



Plugwise

Home Stretch 2.0 Manual

Complete insight, consciously saving

Always app-solute control over your energy consumption



The **greenest**
energy
is the **energy**
we do **not**
use!

***"Congratulations on the purchase of your Energy Manager!
You have taken the first step towards a sustainable household
and reducing your energy costs."***

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Contents of the Energy Manager

Verify that the following components are included in the packaging of your Energy Manager:



The Quick Start manual.



www.plugwise.com/app

Download the Plugwise app for the Stretch 2.0 (and Smile P1): it will provide insight into your energy consumption and switches appliances.



Stretch 2.0: controls the Plugwise system.



Wall mount: allows you to easily mount your Stretch 2.0 to the wall using a screw-mounting.



Adapter: power supply for the Stretch 2.0.



UTP cable: for a wired connection of the Stretch 2.0 with your Internet router.



Circle+

< Or >

Stealth+

Circle+ or Stealth+ (grey back): energy meter and switch. It also coordinates the other energy meters.



Circle

< Or >

Stealth

Optionally, one or more Circle(s) or Stealth(s): energy meter and switch for appliances. The number of Circles or Stealths supplied depends on the kit you ordered.

If you already have experience in the use of Plugwise, it is important to know that the Plugwise Stretch 2.0 does not work with Source.

Installing the Energy Manager

Depending on what you ordered, your kit will contain a Circle or a Stealth energy meter. For convenience's sake, we will use the Circle as an example in this manual. Just like the Circle, the Stealth is an energy meter. Unlike the Circle, which you plug into the wall socket, the Stealth is a built-in module.

We recommend you have the Stealth built in by a qualified electrician.

Important for your installation

When installing your Plugwise network, please pay attention to the following points:

- All Circles should be positioned at a maximum distance of 5 to 10 metres of each other. Please note: concrete walls and ceilings will reduce the range of the ZigBee network: this is the network in which the Circles and the Stretch 2.0 communicate with each other.
- Position the Stretch 2.0 as centrally in the house as possible (for example, near the stairwell on the first floor). We recommend a direct contact of the Stretch 2.0 with as many Circles as possible (within a distance of 5-10 metres).
- The Circle+ should always be placed within a 5-metre range of the Stretch 2.0.
- It may take a while (up to 30 minutes) before all Circles have registered with the Stretch 2.0.
- Ensure that you are connected to your own Internet network.
- If you install the app on your smartphone or tablet, make sure that the battery is sufficiently charged and that the time-out of the screen is set to the maximum time. This will prevent your installation from being aborted prematurely.
- For a highly responsive network, install as many energy meters as possible.

Keep the following on hand when you begin the installation:



- The name and password of your Wi-Fi network if you want to connect your Stretch 2.0 with your Wi-Fi network.
- For your comfort: Your installation list with the ID of your Stretch 2.0. You can download the installation list via www.plugwise.com/installationlist

A summary of the installation process



1.



Optional: Download the installation list via www.plugwise.com/installationlist. Make sure to stick the sticker with the Stretch 2.0 ID onto the installation list before you begin installing the Energy Manager. Keep the installation list on hand when you begin the installation.



Surf to www.plugwise.com/app.

Type the URL of the website in your browser bar or scan the QR code* to go to the website: www.plugwise.com/app



2.

Here you will find all the information about downloading and installing the app, for each operating system on your smartphone, tablet or computer. You will also find the detailed manual, instructional videos, and product specifications here. You can also go directly to Google Play or the App Store to download the app.

3.



Download the Plugwise app that is suitable for your smartphone, tablet or computer. Open and install the app.

* A QR code is a digital barcode that you can scan with a QR Barcode Scanner. By scanning the code, you will immediately be redirected to a specific web page, in this case www.plugwise.com/app. You can download a QR Barcode Scanner for free in Google Play or the App Store.

