



wondrwall®

INTELLIGENT LIVING



Contents

Introduction	02
Home Automation	04
Main Functions	05
SONOS & Alexa	06
Gas-Free Heating	07
Future Of Domestic Heating	08
Multi-Zone Heating	09
Net-Zero Energy	10
Solar PV & Battery Storage	11
The Wondrwall App	12
How It All Works	13
Case Study	14

Introduction

Wondrwall Group

Wondrwall Group are committed to creating a future where sustainable **carbon-free living is achievable** and accessible by providing intelligence to harmonise supply, storage, generation, monitoring and control of energy in homes.





Home Automation Powered by Self-Learning Artificial Intelligence



**OPTIMISED ENERGY PERFORMANCE VIA
CLOUD-BASED MACHINE LEARNING**



**ACCESSIBLE TO ALL THROUGH VOICE,
TOUCH & APP USER INTERFACES**



MULTI AWARD-WINNING TECHNOLOGY

The Wondrwall Light Switch is at the heart of an intelligent net-zero home. Each switch runs its own operating system and houses 13 different sensors covering temperature, humidity, power, motion, luminosity, touch and sound.

The Wondrwall Light Switch is easy to install and compatible with any standard one-gang back box. Up to three lighting circuits (with a neutral line) can be wired to each switch and lighting throughout the home can be controlled by push-to-talk voice commands or via the Wondrwall app.

Once installed, the Wondrwall Light Switches combine to create a multi-sensory network, capable of understanding human behaviours and environmental factors within the home.

Wondrwall combines the data collected with external information such as weather, energy carbon content, geo-location data and resident's preferences and actions. Cloud-based machine learning then analyses an average of 20,000 datapoints every day, without any input from the occupant, to control and optimise energy efficiency of each home.



Heating

Wondrwall knows how long it will take your home to reach ideal temperature at different times of the day ensuring there isn't a moment of discomfort. Intelligently identifying your temperature preferences from past behaviour enables Wondrwall to wake you to just the right temperature in the morning while timing your heating to avoid wasting energy. Wondrwall's intelligence enables it to make real-time adjustments to usual routines. This means if you're delayed on your route home from work or going out for dinner, Wondrwall will pick up on this and pause the heating until you are back on track, saving you the cost of heating an empty home.

Lighting

The most advanced light switch in the world offers touch-sensitive control of your lighting and so much more. In the morning, Wondrwall will help to wake you and recognises when the home is unoccupied, turning off any lights that have been left on. If you wish, you can activate 'Away' mode where Wondrwall will turn on and off certain lights in the home to simulate occupancy and when you get home after dark, Wondrwall welcomes you home by turning on the lights to greet you. But that is not all, Amazon's Push-to-Talk Alexa Platform is built into every light switch, making it possible to control your homes lighting by voice.

Security

Wondrwall is always on guard to catch intruders. Our motion sensors in every light switch work to detect the presence of trespassers and can be individually controlled to ensure that if you have a large pet, its presence does not accidentally sound the BS / EN 50130-4 compliant alarm. When an alarm is triggered, Wondrwall responds by sounding the siren, flashing the internal and external lights and alerting the home owner via the Wondrwall App. The key fob ensures further protection with proximity-based arming and disarming of security features, as well as letting you know who has arrived home.

Safety

Wondrwall enhances the standard safety features of a home. Each key fob has a built-in panic button, so your loved ones are never truly alone - with a single press sending an alert to all pre-programmed contacts simultaneously.



Entertainment In Every Room

Music

Wondrwall can connect to your media too, playing music through speakers built in to each switch. For the ultimate in sound quality, Wondrwall can play music through SONOS speakers in the home. These can be controlled via Wondrwall by voice or through the Wondrwall app from anywhere in the home.

Voice Control

All the functions of Wondrwall can be controlled by voice. Using Amazon's Push-to-Talk Alexa Platform, Wondrwall can do so much more - weather or travel information, order from Amazon, retrieve the day's events from your Google calendar for example. Using the Amazon Alexa platform, Wondrwall can also work with and control other smart home devices too.



