has a connection to your home Wi-Fi network.

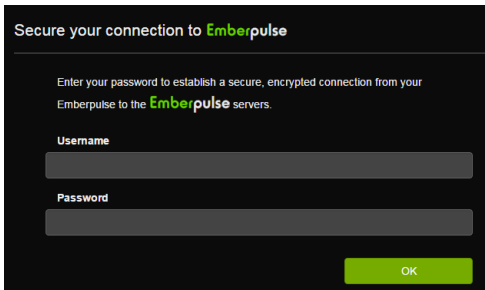
- Open the Emberpulse™ app on your smartphone or tablet.
- You will be asked for your Emberpulse™ cloud username and password to connect the app and the Emberpulse™ unit to Emberpulse™ cloud.

**If accessing Emberpulse™ cloud using any other computing device:**

- Connect your computing device to you home network.
- Enter “emberpulse.local” in to a browser address bar.



- Click the “Connect to Emberpulse” button

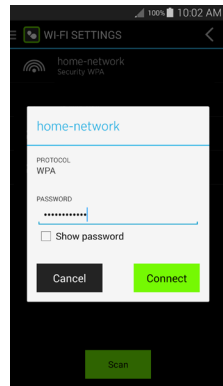
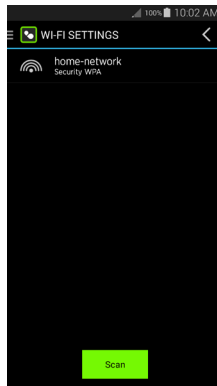


- Enter your Emberpulse™ cloud username and password.

## 3.2. Connect via Wi-Fi

If accessing Emberpulse™ cloud using an Apple or Android smartphone or tablet:

- Download the Emberpulse™ app from either the Apple Store (iOS) or the Google Play store (Android)
- Scan for available Wi-Fi networks using your smartphone or tablet
- A Wi-Fi hotspot named “hello-emberpulse” should be available. Connect to this hotspot. If the “hello-emberpulse” hotspot is not found, repeat the scanning process
- Open the Emberpulse™ app on your smartphone or tablet
- You will be asked for your Emberpulse™ cloud username and password to connect the app to Emberpulse™ cloud
- Touch the Emberpulse™ logo at the top left of the app screen
- Select “Wi-Fi Settings” from the menu which appears
- Enter the details of your home Wi-Fi network
- Click “Connect”. Your Emberpulse™ will now connect to your home Wi-Fi network
- The Emberpulse™ pulse light will now flash magenta to indicate successful internet connection.

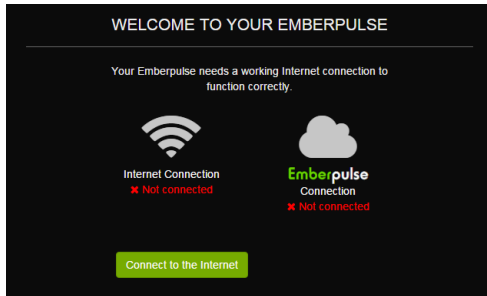


- Using the Wi-Fi settings on your smartphone or tablet, re-connect it to your home Wi-Fi network.
- The app will search for your Emberpulse™ and ask for your Emberpulse™ cloud user name and password again to connect your Emberpulse™ to Emberpulse™ cloud.

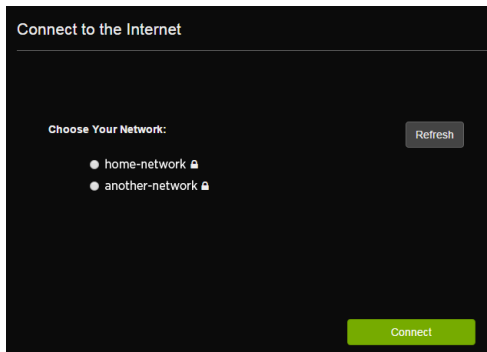


## If accessing Emberpulse™ cloud using any other computing device:

- Scan for available Wi-Fi networks using your computing device.
- A Wi-Fi hotspot named “hello-emberpulse” should be available. Connect to this hotspot. If the “hello-emberpulse” hotspot is not found, repeat the scanning process.
- Open a browser window on your computing device.
- Enter “emberpulse.local” in to a browser address bar.

