TOTALLY RENEWABLE DENMARK

HOME ENERGY AUDIT KIT MANUAL

Green Skills Inc
Working for a sustainable future

Supported by Shire of Denmark
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Table of Contents

1. Introduction

Energy efficiency means less energy to provide the same service, and therefore making your home more energy efficient will reduce your energy bills as well as environmental footprint. The energy audit kit will help you identify appliances that are high energy users (or using energy even when turned off), when your home is using the most power and areas in your home that could use more insulation or are leaking cold air. This enables you to identify actions to take to reduce the electricity use of your appliances and improve the energy efficiency of your home.

2. What is in the audit kit

The energy audit kit contains 4 items:

- 1 x Powerpal meter
- 2 x Laser Smart WiFi plug
- 1 x Thermal camera

The energy audit kit contains 3 items:

- 1 x Powerpal meter
- 2 x Laser Smart WiFi plug

Powerpal

Powerpal enables you to see your electricity usage **for the entire house** in real time and therefore how much your monthly or quarterly bill is going to be.

Powerpal connects your electricity meter to your smartphone and wirelessly tracks – in real time – exactly how your home is using energy. Powerpal learns how your home uses energy and provides personalised guidance based on your real usage profile to help you make decisions that could save you money. Now you can identify which appliances and usage patterns are costing you – and pushing up your power bills.

Powerpal app allows you to see the energy used by your home in an easy-to-read dashboard. The dashboard is split into a number of different elements.

Detailed instructions to install and use the Powerpal tool and app can be found on page 9 of this manual.

Smart Wi-Fi plug

The Laser Smart Wi-Fi plug tracks **power usage for an individual power outlet/appliance.** The robust monitoring features built into the LSH app lets you see the Watts, Amps and Voltage draw of any connected device. The power usage can be tracked over monthly and yearly periods.

Detailed instructions on how to install and use the Smart Wi-Fi plug and app can be found on page 15 of this Manual.

Thermal Imaging Camera

The infrared camera is used for identifying poorly insulated areas in walls, floors, and ceilings, locating draughts around your home, checking fridge seals and measuring hot water temperature.

Detailed instructions on how to use the Thermal Imaging Camera can be found on page 16 of this manual.

3. How to undertake your energy audit

STEP 1: Install Powerpal on your electricity meter. Instructions are on page 9. Install the Powerpal app on your mobile device and pair it to the Powerpal device on your meter. Instructions are on page 12. Additional information are on page 18.

STEP 2: Install the Laser Smart Wi-Fi plug app on your mobile device. Instructions are on page 15. Additional Information and trouble shooting are on page 18.

STEP 3: Follow the instructions for each of the activities below, using the tools provided.

STEP 4: Record your results on the worksheet and use the energy savings actions and tips to identify where you can make improvements and what your next steps are.

Activity 1: Measuring electricity usage of appliances

Heating and cooling appliances accounts for 38% of a household's energy use and are the largest energy user in your home. Reverse cycle air conditioners are typically a third of the cost to run compared to gas heating. In winter, keep room temperature between 18°C and 20°C, and in summer between 24°C and 26°C. Changing the thermostat by 1°C (down in winter and up in summer) can save up to 10 per cent on heating and cooling bills.

Appliances and household equipment, like refrigerators and ovens, collectively account for approximately 33% of a household's energy usage. Even when 'switched off', many appliances continue to use energy in standby mode, which can contribute 3–5% of a household's energy use. Other than critical medical equipment, it's important to switch appliances off at the wall when not in use or use timers as appropriate.

What you will need:

Use both the Powerpal tool and/or the Smart Wi-Fi plug and apps to measure the electricity usage of your appliances. Your ability to access an individual appliance's power plug will determine whether you use the Powerpal app or Smart Wi-Fi plug app.

For example, some appliances, such as an electric hot water system, air-conditioning, stove tops, ovens and lights, cannot be measured using the smart Wi-Fi plug included in this kit. To test them you will need to use Powerpal household energy measuring device. Separate instructions are given below for using and recording the information for both apps.

- Powerpal tool and app
- Wi-fi plug and app
- Worksheet

Powerpal Process:

(For appliances where you can't access their individual power plug e.g. wall oven, stove top, fridge, air conditioner, hot water heat pump)

1. Check your electricity bill and take note of the Unit price (c/kWh or $/kWh). If the Unit price is given in c/kWh convert the unit price to $/kWh by dividing the Unit price by 100. Enter the $/kWh number in the Activity 1 worksheet. In the example below the Unit Price is 28.0109 cents per kWh (c/kWh) or 0.28 $/kWh.

This bill

Home Plan (A1) tariff **Bill period:** 14 Mar 2024 - 16 May 2024	**Units**	**Unit of measure**	**Unit price (cents)**
eConnect			
Residential Anytime consumption	13.8520	kWh	28.0109
Supply charge	64	days	100.4182

2. Turn off all non-essential appliances (leave on essential appliances that run all the time, like the fridge, wi-fi router and any medical devices).

3. Start the Powerpal app and see how much power the house is using when only the essential appliances are switched on (typically 100 – 300 W but could be more). This is the background power usage of your house. Enter the power figure in kW for the Essential Appliances into column A, row 1 in the worksheet. (*If the Powerpal app is showing power usage in Watts, divide the number by 1000 to get the power in kW before entering in the worksheet.*)

4. Now turn on one appliance. Wait to see the change in the kW power usage on your Powerpal app reading. When the power usage is reasonably stable, enter that power value in kW into column A in the worksheet for the particular appliance you are testing.

5. Turn off the appliance and watch the power use value go down to the background level.

6. Repeat step 3 - 5 for any other appliances you want to test with the Powerpal app and record the power used in the worksheet (column A).

7. Once you have measured all the appliances you want, fill out the rest of the worksheet using the example as a guide.

8. Determine what actions you need to take to improve the electricity use of your appliances.

TIP 1: Try experimenting with the power settings on various devices to see how much power they use depending on the situation. For example, if you have an induction stove try turning the heat up to the maximum setting and observe the power usage and then compare that to a lower heat setting. Or try the air conditioner with the fan on really high. You can then use the average power in the worksheet.