Ultra-efficient Intelligent Multi-Zone Gas-Free Heating



ALL-ELECTRIC INTELLIGENT HEATING AND HOT WATER



MULTI-ZONE TEMPERATURE CONTROL NEVER HEATING EMPTY ROOMS



ULTRA-EFFICIENT IMMEDIATE HEAT TO RESPOND TO OCCUPANT ACTIVITY

Wondrwall infrared panels and underfloor heating deliver heating in a stylish, comfortable, energy efficient and highly controllable way. Creating a drier, warmer, healthier home while reducing energy consumption.

Wondrwall learns and works around the occupant, learning how the home is used, which rooms they spend the most time in, how they prefer their heating and how much hot water they actually consume. Wondrwall then automatically heats the occupied rooms while avoiding heating empty rooms/homes.

In doing so, Wondrwall seamlessly and intelligently supports and enhances the living environment, ensuring occupants are always comfortable and reducing energy consumption without them lifting a finger.

Combining Home Automation with Wondrwall gas-free heating and the Wondrwall intelligent water cylinder, which monitors consumption to ensure no energy is wasted heating and reheating unused water, Wondrwall can reduce a homes energy consumption and costs by up to 50%.

The Future Of Domestic Heating

Wondrwall has selected a number of heating technologies that best fit with the responsive, data-driven way our system works.

The Wondrwall Hot Water Cylinder works day and night, all year round, whatever the weather, to provide hot water. The cylinder learns how much hot water you use and will only heat what you need. On it's own, the Intelligent Hot Water Cylinder can reduce the cost of energy required to heat water by 20%. When combined with Wondrwall's intelligent energy management system, which will heat water using low-cost off-peak tariffs, dramatically reduces energy costs and carbon emissions even further.



Infrared heating panels simply run on electricity, so there is no need to install a boiler and additional pipework for them to run. The panels themselves can also be used to heat a whole house and since they can be turned on and off as needed and produce heat almost instantly, you can very easily produce a zone heating system (for each room or more) to match your requirements.

The cost of running an infrared panel versus an electrical convection heater is far cheaper as they require less power output to provide the same level of heat – a 600w infrared panel will provide the same level of heating comfort as a 1500w convection heater, so they roughly require a third of the input, hence are cheaper to run. Combined with Wondrwall's zonal controls, this cost is reduced even further.