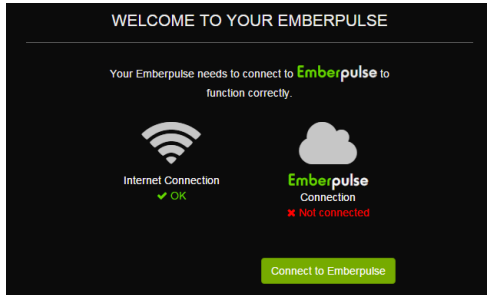


- Select “Connect to the Internet” button

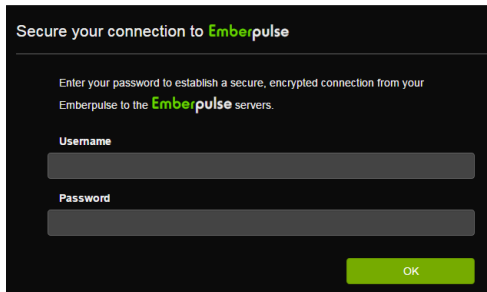


- Select your home Wi-Fi network from the list and click “Connect”
- Enter the details of your home Wi-Fi network
- Click “Connect”. Your Emberpulse™ will now connect to your home Wi-Fi network

- The Emberpulse™ pulse light will now flash magenta to indicate successful Internet connection
- Re-connect your computing device to your home Wi-Fi network
- Enter Emberpulse.local in to a browser address bar and refresh the screen.



- Click the “Connect to Emberpulse” button



- Enter your Emberpulse™ cloud username and password.

## 4. Connecting your Emberpulse™ to your electricity meter

### Pre-ordered connection to meter

In some regions, Embertec® can organize connection of Emberpulse™ to your meter at the time you order Emberpulse™. If you organized with Embertec® to pre-order this connection, your Emberpulse™ should automatically connect to your smart meter within 5 to 10 minutes of powering up. Then, after you have registered with Emberpulse™ cloud, usage data will appear on the mobile app and on your emberpulse.com account.

## Manual connection to meter

- To set up the connection from Emberpulse™ to your meter, you will need the following information:
  - ▶ The “MAC” number, located on the sticker on the rear of Emberpulse™
  - ▶ The “Code” number, located on the sticker on the rear of Emberpulse™
  - ▶ A recent electricity bill
- Go to [emberpulse.com/meter-connect](http://emberpulse.com/meter-connect) for detailed instructions, specific to your electricity supplier.

# Operation

## Emberpulse™ pulsing speed

Emberpulse™ uses pulsing light to provide a simple visual reference about your home’s energy use. Your Emberpulse™ will indicate your electricity consumption and generation by pulsing at different speeds.

### A fast pulsing light indicates:

electricity is flowing quickly through your meter.

### A slow pulsing light indicates:

electricity is flowing slowly through your meter.

Normally, your home is consuming energy from the grid. At these times, a faster pulsing light indicates your home is consuming electricity at a fast rate. A slower pulsing light indicates your home is consuming relatively little electricity from the grid.

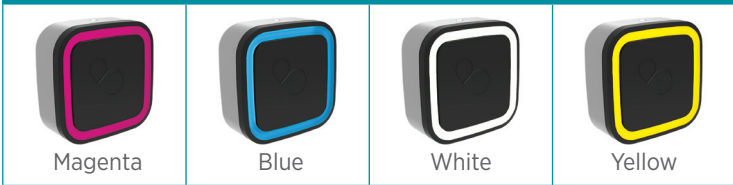
If you have a solar power system, you may, at times, be a net exporter of energy to the grid. During these times, you will see a yellow light alternating with green, orange or red. A faster pulsing light indicates your home is exporting a relatively large amount of electricity to the grid. A slower pulsing light means your home is exporting a relatively small amount of electricity to the grid.

## Emberpulse™ pulsing color

The Emberpulse™ uses colored pulsating lights to communicate real-time information. Different light colors are used to communicate different information such as energy usage and network status. There are two sets of indicators; system indicators and customizable energy indicators. The meaning behind each indicator is explained on the following pages.

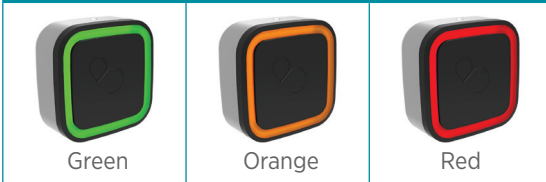
### System color indicators (4)

Refer to the system color indicators table





### Customizable color indicators (3)

Refer to the energy monitoring objectives table



## Emberpulse™ system color indicators

The Emberpulse's system color indicators are magenta, blue, white and yellow. Below are the meanings behind each indicator.