A summary of the installation process in the app

- 4 Start the Plugwise app and follow the instructions in the app to install your kit.
- 4.1 Click on the install button to begin the installation of the Stretch 2.0
- 4.2 Enter the ID of your Stretch 2.0 to start the installation. The ID of your Stretch 2.0 consists of 8 digits.
- 4.3 Select whether you want to install over Wi-Fi or over LAN. Both the installation over Wi-Fi and over LAN will be explained in the app during the installation process.
- 4.4 Install your Circles: there are two stickers with a code on the back of the Circle. Remove one of the stickers and stick it to the installation list (optional). Write down the name of the corresponding appliance and the room in which it is located. Unplug the appliance. Plug the Circle into the socket. Now plug the appliance into the Circle.
Start with the Circle+.
- 4.5 Connect the adapter with the Stretch 2.0 and the wall socket. Do not remove the adapter from the wall socket and/or the Stretch 2.0 when it is starting up.

If you have a Plugwise Smile P1*, you can also monitor your total gas and electricity consumption. In this case, we recommend you install the Smile P1 first and then the Stretch 2.0. During the installation of the Stretch 2.0 you will also install your Circles and if applicable, your Switch, Scan and/or Sense.

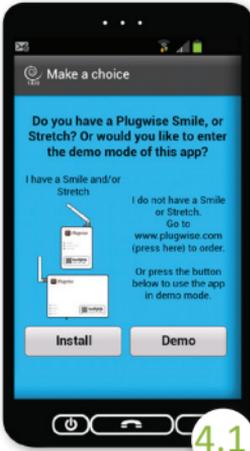


The Smile P1 is a device that reads your smart P1 meter** and sends the total consumption to the Plugwise app. Use the Smile P1 in combination with the Stretch 2.0 and compare your total consumption with your consumption per appliance. You will see exactly how the yield of your solar panels relates to your total consumption. Now that is complete insight into your energy use! You can order the Smile in the Plugwise **web shop**.

* The Stretch 2.0 works independently from the Smile, so even if you do not have a Smile P1, you can still use the app.

** In order to be able to use the Smile P1 you will need a smart meter with a P1-port (DSMR 3.0 and higher). These can be obtained from your network operator.

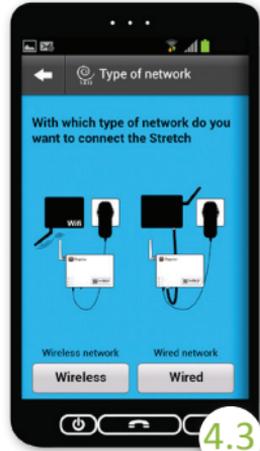
Tip: if you want to connect a Circle to your Stretch 2.0, use the "lock mode" (see page 12) to prevent your Stretch 2.0 from switching itself off.



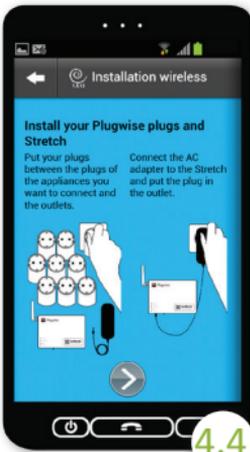
4.1



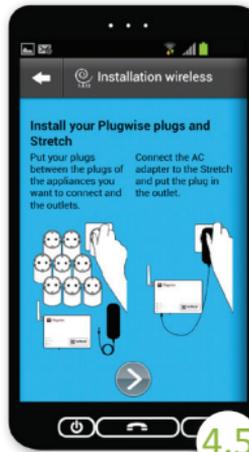
4.2



4.3



4.4



4.5

Tip:
Take a look at the instructional videos for a detailed explanation on how to install the Stretch 2.0 over a Wi-Fi connection.

Go to:
www.plugwise.com/app

Tips for the installation of your Stretch 2.0:

(with firmware 1.0.36 and higher***)

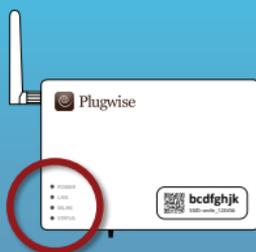
- Would you like to reset the Wi-Fi settings of your Stretch 2.0? Hold the reset button for 5 seconds until the LED-light 'WLAN' flashes in red. Now release the button.
- Would you like to reset the database of your Stretch 2.0? Hold the reset button for 15 seconds until the LED-light 'STATUS' flashes in red. Now release the button.
- In the event of a firmware upgrade, the LED-light 'STATUS' will flash in green/orange. This indicates that the power supply may NEVER be interrupted during this process.