TIP 2: For some appliances with long cycles (e.g. dishwasher, oven) it's a good idea to monitor the power consumption over the whole cycle. You maybe surprised that the appliance doesn't always use the maximum power for the whole cycle. You can then use the average power in the worksheet.

Smart Wi-Fi Plug Process:

(For devices where you can easily access their power point e.g. kettle, toaster, blender, coffee maker, TV, etc.)

1. Plug in the Smart Wi-Fi plug into a power point and then plug in your appliance into the Smart Wi-Fi plug.

2. Turn on the power point (but not the appliance itself).

3. Open the Smart Wi-Fi app and make sure the Wi-Fi plug is connected/paired to your Smart Wi-Fi app.

4. First, we'll check the energy use of appliances on standby, for example televisions, stereos and computers. Record the "standby" power in kW into column A of the worksheet.

5. Then turn on the appliance and look in the app to see what power the appliance is using when it is switched on.

6. When the power usage is reasonably stable, enter the "in use" power in kW into column A in the worksheet for the particular appliance you are testing.

7. Repeat steps 1-5 for any other appliances you want to test with the Smart Wi-Fi app and record the power used in the worksheet (column A).

8. Once you have measured all the appliances you want, fill out the rest of the worksheet using the example as a guide.

9. Determine what actions you need to take to improve the electricity use of your appliances.

Activity 2: Hot water temperature test

Water heating accounts for 25% of a household's energy use and is the second largest energy users in your home.

There are two main types of water heaters:

1. Storage Systems — Water is stored in an insulated tank for use as required. For health reasons, Australian Standards require storage tank systems to be set to no less than 60 °C.

2. Continuous Flow/Instantaneous Systems — Water is heated as required. Temperatures can be set closer to end use requirements, usually 50 °C. The most energy efficient way to heat water in your home is with a heat pump hot water system. They use 60–75 per cent less energy than older-style electric resistance hot water systems.

What you will need:

1. Thermal Imaging Camera
2. Cup
3. Worksheet

Process:

1. Turn on the hot tap nearest to the hot water system and let it reach full temperature.

2. Carefully fill a cup with hot water.

3. Aim the laser point of the thermal imaging camera in the cup and read the temperature.

4. Note the temperature on the worksheet.

5. Determine what actions you need to take to reduce the energy use of heating water.

Activity 3: Draught detection: heating and cooling leak test

Draughts can have a significant impact on the energy efficiency of your home, accounting for up to 25 per cent of heat loss in winter. Filling gaps around windows and pipes and installing draught stoppers on doorways and exhaust fans can dramatically improve the thermal comfort of your home while reducing your heating and cooling bills.

Draught-proofing stops warm air from escaping your home in winter and hot air from entering in summer, making your home much more comfortable.

What you will need:

- Thermal Imaging Camera
- Worksheet

Process:

1. Select an area in your room to take a reference point reading e.g. an internal painted wall.

2. With this colour/temperature for comparison, use the camera to look for temperature variations paying particular attention to area where there may be gaps:

    - Around doorways and windows
    - Where pipes connect to external walls
    - Vents or air outlets
    - Fireplace and flues
    - Around stairways
    - Between floorboards
    - Around exposed beams
    - Around built in heating and cooling units
    - Along architraves and skirting boards

3. Note down your main leakage areas on the worksheet.

4. Determine what action you need to take to reduce heat and cooling leaks.

Activity 4: Roof and wall insulation gap test

Insulation is important for keeping your home comfortable. Adding insulation above your ceiling, in your walls, or under your floorboards can help improve the energy efficiency of your home. Ceiling insulation alone can help you save up to 20 per cent on heating and cooling energy costs.

Depending on the age and condition of your home, you may have extensive, partial, or no insulation at all. If there is insulation there may be gaps from incorrect installation or tradespeople moving it while working. Gaps in insulation have a huge overall impact on the effectiveness of the insulation installed. A small five per cent gap in your ceiling's insulation can reduce its effectiveness by 50 per cent — and many houses have small insulation gaps!

What you will need:

- Thermal Imaging Camera
- Worksheet

Process:

1. This test should ideally be undertaken when the outside temperature is around 10°C higher or lower than the inside temperature (for example, early morning or a hot afternoon when an air conditioner is running).

2. Select an internal wall area in your home to take a reference reading.

3. With this colour/temperature for comparison, use the camera to look for temperature variations, paying particular attention to:
   - corners of ceiling
   - areas around downlights, cooling or heating vents in ceiling
   - walls that are external facing

4. Gaps can be identified by a colour discrepancy where the insulation is missing.

5. Note down rooms and gap areas on the worksheet.

6. Determine what action you need to take to improve gaps in the insulation of your home.

4. How to install and use the tools contained in the audit kit

Powerpal

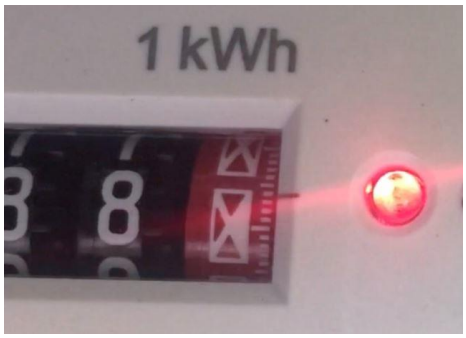
How to install Powerpal on your meter

The instructions to install the Powerpal App is explained in the following paragraphs. To watch a video on how to install Powerpal, check out the following link:

https://www.powerpal.net/install/

Find specific instruction for your meter at the following link:
https://support.powerpal.net/hc/en-us/articles/360053176634-Compatible-Meter-List

1. Find your flashing red light



Find the red light on the front of your electricity meter which flashes when you use power.

It's important to identify the correct red light for your meter which may have more than one. The light may be round or rectangular.

If in doubt, turn on a high-use appliance like a heater or electric oven and watch for the flashes!

If you have solar your red light will not flash during the day when you are not using power from the grid – wait until dusk or turn the kettle on!

2. Make a note of the flash rate

Make a note of the text which explains how many times your meter flashes for each kWh of energy your home uses. You'll need this number later on after installing the Powerpal app.