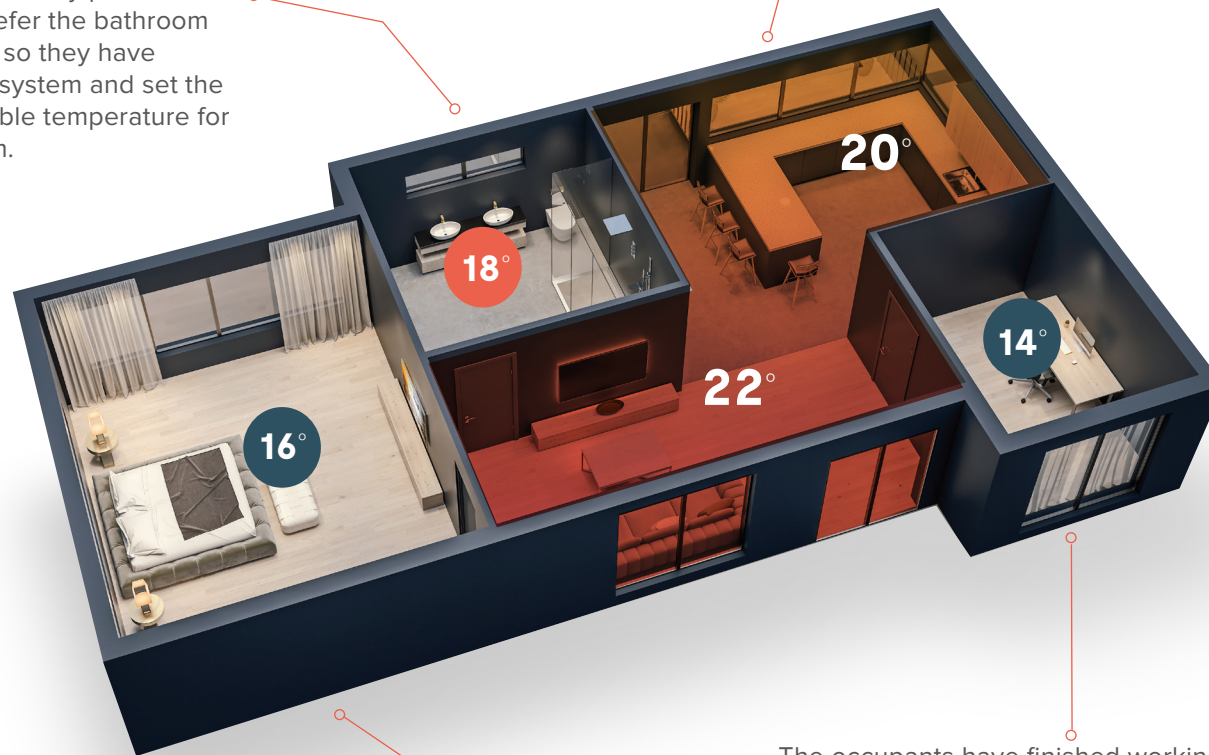
Infrared heating panels can be mounted on the ceiling, so you don't lose any floor area like you would with radiators. By doing this it also increases the heating coverage of the panels. For example an 850w panel will heat a 13.5m² area if hung on a wall, but a 17m² area if attached to the ceiling. With Wondrwall quality panels you can also be sure that they are going to last and will not need any maintenance with a typical life of > 100,000 hrs (> 34yrs at 8hrs a day).



Intelligent Multi-Zone Heating

The heating is controlled by an intuitive programming system, where you can schedule zones individually, adding custom intervals across a weekly planner. In this scenario, the occupants prefer the bathroom to be at a consistent temperature so they have overridden the home automation system and set the bathroom to remain at a comfortable temperature for when they need to enter the room.

At this time of day occupants are gathered in the living and kitchen area. Wondrwall knows that they prefer the home to be at 24° in the evening and are more active in the living area. Wondrwall maintains the desired temperature while continually adapting to any unexpected changes in behaviour using the temperature and motion sensors in the Wondrwall Light Switches.



The occupants have finished working in the home office and Wondrwall knows that the bedroom doesn't need to be heated till 10pm, so these rooms are left at an ambient temperature - saving energy and cost.

Tuesday 10th November | 7:00pm

Net-Zero Energy With Solar PV and Battery Storage



CLEAN RENEWABLE ENERGY WHEN
THE OCCUPANT NEEDS IT MOST



REDUCING DOMESTIC CARBON
EMISSIONS TO NET-ZERO



INTELLIGENT ENERGY MANAGEMENT
GENERATE / IMPORT / EXPORT
REDUCING ENERGY BILLS BY UP TO 90%

Until recently, home owners and tenants have had little choice in how they consume and pay for domestic electricity. With Wondrwall, that can change for the better. Enabling homes to create and automatically manage its own clean energy.

By including Wondrwall's complete Net-Zero Energy solution in your development, you can easily convert today's new build properties into All-Electric, Carbon-Free, Net-Zero Homes at a fraction of the cost typically associated with these types of properties.

Wondrwall users can benefit from time-of-use tariffs, allowing Wondrwall to take any additional energy required from the grid at off-peak rates and store this energy for use at peak times. Occupants will also earn money as Wondrwall automatically exports unrequired energy from the Solar generation back to the grid at the most expensive time of day.

Active energy trading combined with time-shifted consumption and intelligent demand reduction can result in an energy bill saving of up to 90%.

Net-Zero Carbon-Free Homes

Solar PV

Ultra-high efficiency, tier 1, solar modules from Wondrwall generate electricity to meet the energy requirements of the home. Solar generation is matched to the estimated load consumption of the home to ensure that Wondrwall Net-Zero homes generate as much energy in a year as it consumes. The all-black panels blend into the design of the roof and can be mounted in-roof to deliver an aesthetically pleasing look and design.