*** See 'Diagnostic information' in the settings menu of your app.

Installing the Energy Manager

Meaning of the LED-lights on the Stretch 2.0

There are four LED-lights on the Stretch 2.0 whose functions are explained below. The 4 lights are named from top (antenna side) to bottom (connection side).



General:

- Power: flashes when the Stretch 2.0 is starting up and lights up once the Stretch 2.0 is started.
- LAN: lights up when data is sent/received over the LAN cable.
- WLAN: lights up when data is sent/received over the Wi-Fi network.
- Status: various status messages (only lights up in the event of an internal error).

<ul style="list-style-type: none"> ● POWER ● LAN ● WLAN ● STATUS 	Flashing slowly Off Off Off	The Stretch 2.0 is starting up, this takes about 90 seconds.
<ul style="list-style-type: none"> ● POWER ● LAN ● WLAN ● STATUS 	Off Flashing slowly Off Off	The Stretch 2.0 is on and is connected with a LAN cable.
<ul style="list-style-type: none"> ● POWER ● LAN ● WLAN ● STATUS 	On Off Flashing quickly Off	The Stretch 2.0 is on and is connected to a Wi-Fi network.
<ul style="list-style-type: none"> ● POWER ● LAN ● WLAN ● STATUS 	On Off Flashes Off	The Stretch 2.0 is scanning for available Wi-Fi networks. If you wish, you can select this mode by pressing and holding the reset button for 5 seconds.
<ul style="list-style-type: none"> ● POWER ● LAN ● WLAN ● STATUS 	On Off On Off	The Stretch 2.0 is set to the set-up mode. You can now connect the Stretch 2.0 to your Wi-Fi network.
<ul style="list-style-type: none"> ● POWER ● LAN ● WLAN ● STATUS 	On Off On Off	The Stretch 2.0 is set to the set-up mode and an appliance is connected to the Wi-Fi network of the Stretch 2.0.

In the back of the manual you will find more specific situations that explain the way the LED-lights work.

Installing the Energy Manager

5

Naming devices

When you use the **Plugwise Control** for the first time, the Circles do not yet have a name. You will see the ID-code for each of the Circles. Take your installation list so you can easily find which Circle belongs to which appliance. Click on the pencil in the top right of the screen. You can now give each Circle the name you want by clicking on the appropriate Circle. Indicate the type of appliance, so the correct image is displayed.

Circle ID	Appliance	Location
1 Circle+		
2		
3		
4		
5		
6		
7		
8		
9		

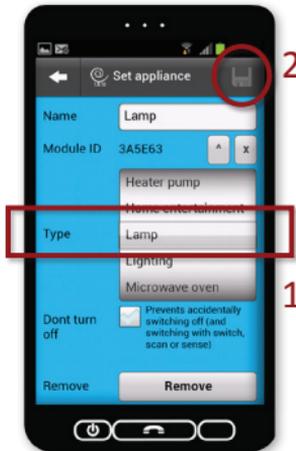


5.1 Optional: Take your installation list so you can easily find which Circle belongs to which appliance.

5.2 Click on the pencil in the top right of the screen to assign an appliance to the Circles.



5.3 Click on 'Appliances' and then on the Circle to enter a name.



5.4 Indicate the type of appliance, so the correct image is displayed.

If you only have Circles, the installation is now complete and you can start using the app. Read more about this at 'Discovering Plugwise Mobile'.

Please note: these are extension products you can add to your Energy Manager. These products are not standard included in your kit, but can be ordered in the Plugwise [web shop](#).