This number is printed on the front of your electricity meter close to where you attached the Powerpal sensor.

If your meter is labelled 1Wh/imp your flash rate is 1000.

3. **Clean the meter face**

Use the included alcohol wipe to clean the area around the red light.

Allow the cleaned area to dry for at least 60 seconds before proceeding to the next step.

If you do not clean the meter face your Powerpal's adhesive may fail after weeks or months of use.

4. Select the correct mounting plate

Select the best sticky-backed plastic mounting plate for your meter type. In most cases this will be the square plate.

If you have an iCredit meter you will need to place the circular ring mount around the protrusion next to your red light.

You'll find specific instructions for your meter in our compatible meters list.

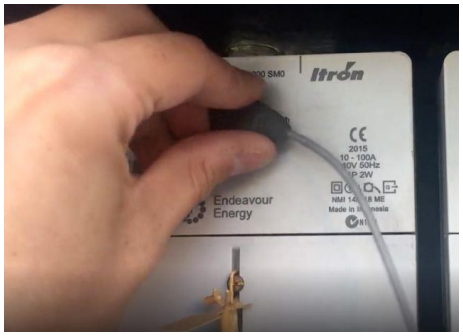
5. Stick the mounting plate over the red light

Remove the backing tape from the mount to reveal the adhesive glue.

Carefully locate the mount over the flashing red light, ensuring that the light is visible through the small hole in the mounting plate.

Once alignment is confirmed press the mount firmly against the meter face for at least 30 seconds to allow the glue to bond to the meter face.

6. Attach the sensor to the mounting plate



Carefully place the small sensor into the mount with the wire facing to the right.

Gently twist the sensor in a clockwise direction until it clicks into place with the wire hanging down freely.

If you ever need to remove your Powerpal in the future, rotate the sensor anti-clockwise to unlock it.

7. Place powerpal on top of meter box

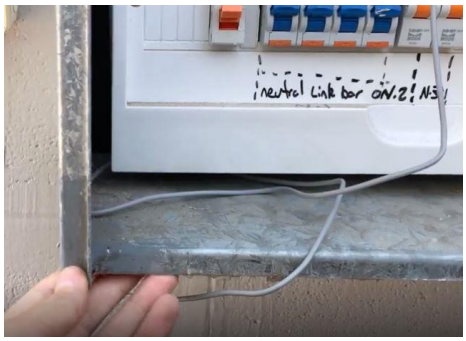
Place the main Powerpal unit on the top of the meter cabinet. The base of the unit contains strong magnets that will hold it in place.

To ensure a strong bluetooth signal, your Powerpal must be placed:

- Upright, resting on its “foot”
- On top of the meter cabinet (not inside it!)
- At least 3cm away from the wall

Your Powerpal is waterproof and UV resistant and is safe to leave exposed to the elements. If it is not placed outside the metal cabinet you will find the bluetooth range is severely reduced.

8. Tidy up the cable

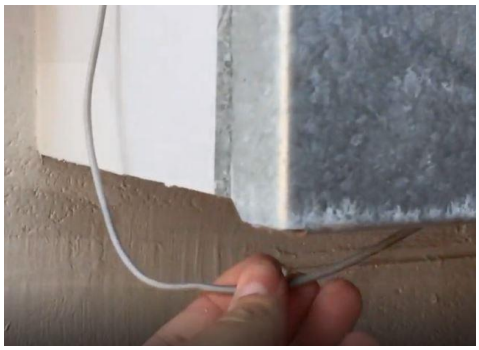


Tidy any excess cable into the bottom of the meter box by folding it neatly.

Use the provided twist cable tie to bundle excess cable if required.

Ensure the cable runs down the full length of the meter box and enters via the bottom of the cabinet, not the side. This is to avoid the risk of rain water running down the cable and into the meter box.

9. Close the meter cabinet



Carefully close the meter box, ensuring that the cable (or your hand!) does not get trapped or damaged.

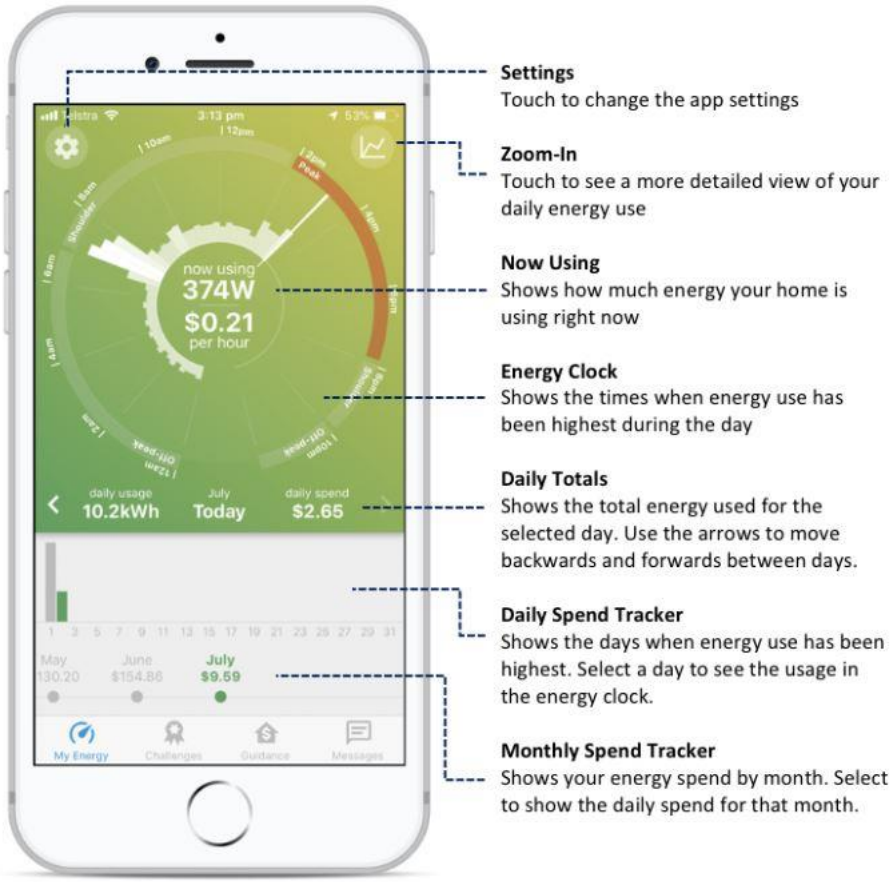
Usually there will be an appropriate gap under the meter box door on one side or the other where the cable can be routed.