System color indicators		
Color	Pulse behavior	Meaning
 Magenta	Constant steady light	The device has just been powered on or it has no Internet connection. Expect a change after 60-90 seconds of power up when the device has finished booting. If no change after this time, check your Internet connection.
	Flashing quickly	The device has a network connection but cannot contact the Emberpulse™ web server.
 Magenta alternating with Blue	Slowly alternating	Your Emberpulse™ needs to be replaced. Please contact Embertec® customer support.
 White	Flashing quickly	Only applicable if your Emberpulse™ is connected to a compatible Emberplug®/strip. Your Emberplug®/strip is about to turn off. If you want it to remain on, press a volume button on your nearby audio-visual remote control.
 Yellow	Alternating with one of the customizable color indicators	Your home is currently exporting solar generated energy to the grid. Yellow will always be seen alternating with either green, orange or red. For the meaning of the green, orange or red lights, refer to the subsequent customizable color indicator section.
No color activity	None	If there has been no color activity for some time, this indicates the Emberpulse™ has gone to sleep; OR has lost power. To wake the Emberpulse™, wave your hand over the top of Emberpulse™ unit, within 0.5 inches of the surface.

## Emberpulse™ customizable color indicators

The Emberpulse's customizable color indicators are green, orange and red. These customizable colors can be paired with your energy monitoring objectives. This allows you to monitor the energy activity most important to you.

### Your customized energy monitoring objectives include:

- 1. Current electricity tariff:** Shows you how much you are paying for electricity at this moment
- 2. Typical home comparison:** Shows you how your usage compares to a typical household
- 3. Budget position:** Shows you how you are tracking against your budget
- 4. Historic usage position:** Shows you how you are tracking against your past usage.







Simply choose the energy objective you wish to monitor and set your choice via the settings in your Emberpulse account. Access these settings via either the web interface or the mobile app.

View the meaning of each customized color indicator on the next page.

## Energy monitoring objectives (1-2)

Color	1. Current electricity tariff	2. Typical home comparison
 Green	You are currently using electricity on a low tariff rate.	Your electricity usage is less than a similar comparable home.
 Green alternating with Yellow	You are currently using electricity on a low tariff rate. AND Your home is exporting electricity to the grid.	Your electricity usage is less than a similar comparable home. AND Your home is exporting electricity to the grid.
 Orange	You are currently using electricity on a medium level tariff rate.	Your electricity usage is just more than a similar comparable home.
 Orange alternating with Yellow	You are currently using electricity on a medium level tariff rate. AND Your home is exporting electricity to the grid.	Your electricity usage is just more than a similar comparable home. AND Your home is exporting electricity to the grid.
 Red	You are currently using electricity on a high tariff rate.	Your electricity usage is much more than a comparable home.
 Red alternating with Yellow	You are currently using electricity on a high tariff rate. AND Your home is exporting electricity to the grid.	Your electricity usage is much more than a comparable home. AND Your home is exporting electricity to the grid.

## Energy monitoring objectives (3-4)

Color	3. Budget position	4. Historic usage position
 Green	Your electricity usage is on target to be less than your nominated budget.	Your electricity usage is on target to be less than your past usage.
 Green alternating with Yellow	Your electricity usage is on target to be less than your nominated budget. AND Your home is exporting electricity to the grid.	Your electricity usage is on target to be less than your past usage. AND Your home is exporting electricity to the grid.
 Orange	Your electricity usage is on target to be just over your nominated budget.	Your electricity usage is on target to be just over your past usage.
 Orange alternating with Yellow	Your electricity usage is on target to be just over your nominated budget. AND Your home is exporting electricity to the grid.	Your electricity usage is on target to be just over your past usage. AND Your home is exporting electricity to the grid.
 Red	Your electricity usage is on target to be less than your nominated budget.	Your electricity usage is on target to be significantly over your past usage.
 Red alternating with Yellow	Your electricity usage is on target to be significantly over your nominated budget. AND Your home is exporting electricity to the grid.	Your electricity usage is on target to be significantly over your past usage. AND Your home is exporting electricity to the grid.



## Initiating a factory reset

Occasionally Emberpulse™ may become unresponsive and all attempts to resolve this may be unsuccessful. If this is the case, a factory reset of Emberpulse™ may be necessary.