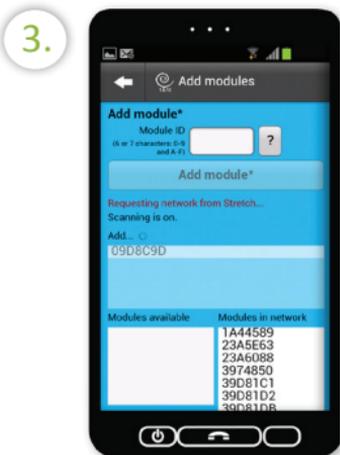
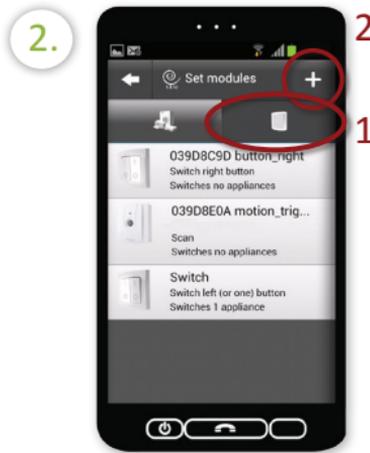
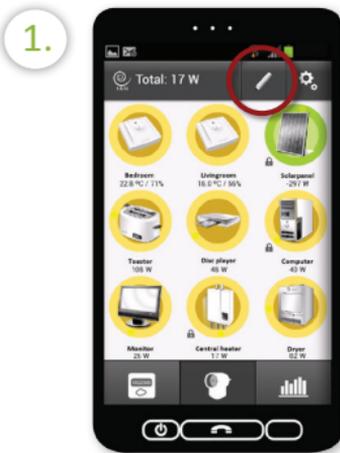
If you have a Switch, Scan and/or Sense

Adding a Switch, Scan and/or Sense

A Switch, Scan and/or Sense is added to the Plugwise app manually:

1. When in **Plugwise Control**, click on the pencil in the top right of the screen.
2. Click on the + icon in the top right of the screen.
3. Enter the module ID of your Switch, Scan and/or Sense and add the module.
4. Press the button on the Switch, Scan and/or Sense (see figure) to activate it. The Stretch 2.0 will now recognise the Switch, Scan and/or Sense.

You can always extend your system by adding additional modules (for example, when you purchase a Plugwise extension kit). The extensive manuals of the Switch, Scan and/or Sense can be found at www.plugwise.com/manuals.



Please note: these are extension products you can add to your Energy Manager. These products are not standard included in your kit, but can be ordered in the Plugwise [web shop](#).

If you have a Switch or a Scan

Connecting appliances to your Switch or Scan

After you have added your Switch or Scan, you can connect appliances to it. When in **Plugwise Control**, click on the pencil in the top right of the screen. Select your Switch or Scan and then check the devices you would like to connect to the Switch or Scan.



1.

Click on the pencil in the top right of the screen to connect appliances to the Switch and/or Scan.

2.

Click on 'Modules' and select your Switch or Scan by clicking on it.

3.

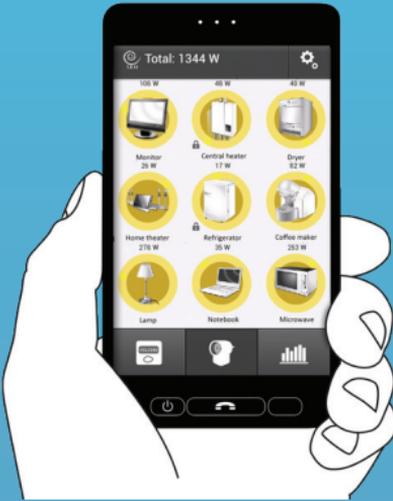
Check the devices you would like to connect to the Switch or Scan.

Discovering Plugwise Mobile



Plugwise – Control

In Plugwise Control, you will see a list of all appliances you have connected to the Circles, which appliances are currently on or off and how much they are currently consuming.



Switching

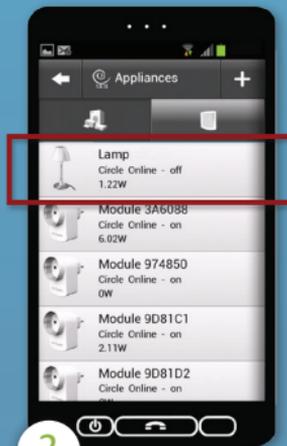
Click on an appliance to switch it on or off directly.