Double-check that the cable runs down the full length of the meter box and enters via the bottom of the cabinet, not the side.

Introduction the App

The Powerpal app allows you to see the energy used by your home in an easy-to-read dashboard.

The dashboard is split into a number of different elements which are explained in more detail in the next sections of this guide.



Note: The Powerpal app only has access to your energy data from the time it is first connected to your electricity meter, so initially the dashboard may look a little empty.

However, over time the dashboard will start to build up a detailed picture of how energy is being used in your home.

Using Powerpal to see how much each of your appliance's costs to run

The numbers at the centre of the screen show the current energy use of your home in both Watts and cost per hour and will change in near real time as you turn on and off appliances.

The background colour of the app will also change based on the current level of energy use in your home – blue/green for low energy use, amber for moderate energy use and red for high energy use.

This can be helpful to understand how much energy the different appliances in your home consume and how much they cost to run.

For example, to see how much it costs to run the air conditioner in your home you can simply open the Powerpal app, turn on the A/C and watch how much the energy usage increases.

This works for any appliance in your home – the heater, the oven, the kettle, you name it Powerpal can monitor it! You may be surprised how much energy different appliances in your home consume and how much they cost to run.

Pro tip: If you have solar panels installed on your home the Powerpal app may display zero usage during the middle part of the day. This means all your power needs are being satisfied by your solar panels and you are currently exporting energy to the grid. This is a great time to run any discretionary appliances (such as the dishwasher or the washing machine) and use up that spare solar energy - it's free power so why not!

Using Powerpal to track when your home is using most power

The energy clock shows you how energy is being used in your home throughout the day. The clock shows 24 hours of usage information, from midnight to midnight with midday at the top of the screen. When viewing the current day the clock will show usage up to the current time.

The energy clock is interactive – by swiping your finger over the energy clock you can see how much energy is being used in your home at different times throughout the day.

Times when energy usage has been highest during the day will show up as a spike on the energy clock. These spikes correspond with times when one or more high-load energy appliance has been running in your home. By reviewing the times when energy use has been high and considering the appliances that were being used at those times you can better understand how using different appliances contributes to your power bill. This can help you to make informed choices about how you want to use energy in your home.

If your energy plan has off-peak and peak periods, the peak period will be highlighted in red on the energy clock. Charges for energy used during the peak time can be substantially higher than during the off-peak period, so using high load appliances outside of the peak period can help to reduce your bill.

Pro tip: Use the energy clock to watch out for energy being used at unexpected times, such as during the night when everyone is sleeping. Simply turning off “always on” appliances (such as games consoles and computers) when no-one is using them can have a big impact on your energy bills!

Wi-Fi Plug

The Laser Smart Wi-Fi Plug you can connect to any regular appliance, then control it from anywhere using the Laser SmartHome app on your phone. You can check the power status of a device with a simple glance, turn it on and off from anywhere in the world with the tap of the screen, or even set up schedules and timers for a device to turn on/off autonomously.

A power monitoring tool built into the app lets you track monthly and even yearly power use, along with Watts, Amps, and Voltage ratings of any device currently being powered. There is also Google Assistant and Amazon Alexa compatibility built-in, so you can pair devices with your favourite voice assistants, then use voice controls for a true hands-free experience. Making your devices smarter is not only convenient for you but is also safer for your home.

Key Features

- Remote Control – Laser SmartHome App. Using the LSH app you can turn devices on and off from anywhere in the world. You can even power devices autonomously by setting up schedules, countdown timers, or simply check the app to see the current power status of a device.

- Power Monitoring – Track Power Usage. The robust monitoring features built into the LSH app lets you see the Watts, Amps and Voltage draw of any connected device. The power usage is tracked over monthly and yearly periods and can even be displayed as a graph to better track your electricity use.

- 3rd Party Controls – Google Home & Alexa. We’ve built in Google Assistant and Amazon Alexa compatibility so you can even use you preferred AI pal to control your devices. Setup voice commands to power devices hands-free, or simply use the Google Home and Alexa apps to operate them manually.

Thermal Camera

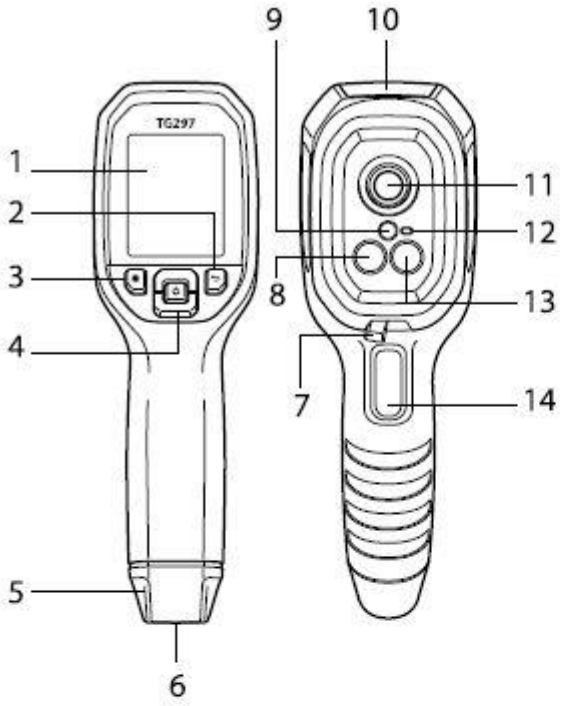


Figure 4.1 Imaging IR Thermometer Description (TG297 pictured)

1. Display area
2. Return button (to back up in the menu system)
3. Laser pointer button
4. Up/Down Navigation buttons and Power button (long press)/Menu button (short press)
5. Lanyard post
6. Accessory mount
7. High temperature filter switch (TG297)
8. Lepton® IR camera
9. Laser pointer with circular target-spot assist
10. USB-C and Thermocouple jack compartment
11. Spot thermal sensor
12. Work light (LED)
13. 2M pixel visible spectrum camera
14. Image capture trigger (also used to exit the menu system)

INSTRUCTIONS:

1. Long press the power button (centre) to switch the thermal camera ON.

2. Point the thermal camera towards the test area and view the camera image on the display.

3. Use the Laser pointer to accurately target a spot. Press the laser pointer button (3) to switch ON the laser pointer.

The thermal camera's laser pointer includes a red circular spot indicating the area that is being monitored for temperature. Read the temperature in the top centre of the camera screen.