To initiate a full factory reset, the reset pin on the side of Emberpulse™ must be pressed and held in for 5 seconds, then released.

## FAQs

### **Q: What do I need to start using Emberpulse™?**

A: To use the Emberpulse™, you will need a smart meter with ZigBee enabled Home Area Network (HAN), a broadband Internet connection and a power socket. You can download the Emberpulse™ mobile app free of charge using a smartphone or tablet from the Apple Store (iOS) or Google Play (Android). The Emberpulse™ can also be used without a mobile app, by accessing the web site [emberpulse.com](http://emberpulse.com)

### **Q: How is Emberpulse™ connected to my electrical system?**

A: Emberpulse™ uses standard electricity outlet supply (110V/60Hz) power and reads data from your smart electricity meter using the ZigBee wireless protocol. Emberpulse™ is not wired into your home circuit box and does not require an electrician to install.

### **Q: Do I need to go through the installation and setup process every time I want to check my home's power usage?**

A: No, just once. After installation and setup, each time you log on to the Emberpulse™ web interface or use the Emberpulse™ mobile app, you will be able to check on your home energy usage.

**Q: What should I do if I cannot access <http://emberpulse.local> to configure the Emberpulse™**

A: Check the following:

- The Emberpulse™ is powered on
- Your home network is working properly. For example, check that you can access an Internet web page from a laptop or desktop computer
- If you are using Emberpulse™ in a wired configuration (available with model BBBA only), check the Ethernet cable connection between the Emberpulse™ and your home router
- Check that your phone, tablet or computer has Wi-Fi enabled. Then try to connect to the Wi-Fi network called “hello-emberpulse”. Note you will be disconnected from your home network Wi-Fi when you do this
- Are you trying to access <http://emberpulse.local> using a web browser on an Android device? If yes, you will need to download the Android Emberpulse™ app from the Google Play store or use a web browser from a laptop, PC, or Apple device to complete the Emberpulse™ configuration steps.

**Q: I configured the Emberpulse™ successfully, but now my Internet is not working. What should I check?**

A: If you have configured the Emberpulse™ using the wireless option, you were instructed to connect your phone, tablet or computer to the “hello-emberpulse” network. Now you will need to re-connect your phone, tablet or computer to your normal home network, using the network settings on your device.

**Q: What should I do if my Emberpulse™ continually connects and disconnects from my Wi-Fi network?**

A: Try moving the Emberpulse™ closer to the Wi-Fi router, install a Wi-Fi range extender device or use a wired Ethernet connection (available with model BBBA only).

**Q: My Emberpulse™ is continually disconnecting and reconnecting with my electricity meter. What should I do?**

A: The signal between your Emberpulse™ and your smart meter is being interrupted. Try the following:

- try moving the Emberpulse™ closer to the electricity meter
- check that there are no large metal objects between the Emberpulse™ and the electricity meter
- check that a microwave oven is not between the Emberpulse™ and the electricity meter

**Q: How far can I have my Emberpulse™ from my electricity meter?**

A: That depends on many factors, such as the amount and type of material between the two. Try to minimize the number of walls and other objects in a direct line between the Emberpulse™ and the meter. Embertec® has successfully tested connections over 160 feet apart (50 meters).

**Q: Why is the cost of my electricity bill different from the information in the Emberpulse™ system?**

A: First, ensure that the tariff rates and billing period dates entered into the Emberpulse™ system are correct. You can do this by comparing the rates in the Emberpulse™ system with those listed on a recent bill from your electricity provider. Also please remember that costs calculated by the Emberpulse™ system are approximate and do not take into account:

- Connection/supply fees
- Taxes
- Discounts
- Credit card fees

**Q: What do the colors and pulse rates of the pulse light mean?**

A: Please refer to the operation section of this manual.

**Q: Will my Emberpulse™ be able to meter energy use in individual appliances?**

A: To meter individual appliances, please visit the online Embertec® store to purchase Emberpulse™ compatible smart sockets, Emberplugs and Emberstrips.

**Q: I live in an apartment and the meter is located in the basement, will my Emberpulse™ still work?**

A: If the meter is too far from the Emberpulse™, you may experience issues with connectivity between the meter and the Emberpulse™. If this is the case, you may need to install a ZigBee Smart Energy profile version 1.1 (SEP 1.1) range extender.

**Q: Can I use more than one Emberpulse™ at a time?**

A: Only one Emberpulse™ should be used in the home. There is no added benefit to using more than one.