Hybrid Inverter

The Wondrwall intelligent hybrid inverter combines a solar inverter, charger and battery inverter into a single unit to deliver the most efficient use of your available energy. The Wondrwall Hybrid Inverter connects wirelessly to the Home Automation platform to ensure optimum control of the generation, storage and consumption of energy.

Home Battery

The Wondrwall battery is a high capacity lithium-ion battery that stores free solar energy generated during the day and low-cost off-peak electricity for use at peak times, reducing electricity costs and reducing the load on the grid. The Wondrwall battery will also provide a backup power supply for your home in the event of a power outage.



The Wondrwall App

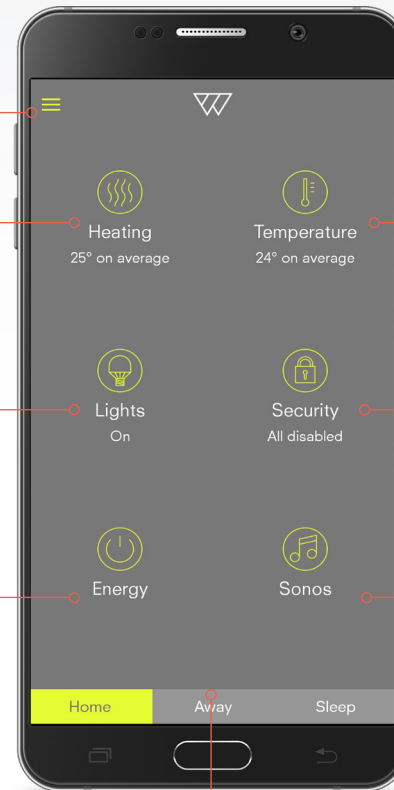
At any point, the occupant can override the home automation settings for the home using the Wondrwall app. From the main home screen you will find the six key 'widgets' which control all the main functions of Wondrwall Net-Zero Home. You will also find the Menu button where you can access all the main settings for the app and a toggle for the homes programmable 'scenes'.

Menu
Here is the menu, where you can view your device list, notifications, locations, members and settings

Heating Widget
Here you can view all your heating devices, turn them on and off and set their schedules

Lighting Widget
Here you can control all the lights in your home and turn them all on or off

Energy Widget
Here you can view the energy performance of your home using data from your smart meter (if available) and solar system



Temperature Widget
Here you can see the home average temperature, as well as each device temperature reading

Security Widget
Where the motion sensor is positioned

Entertainment Widget
If a SONOS speaker is detected on your home network, the entertainment widget will automatically be enabled