For optimal results, stand 1 – 2 metres back from the area of the building that you want a temperature reading for (e.g. vents, door frames, skirting boards, walls, ceilings).

4. Long press the power button to switch the thermal camera OFF.

SAFETY TIPS:

DO NOT point the laser towards anyone's eye or allow the beam to strike the eye from a reflective surface.

DO NOT use the laser near explosive gases or in potentially explosive areas.

NOTES:

DO NOT change the settings of the camera. The camera settings are set at the optimal to undertake your home energy audit.

Additional Information: Powerpal and Wi-Fi Plug

FREQUENTLY ASKED QUESTIONS

Will the energy costs reported in the app exactly match my electricity bill?
Every effort has been made to ensure the Powerpal app reports costs accurately. However, the dollar amount shown in the app may not include all charges that appear on your bill, such as supply charges or discounts from your energy retailer. The costs reported by Powerpal are not a replacement for your electricity bill.

How does Powerpal store and protect my energy data?
Powerpal stores your energy data locally at your meter for 60 days and also in the app and on our cloud servers for as long as you continue to use Powerpal.

Transmission of data between Powerpal, the app and the cloud is encrypted to protect your privacy and access to your local Powerpal at your meter is protected by your pairing code. This means other Powerpal users cannot automatically connect to your meter or view the information (energy consumption, usage and cost) that is being transmitted.

Our full privacy policy is available to view at https://www.powerpal.net/privacy-policy.

How can I erase my historical energy data?
With the app connected to Powerpal select "Factory Reset" from the Hardware Settings menu. This will erase all data stored locally at your meter, in the app and in the cloud.

How do I change my tariff details?
Tariff details can be updated in the settings menu on the app.

Can I take Powerpal with me if I move to a new house?
Of course! For details on how to install Powerpal on a new electricity meter visit www.powerpal.net/install.

For more information on how to get the most out of your Powerpal visit:

https://support.powerpal.net/

TROUBLE SHOOTING

Please check the following table before contacting Powerpal support for assistance.

Problem	Possible cause	Solution
Powerpal app displays "not connected"	Smart phone is too far away from the meter or another phone is connected	Move closer to the meter and ensure that only one phone is connected
Costs reported are too high/too low	Tariff is set incorrectly	Update tariff via the settings menu in the app
Usage reported is too high/too low	Incorrect impulse factor set	Send a photo of your electricity meter to support@powerpal.net for advice

If you are unable to resolve the problem email support@powerpal.net with a full description of the issue or call us on 1300 287 909.

LIMITED PRODUCT WARRANTY

Powerpal warrants that your Powerpal-branded device shall be free from defects in materials and workmanship under normal use for a period of five (5) years from the date of installation. During this guarantee period, Powerpal will either repair or replace, at its discretion, any defective product at no charge to the owner.

For the avoidance of doubt this warranty also covers battery lifetime.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

To the extent permitted by law, this Powerpal guarantee excludes liability for consequential loss or any other loss or damage caused to property or person arising from any cause whatsoever.

It also excludes defects caused by the product not being used in accordance with the instructions, accidental damage, misuse, being tampered with by unauthorised persons, improper maintenance and normal wear and tear and does not cover the cost of claiming under warranty.

If you believe your product is defective, contact Powerpal support for instructions on where to send or bring it for repair.

Powerpal Pty Ltd
Building 25, 4-12 Buckland St, Chippendale, NSW 2008
1300 287 909
support@powerpal.net

powerpal

User Guide

SEE YOUR POWER

Think about it. What's completely invisible, essential to our everyday lives, but can also be really, really expensive? ...Electricity!

Up until now, knowing how much power you're using and therefore how much your monthly or quarterly bill is going to be, has been pretty much down to guess work.

Powerpal is the window to your power usage, enabling you to SEE what you're using in real time, giving you real VISIBILITY for the first time so you have control over what you're spending!

It's always been there, but Powerpal makes it possible to SEE YOUR POWER.

GETTING STARTED

To get started with Powerpal first install the Powerpal app from the Apple App Store (for iPhone users) or the Google Play store (for android users).

Search for "Powerpal" and look for the Powerpal app icon:

Download on the App Store

GET IT ON Google Play

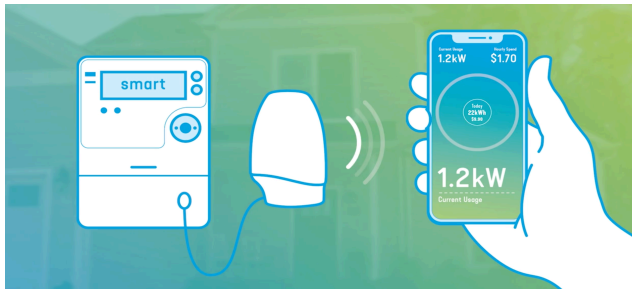
The setup screens in the app will explain the steps required to connect your phone to Powerpal.

IMPORTANT: Powerpal is secured with a 6-digit pairing code to ensure only you can see your energy data.

Your pairing code can be found on the welcome card included with your installation pack. Please keep this card safe as you will need your pin-code to reconnect to Powerpal if you need to reinstall the app.

HOW DOES IT WORK?

Powerpal uses a long range Bluetooth connection to send your energy data wirelessly from your electricity meter to an app on your smart phone.



Powerpal will connect to your smart phone automatically whenever it is within Bluetooth range of your electricity meter – this is typically between 50m and 100m depending on the construction of your home.