**Q: Does my Emberpulse™ have to be connected to the Internet?**

A: Yes, the Emberpulse™ relies on an Internet connection to operate.

**Q: What happens if I lose Internet connection?**

A: The pulse light of the Emberpulse™ will show a steady magenta color. No data will be sent to the Emberpulse™ web site or app. However the Emberpulse™ will continue to read and store data from the smart meter, and send the data to the Emberpulse™ system next time you re-connect the Internet.

**Q: Will the Emberpulse™ work outside Australia/USA?**

A: Emberpulse™ is currently only supported in Australia and the USA.

**Q: How do I make sure my Emberpulse™ firmware and app are up to date?**

A: Emberpulse™ will update its own firmware if required, as long as it is connected to the Internet. Update your app in the same way as you update other apps on your phone or tablet.

## Electrical Specifications

Model	
Model Numbers:	BBBA-US-BE-01
Warranty:	2 years
Physical	
Dimensions:	3.4in W x 3.4in H x 1.5in D (87mm W x 87mm H x 37mm D)
Weight:	0.4 lbs (180g)
Color:	Black front face, Silver back
Package Contents:	Emberpulse™ unit, stand, Ethernet cable, AC power adapter, user manual
Environmental	
Temperature (operating):	32 °F to +104 °F (0 °C to +40 °C)
Temperature (storage):	-4 °F to +158 °F (-20 °C to +70 °C)
Humidity:	< 85% RH at +104 °F (+40 °C)
Electrical	
Operating Voltage:	5V DC via supplied AC power adapter
Communications Interfaces	
Wired:	RJ45 Ethernet connector
Wireless:	Wi-Fi 802.11a/b/g/n @ 2.4 GHz Zigbee Smart Energy Profile 1.1 @ 2.4 GHz Zigbee Home Automation Profile @ 2.4 GHz Bluetooth Low Energy @ 2.4 GHz
Security	
Emberpulse™ to Electricity Meter communications:	Secured via Zigbee Smart Energy Profile
Wi-Fi communications:	WEP WPA WPA2 TKIP
Emberpulse™ system data transfer and messaging:	TLS1.2 RSA-2048 key + SHA1 signature

Due to continual improvement in design or otherwise, the product you purchase may differ slightly from the products shown in this information sheet.

# Specifications



This device is Bluetooth compatible. The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Embertec® is under license.

This ZigBee® Certified product works with other ZigBee Smart Energy™ version 1.1 (or prior versions) products. This device works with: Smart meters Global 2.4 GHz wireless use: ZigBee® Certified is a registered trademark of the ZigBee Alliance.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**NOTE:** This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

**WARNING:** Any changes or modifications not expressly approved by Embertec Pty Ltd could void the user's authority to operate this equipment.

# Warranty

Except as limited here, this product warranty covers any defect in material or workmanship with the Embertec® Emberpulse™. If the initial purchase is by a utility or other entity that will not itself be using the device, this warranty is transferable to any customer of such entity who subsequently owns the device who will then be the End User. Otherwise, this warranty is not transferable.

This warranty runs for two years from the date of installation of the Embertec® Emberpulse™.

Subject to the limitations set forth herein, we will elect (at our option) to either repair or replace the defective device. Products may be replaced by refurbished goods of the same or equivalent type. We will ship the repaired or replacement device to you, and pay for those shipping costs.

This warranty does not cover any damage to the Embertec® Emberpulse™ caused by improper use, accidents, acts of God (such as lightning strikes, floods or earthquakes), or normal wear and tear. For purposes of this warranty, "improper use" means not installing or operating the device in accordance with the manual. This warranty is void if there is evidence of the product being tampered with by unauthorized persons. Any incidental, consequential, special or other indirect damages are not recoverable under this warranty. Some states do not allow the exclusion of incidental or consequential damages, so the foregoing limitation may not apply to you.

To request service under this warranty for your Embertec® Emberpulse™, contact our customer service team by calling **800.838.9659** or by email at [customerservice@embertec.com](mailto:customerservice@embertec.com) and provide us with a brief description of the problem.

This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

**Embertec USA LLC**

Suite 100, 2105 South Bascom Avenue,  
Campbell, CA 95008

**Phone:** 800.838.9659

**Web:** [embertec.com](http://embertec.com)

**Email:** [customerservice@embertec.com](mailto:customerservice@embertec.com)



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