For example: you are in the living room and you see on the Plugwise that the light in the attic is still on. With a single press of the button you can switch off the light. Are you going to bed or leaving your home? Switch off all appliances within your Plugwise network. This way you know that no energy is wasted.

Power-off protection

With the Plugwise app you can protect your devices from being switched off manually. This will prevent the appliance from being switched off accidentally, for example, when the appliance is being used by someone else.

1. Click on the pencil in the top right of the screen.
2. Select an appliance (for example, your lamp) and check the option 'Don't turn off'.
3. Click on the icon in the top right of the screen to save any changes.



Discovering Plugwise Mobile



Plugwise – Control *(continued)*

Assigning a new appliance

You can assign a new appliance to a Circle that is already being used: click on the pencil in the top right of your screen and select the appliance you want to change. Now click on the 'Remove' button to remove the current appliance from the respective Circle. The name of the appliance will be removed within a minute, and you will be shown the Circle with its Module-ID. You can then change this Module-ID in a name for the new appliance. Also indicate the type of appliance. The consumption history of the removed appliance will remain stored and can be viewed in 'Charts'.

Click on the icon in the top right of the screen to save any changes.

Tip: Connect several lamps in a room to your Switch or Scan. As soon as you enter a room, you can light up the entire space with the single press of a button (or automatically through motion detection). Switching off your lights is just as easy. Simply leave the room or press the Switch button. Of course, you can also switch off each appliance using the buttons in the app.

 *Continued on the next page*

Discovering Plugwise Mobile

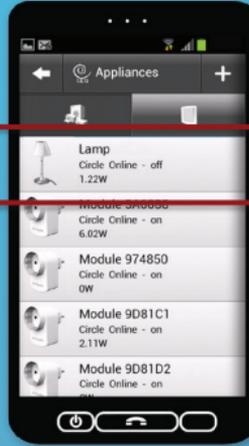


Plugwise – Control (continued)



1.

Click on the pencil in the top right of the screen.



2.

Select the appliance you want to replace.



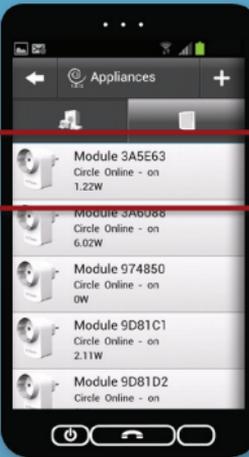
3.

Click on the 'Remove'-button.



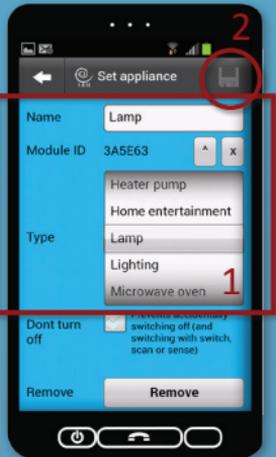
4.

The Circle with its Module-ID will be shown within a minute.



5.

Select the Module-ID for which you want to change the name into a name that suits the appliance.



6.

In the same screen as in step 3, you can rename the module. Then click on the icon in the top right of the screen to save any changes.

Discovering Plugwise Mobile

Plugwise – Charts



When you first want to view this tab, you will be asked to enter your energy profile. Based on this profile, the costs of your consumption and your consumption forecast for the coming year will be calculated. A completed energy profile ensures that you always have the correct information. You can always adjust the information you have entered through the settings of the Plugwise app (the icon in the top right of your screen).

Entering an energy profile.

You can always make changes to the information you have entered.

View your consumption in well-organised charts*. You can choose the time period for which you want to view your energy consumption, per hour, day, week, month or year.