The Powerpal app shows you in a simple visual way how your home is using energy day to day. The numbers at the centre of the screen show the current energy use of your home in both watts and cost per hour and will change in near real time as you turn on and off appliances.

The background colour of the app will also change based on the current level of energy use in your home – blue/green for low energy use, amber for moderate energy use and red for high energy use.

This can be helpful to understand how much energy the different appliances in your home consume and how much they cost to run.

For example, to see how much it costs to run the air conditioner you can simply open the Powerpal app, turn on the A/C and watch how much the energy usage increases. This works for any appliance in your home – the heater, the oven, the kettle, you name it Powerpal can monitor it! You may be surprised how much energy different appliances consume and how much they cost to run.

SEE THE TIMES YOU USE MOST ENERGY

The Powerpal app displays an "energy clock" which keeps track of how energy is being used in your home throughout each day. Times when energy usage has been highest during the day will show up as a spike on the energy clock. These spikes correspond with times when one or more high-load energy appliance has been running in your home.

By reviewing the times when energy use has been high and considering the appliances that were being used at those times you can better understand how using different appliances contributes to your power bill. This can help you to make more informed choices about how you want to use energy in your home.

USE POWERPAL TO SAVE ON YOUR ENERGY BILLS

Use the energy clock to watch out for energy being used at unexpected times, such as during the night when everyone is sleeping. Simply turning off "always on" appliances (such as games consoles and computers) when no-one is using them can have a big impact on your energy bills.

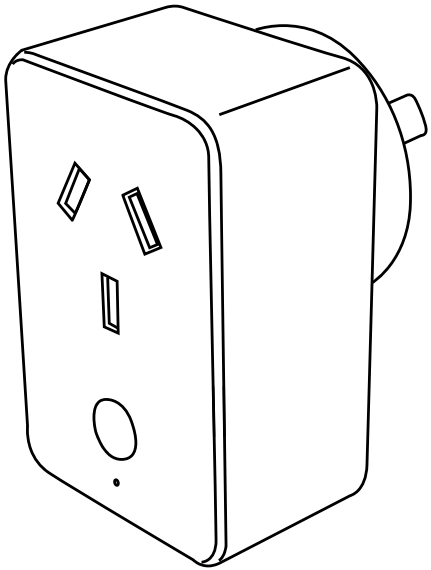
If your energy plan has off-peak and peak periods, the peak period will be highlighted in red on the energy clock. Charges for energy used during the peak time can be substantially higher than during the off-peak period, so using high load appliances outside of the peak period can help to reduce your bill.

If you have solar panels installed on your home the Powerpal app may display zero usage during the middle part of the day. This means all your power needs are being satisfied by your solar panels. This is a great time to run any discretionary appliances (such as the dishwasher or the washing machine) to use up any spare solar energy.

Powerpal is also constantly searching for ways to save you money and will alert you to actions you can take to further reduce your bill, such as changing to a different energy plan or upgrading inefficient appliances. Check for these in the Challenges and Guidance sections of the app.

LASER SmartHome

User Manual



Smart Wi-Fi Plug with Power Monitoring

LSH-PLGPM-001

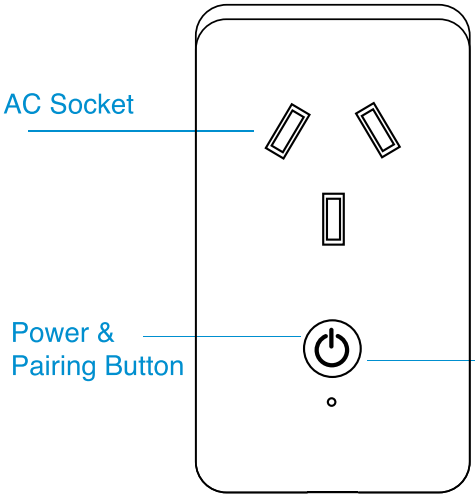
What's In The Box

- Smart Plug
- User Manual

Specifications

Power Supply:	AC100 ~ 240V
Input Frequency:	50/60Hz
Load Current:	10A max 2400W Resistive load
Wi-Fi:	Wi-Fi 802.11 b/g/n
Wi-Fi Frequency:	2.4GHz
Security:	WAP/WAP2
Encryption Type:	WEP/TKIP/AES
Working Consumption:	<0.9W
Standby Consumption:	<0.6W
Working Temperature:	-20°C - 50°C, < 80% Humidity
Storage Temperature:	-20°C - 60°C, < 80% Humidity
Weight:	70g
Dimensions:	66 x 43.5 x 57.5mm

Product Diagram



Power & Pairing Button Controls

- Press and hold the pairing button for 5 seconds.

- A LED indicator light will start flashing.

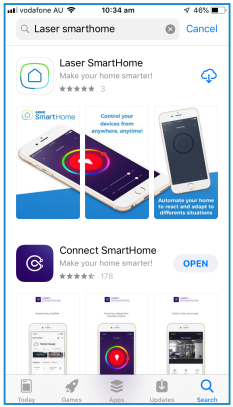
There are 2 flashing states:

- Fast Flashing = EZ pairing mode.
- Slow Flashing = AP pairing mode.

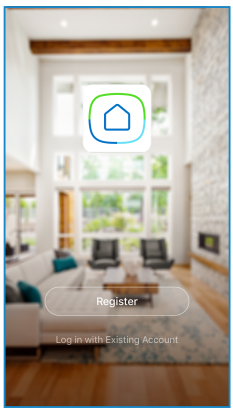
Note: In this manual we cover the EZ pairing mode instructions.

Getting Started with the App

1. Install the Laser SmartHome App for your Smartphone from the iOS App Store or Google Play.

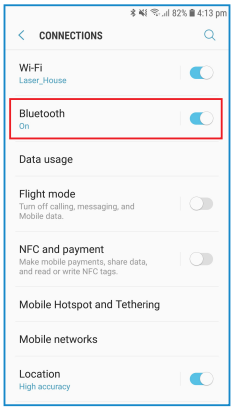


2. Log in with an existing Laser SmartHome account or create a new account.



Connecting to the App

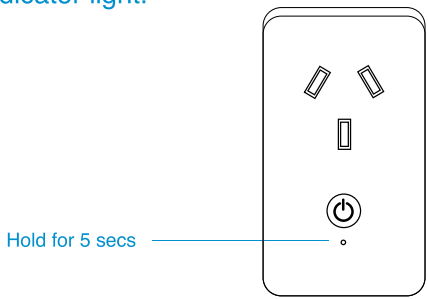
1. Turn on the **Bluetooth** function on your Smartphone.