Scenes

Home - Disarm your alarm

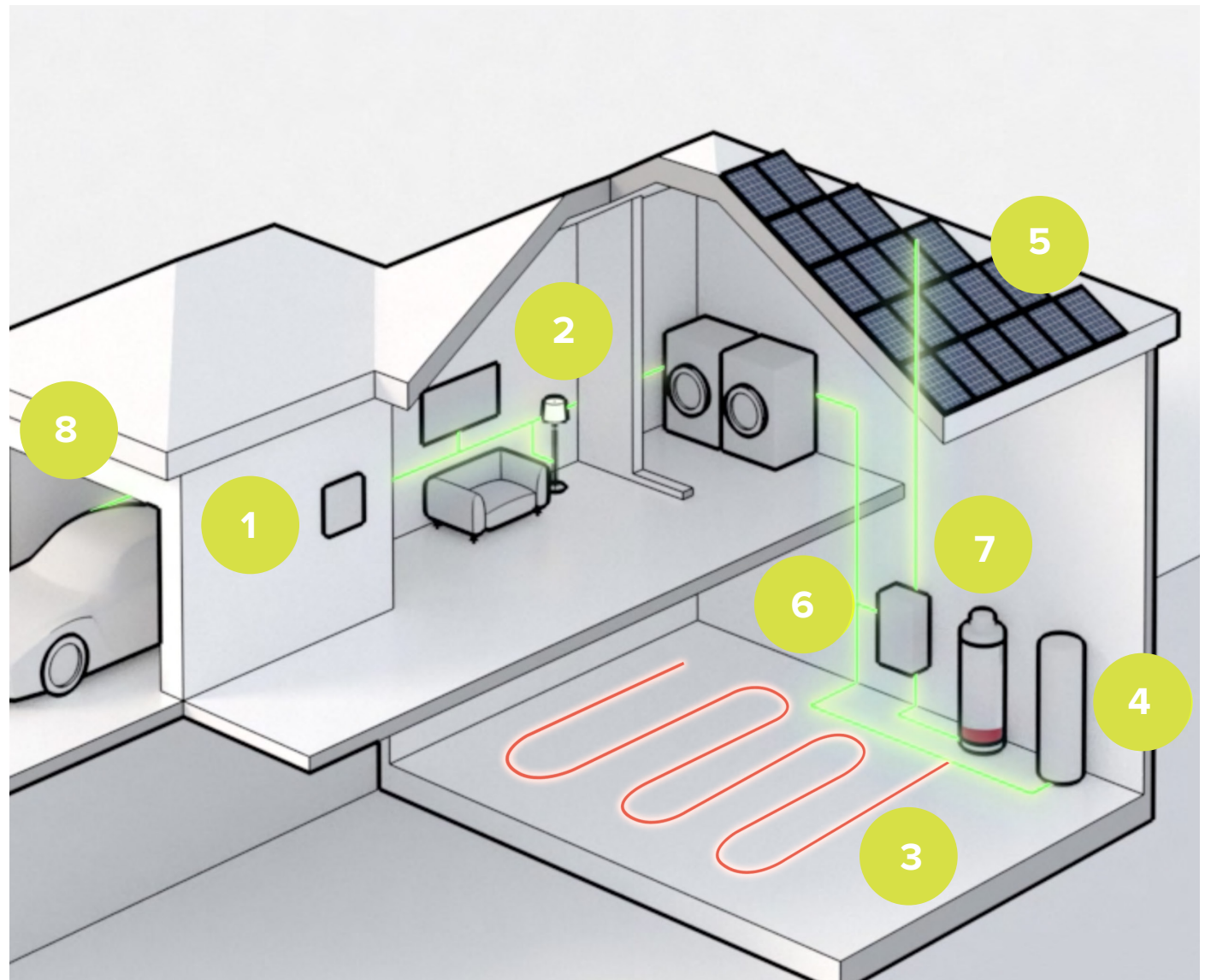
Away - Arm your alarm

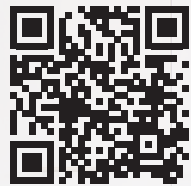
Sleep - Customizable version of the Home Scene where you can arm individual switches at night



How It All Works

- 1. Wondrwall Intelligent Light Switches**
The heart of the Intelligent Home. Learns habitational patterns and a home's energy performance, enabling the Wondrwall AI to plot the optimum running of the home.
- 2/3. Wondrwall All-Electric Heating**
Intelligent infrared heating panels and underfloor heating reduce energy consumption and cost by up to 50%.
- 4. Wondrwall Hot Water Cylinder**
Learns to heat only the volume of water that is needed using solar and off-peak energy.
- 5. Wondrwall Solar PV Array**
Optimised design, matched to the load consumption of the home where possible.
- 6. Wondrwall Hybrid Inverter**
Fully integrated and controlled inverter converts DC electricity from the solar or battery into AC electricity for use in the home or for selling back to the grid.
- 7. Wondrwall Residential Battery**
High-capacity lithium-ion batteries store energy created from the solar panels and cheaper off-peak energy drawn from the grid.
- 8. Wondrwall EV Charger**
Meet the additional energy requirements for electric vehicles by diverting surplus solar energy and charging at off peak.





Scan the QR code to watch



<https://youtu.be/nBlmvzFA3cs>

Wondrwall case study



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