With the Stretch 2.0, you can view your consumption per appliance. If you have a Smile P1, you can also view your total consumption (electricity and gas) for a complete and detailed insight into your energy use. To this end, you must have selected the option 'Merge licences' during the installation of the Stretch 2.0. Select an appliance to check its consumption and the costs. If you have solar panels, you can also view the power you supplied back to the grid.



Tip: use the charts to discover the largest energy consumers. View the energy consumption per hour to find out at which moments energy is used unnecessarily. You can now save on your energy costs in a targeted manner by connecting the largest energy consumers to your Scan or Switch.

* You can only view charts if during installation you have indicated to agree to sending anonymous data to the Plugwise server.

Discovering Plugwise Mobile



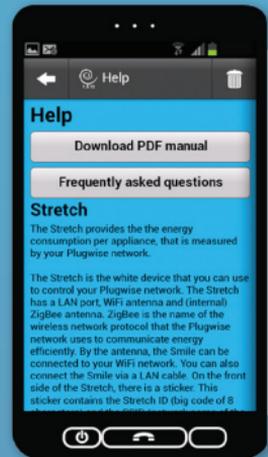
Plugwise – Settings



You can change your settings at any time. To do this, click on the icon in the top right of the screen of your Plugwise app. Here you can switch the demo mode on or off, change your energy profile or your data settings, among other things. This way, you decide what information will be shown to you. Do not forget to save your changes.

Help menu

Should the Plugwise app give an unexpected error message during the start-up, you will automatically be redirected to the Help menu. You can also go to the Help menu yourself by clicking on the Settings button in the top right of your screen. This way, you will enter the settings menu. Now click on 'Help'. Here you can find the answers to the most common error scenarios. In most cases, you can easily solve the problem yourself.



1.

Go to the Help menu manually by clicking on the Settings button.

2.

Click on 'Help'.

3.

In the Help menu you can find the answers to the most common error scenarios.

Please note: this is an extension product you can add to your Energy Manager. This product is not standard included in your kit, but can be ordered in the Plugwise [web shop](#).

If you have a Smile P1

000123

Plugwise – Main meter



The Smile P1 is connected to your smart meter and reads it in real time. This allows you to view both your total electricity consumption and your gas consumption. You can also view what the indicated consumption would cost you per day.

Click on the arrow below 'Meter Total' or on the counter itself to view your usage in the day and the night tariff (during installation, you were able to enter your energy rates. You can always change this in your **settings** by clicking on the icon in the top right of the screen to save any changes).

Tip: walk through your home and switch an appliance such as a lamp off. Check the app and you will immediately see the usage (and thus the costs) go down. The more appliances you switch off, the more you save and the greener your household will become.



Plugwise – Overview



In 'Overview,' you can view your own savings or additional consumption compared to, for example, last week. By clicking on the buttons in the overview screen, you can toggle between the different display options. For instance, you can compare your consumption with the average of your profile group.

Tip: Set a goal for yourself after purchasing the Energy Manager: how much energy/money would you like to save this year? Every month, check in the forecast chart in 'Overview' how much money you have saved. Did you achieve your goal?

The set-up of a Plugwise network

The Plugwise system records the energy consumption and/or energy production of the connected appliances.

The Plugwise system works with the wireless and energy-efficient communication protocol 'ZigBee' (a radio signal). ZigBee can cover distances of five to ten metres. This allows the modules within a Plugwise network to transmit (switching) instructions and data to each other. Plugwise networks are easy to set-up: the most efficient routes to send information from one module to another are automatically searched.

The **Circle** is the basic module of a Plugwise network. This allows the modules within a Plugwise network to transmit (switching) instructions and data to each other. The Circle measures the energy consumption of connected appliances and switches them on or off, either manually or automatically.

The **Circle+** determines which modules belong to the network. This is important if the network is extended with new modules. The Circle+ also has a clock that is used by the other modules to synchronise timekeeping. The Circle+ is installed first and must always be within range of the network and the Stretch 2.0, even if no appliance is connected. You can recognise the Circle+ by its grey back.