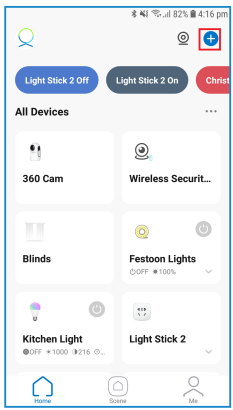
Connecting to the App

continued...

2. Press and hold the Pairing Button on the smart plug for 5 seconds till you get a fast-flashing indicator light.



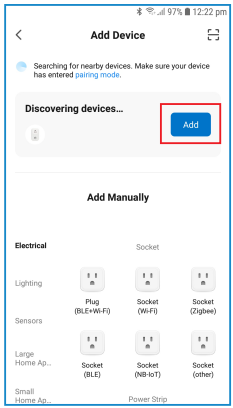
3. Open the Laser SmartHome App and tap the “+” icon to add a device.



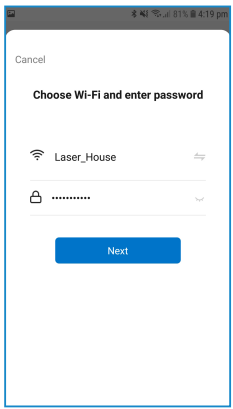
Connecting to the App

continued...

4. The smart plug icon should appear. Select “Add” under “Discovering Devices”.



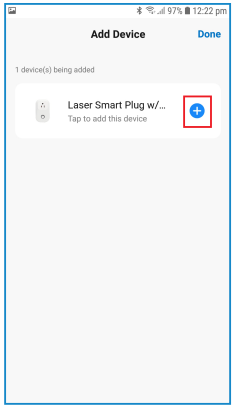
5. Enter your Wi-Fi details.



Connecting to the App

continued...

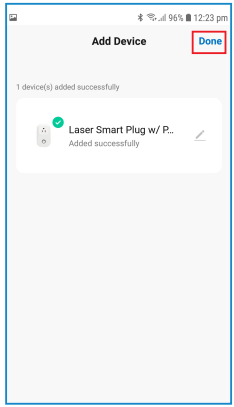
6. Tap the “+” icon next to the smart plug



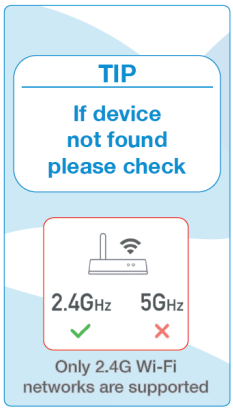
Connecting to the App

continued...

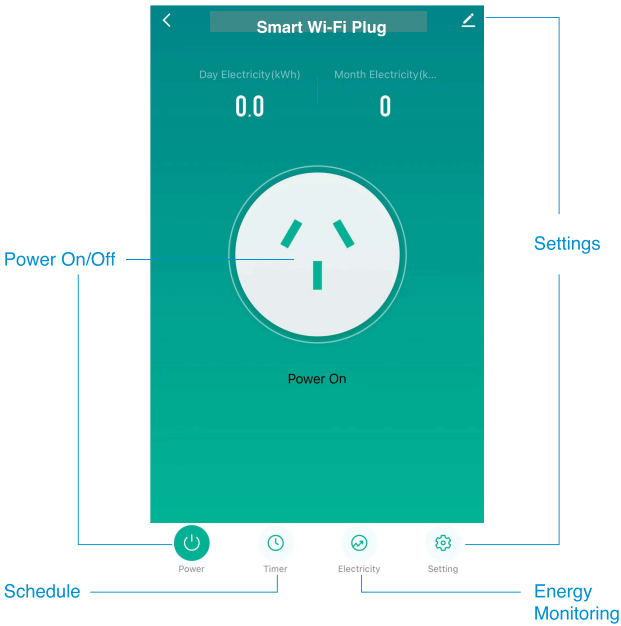
7. When finished pairing tap “Done”, then the device will appear on the Laser SmartHome App home screen.



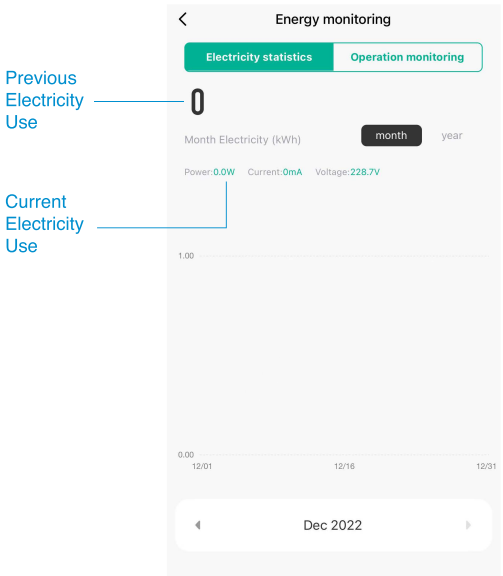
NOTE: If you are unable to pair successfully with the smart plug, please check your Wi-Fi password and make sure you are only using a 2.4GHz Wi-Fi connection. 5GHz connections are not supported.



Using the Plug

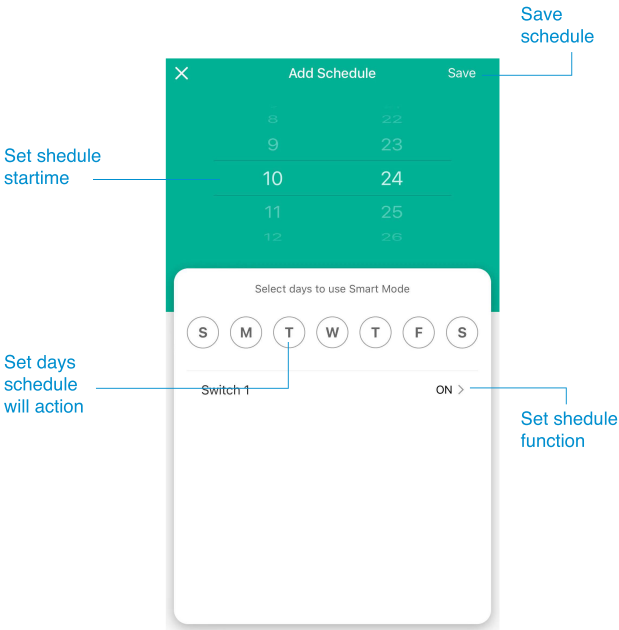


Using the Plug
continued...



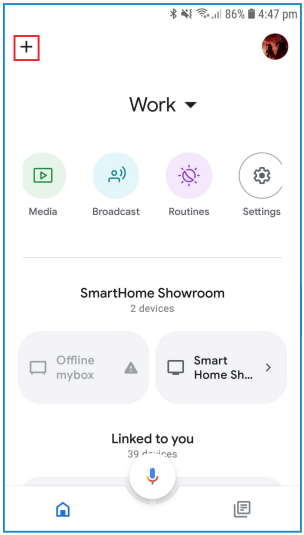
Using the Plug

continued...



Adding Laser SmartHome to the Google Home App

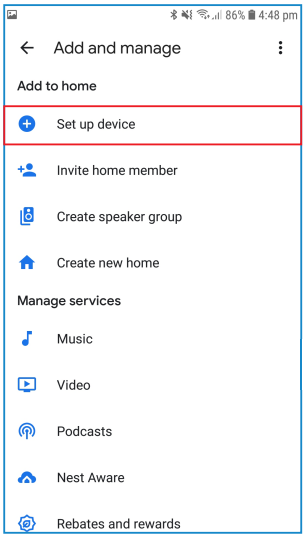
- Open the Google Home App.
- In the “**Google Home**” main screen, select the “+” icon to set up device.

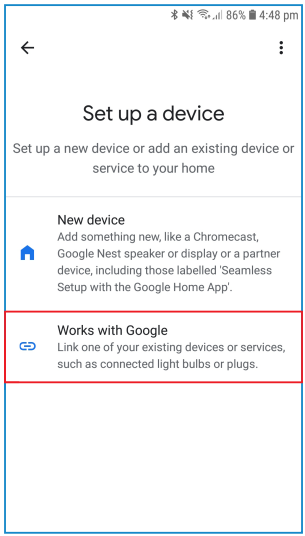


Adding Laser SmartHome to the Google Home App

continued...

• Select “Set up device” to add new device, then select “Works with Google”.

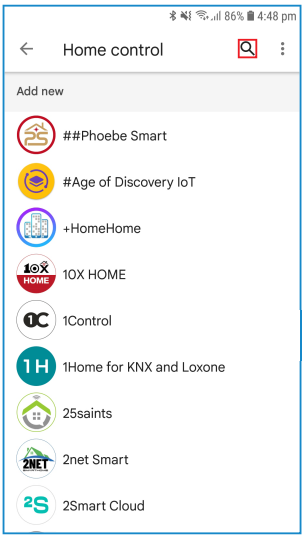


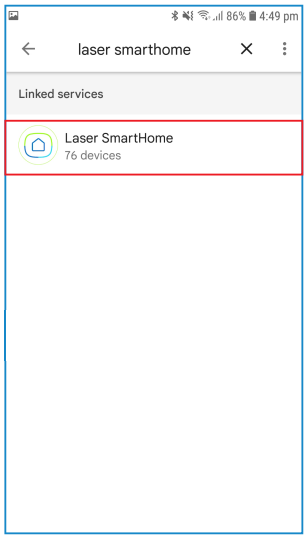


Adding Laser SmartHome to the Google Home App

continued...

• A list will appear showing actions and a search function to access more apps: from here, search for the Laser SmartHome App.





Adding Laser SmartHome to the Google Home App

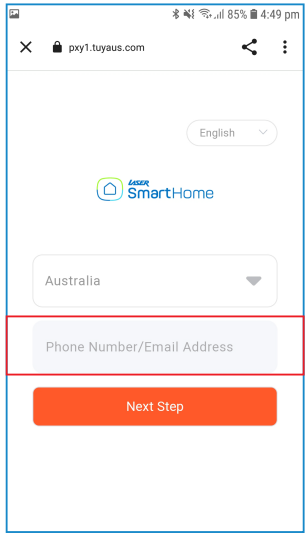
continued...

- Log into your Laser SmartHome account with your email address.

- Once linked, it will show the devices linked to your account: you can assign them to rooms. You will be prompted to authorize apps to sync.

- Click “Done” and then it will give you a list of commands available.

- When successfully linked, you will see the smart plug on your “Home Control” screen.



Troubleshooting

The Smart Plug is not connecting to the App.

• Check your Wi-Fi username and password are correct.

• Make sure you are only using a 2.4GHz Wi-Fi connection as the 5GHz band is not supported.

• If you are unsuccessfully connecting using Bluetooth with EZ Mode. Switch the pairing mode to “AP Mode” by pressing and holding the Pairing Button for 5 seconds till you get a slow flashing light. On the app select the + icon to add device, select the Electrical category, then select Socket (Wi-Fi). Enter you Wi-Fi credentials then on the next screen in the top right change the selection from EZ Mode to AP Mode. Follow the remaining instructions outlined in the app to connect via AP Mode.

Troubleshooting
continued...

I cannot see any Power Monitoring data.

- Check you have a device connected to the smart plug and that it has been switched on.

- Power usage data take 12 – 24 hours to display in the app. You may need to leave your device running longer for the data to update in the app.

My device is turned on but not showing any signs of power.

- Check the power is switched on in the app.

- Check your mobile phone has a network or data connection and that it can connect to the internet.

- Check any individual power switches or overload switches on connected devices.

Thank you for your purchase!

We are 100% Australian owned & operated. To get the most out of your product please read the user manual carefully and keep for future use.

For specific information relating to your product such as Spare Parts, FAQs, Warranty claims, and more, please scan the following QR code:

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