The **Stretch 2.0** is a device that communicates with the Plugwise network using ZigBee. The Stretch 2.0 ensures that measurement data of the Circles, Switch, Scan and Sense are sent to the Plugwise app on a smartphone or tablet over LAN or Wi-Fi, and that switching commands are communicated from the Plugwise app to the Circles. In an ideal situation, the Stretch 2.0 is located in the middle of the network that consists of Circles. The Circle+ must be located within 5 metres of the Stretch 2.0. The more Circles can communicate directly with the Stretch 2.0, the faster and more efficient the network.

The network can easily be extended with more Circles or other modules, such as the **Switch, Scan and/or Sense**. These can be added manually after installing the Plugwise app.

To create an optimally functioning network, each Circle should be located at a maximum distance of 5 to 10 metres of at least one other Circle. Walls and ceilings will reduce the range of the network. Always take this into account. For example, you can plug in a Circle near a stairwell to extend the range in case of concrete floors.

The set-up of a Plugwise network

Smile P1

The Smile P1 is a device that reads the smart meter via the P1 port. The Smile P1 sends these values to your router via LAN or Wi-Fi and from your router to the Plugwise app on your smartphone or tablet over Wi-Fi.

This app allows you to view the current readout of your electricity and gas meter (please note that gas is always displayed per hour).

Plugwise app

The extensive Plugwise app not only provides current insight into your overall energy consumption and production, it also allows you, among other things, to see savings over different time periods. You can also view your energy consumption per appliance and switch appliances on or off with the push of a button. Do you have solar panels installed on your roof? Also connect them to a Circle or Stealth to view the production of your panels in the Plugwise app.

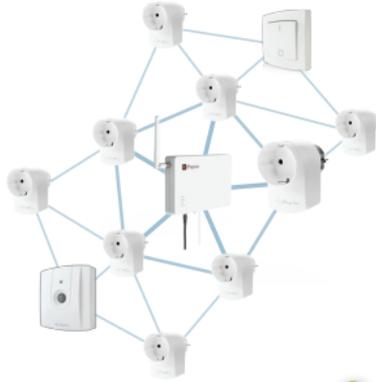
View your annual forecast or compare your energy consumption with similar households. Browse through the energy saving tips and find out how much fun and easy saving energy can be. You can view your energy consumption and production at home or wherever you may be. To this end, your usage data is sent to your Plugwise app via a secure Internet connection. Away from home, this data is updated every 15 minutes.

The set-up of a Plugwise network

Good network set-up

Advantages:

- Switching quickly
- Fast data sending
- Modules always easily accessible



In just 2 steps, all modules are connected to the Stretch 2.0. The Circle+ is placed close to the Stretch 2.0 (<5m).



Poor network set-up

Disadvantages:

- Slower switching
- Slower data sending
- Modules less easily accessible

The amount of data increases for each Circle close to the Stretch 2.0, because these Circles must also transmit the data of the Circles located further away in the network. The more directly the route of the module to the Stretch 2.0, the faster the data can be sent.



All modules are connected to each other, but the way to Stretch 2.0 is now characterised by more steps.

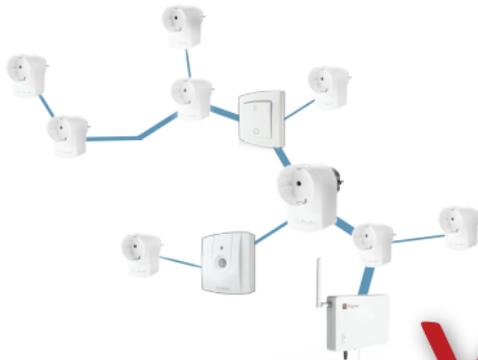


Bad network set-up

Disadvantages:

- Slow switching
- Slow data sending
- Modules badly accessible

The amount of data increases for each Circle close to the Stretch 2.0. These Circles must also transmit the data of the Circles located further away in the network to the Stretch 2.0, causing them to be loaded with more data.



The modules have to complete many steps before they finally reach the Stretch 2.0. The distance from the Stretch 2.0 to the various modules is too large, and the nearest Circle must forward the data of all the other Circles.



Meaning of the LED-lights on the Stretch 2.0, continuation

Here you will find an explanation for the LED-lights on the Stretch 2.0 in more specific situations.

<ul style="list-style-type: none"> ● POWER On ● LAN Off ● WLAN On ● STATUS Off 	<p>The Wi-Fi settings of the Stretch 2.0 are incorrect. Re-install the Stretch 2.0: Press the reset button for 5 seconds until the WLAN-light flashes red and release the button. Wait until the WLAN-light lights up green (approx. 10 seconds). Click on the 'Trash'-button in the top right of the menu 'Help' or 'Settings' and follow the installation steps like the first time.</p>
<ul style="list-style-type: none"> ● POWER On ● LAN Off ● ● WLAN Flashes in 2 colours ● STATUS Off 	<p>The Wi-Fi connection of the Stretch 2.0 has been set, but the password for the Wi-Fi network is incorrect. Follow the steps described above to re-install the Stretch 2.0.</p>
<ul style="list-style-type: none"> ● POWER On ● LAN Off ● WLAN On ● STATUS Off 	<p>The Stretch 2.0 is on and is set to connect to a Wi-Fi network, but this is unsuccessful. If you have changed the settings of your router recently, please follow the steps described above to re-install the Stretch 2.0.</p>
<ul style="list-style-type: none"> ● POWER On ● LAN Flashes ● ● ● WLAN All colours ● STATUS Flashes 2x per sec. 	<p>There is an internal problem with the Stretch 2.0. If this lasts more than 5 minutes, please press and hold the reset button for 15 seconds to reset the database and release the button the restart the Stretch 2.0 (Important! This will also delete the measurement history of the Stretch 2.0.). You will then have to re-programme the names of the appliances.</p>
<ul style="list-style-type: none"> ● POWER On ● LAN On ● ● WLAN Flashes in 2 colours ● STATUS Off 	<p>The Stretch 2.0 is connected to both a LAN and a WLAN connection. This will not work. Select one of the options:</p> <ol style="list-style-type: none"> 1. If you want to connect the Stretch 2.0 to your network over Wi-Fi, remove the LAN cable from the Stretch 2.0 and restart the Stretch 2.0 by unplugging it for a moment. 2. If you want to connect the Stretch 2.0 to your network over LAN, connect the LAN cable to the Stretch 2.0 and restart the Stretch 2.0 by unplugging it for a moment.

Parameters Stretch 2.0	
Dimensions	165 x 105 x 25 mm
Processor	Ralink RT3662 SOC (MIPS74Kc, 500 MHz, 64K I-Cache, 32K D-Cache)
Memory	16 MB Flash 64 MB RAM
Network	1 x WLAN 802.11 b, g, n, 2.4 GHz WPA/WPA2 1 x Lan 100M/1Gb Ethernet, UTP
	Plugwise Zigbee
Antenna	External detachable antenna (Wi-Fi)
Power	Power adapter
Input	100-240VAC (50/60 Hz)
Output	5 VDC
Average power consumption	~3W (with supplied adapter)
Operating Temperature	0 ~ 50 °C
Operating Humidity	10 ~ 90 °C (non-condensing)
Optional	Wall mount clip
	Additional connectivity features upon request
	
	ETSI EN 301.489-1 V1.9.2

All specifications are subject to change. See www.plugwise.com for detailed information

In order to measure and switch the energy consumption of your appliances, of course the Plugwise products themselves also consume a little energy. You can find more information about this in the **product specifications**.

Environment

Old electrical and electronic devices often contain valuable materials. Therefore, never dispose of discarded devices as normal household rubbish. Hand the device in to a local authority collection point for electrical and electronic devices.



Support and contact

We offer additional information in the form of:

- An instructional video: www.plugwise.com/app
- Frequently asked questions: www.plugwise.com/support/faq

If you still have questions, please contact us via the contact form on the support page on our website <http://www.plugwise.com/helpdesk>, via our e-mail address or via our telephone number.

E-mail: helpdesk@plugwise.com

Tel: +31 (0) 31 252 433 076



The **greenest**
energy
is the **energy**
we do **not**
use!