

SMART HOME HEATING  
STARTER PACK

Model No. LW703

Lightwave<sup>RF</sup> Comfy  
Smart home heating



Fitting and Set-up  
Instructions

## LightwaveRF Smart Home Devices

LightwaveRF allows you to remotely control your lighting, power and heating devices, using a Handheld Remote control, or over the internet using your smartphone, tablet or PC. That means you can control any device from your home, from wherever you are.

These beautifully designed products are controlled wirelessly, and can be 'retro-fitted'. Any LightwaveRF system can be completely modular; allowing you to add as much or as little as you like. Start with just one socket, one room, or an entire house and add more whenever you see fit.

## LightwaveRF Comfy Starter Kit

The following instructions refer to the 'Comfy' Heating Starter Pack (Model No. LW703). Once installed, this pack will allow you to remotely control your radiators using your smartphone or tablet. This kit contains:

- 1 x Lightwave Link (Model No. LW930)
- 3 x Radiator Valve (TRV) (Model No. LW922)

It is important to install this product in accordance with the following instructions. Failure to do so may invalidate your warranty. It is fully legal to install LightwaveRF products in your own home; however, if in doubt, always consult a qualified electrician. For additional guidance please visit [www.lightwaverf.house](http://www.lightwaverf.house).



## 1) Install your LightwaveRF TRVs

To install the TRVs (Thermostatic Radiator Valves), please refer to the following installation instructions and video link to guide you through the process. Installing a LightwaveRF TRV is usually straightforward and does not require any plumbing or exposure to water.



## 2) Plug in the Lightwave Link

Power the Lightwave Link and connect it to your home WiFi router using the cable provided. The instructions and video link in this booklet will explain how. The Lightwave Link will then set itself up automatically.



## 3) Download and install the App

Search for and download the 'LightwaveRF' App from the App Store or Google Play. Alternatively, you can use the 'Web App' available at [www.lightwaverf.house](http://www.lightwaverf.house). Follow the in-app instructions to set up the App and begin using your new smart-heating!

## TRV Installation

'Off' LED. When illuminated the TRV is closing.

'On' LED. When illuminated the TRV is opening.

Standby Button.  
Turns radiator on/off.

Boost Button.  
Increases temperature for 1 hour.

Screw collar to attach to radiator valve.

Linking Button.  
Press to enter linking mode



**IMPORTANT:** Please retain these instructions for guidance on how to link other LightwaveRF Heating devices to the TRV.

## Attaching the TRV head to the valve

• To attach the LightwaveRF TRV (head) you will need to ensure that you have a suitable thermostatic valve fitted to your radiator (such as the one pictured) and unscrew the existing valve head. This can usually be done by hand and does not require any special tools.

**NOTE:** Removing the existing valve head should not cause any water leaks as the main body of the valve remains sealed.

• The LightwaveRF TRV head will screw fit the majority of existing thermostatic valves without alteration. There are, however, several adapter collars provided to compensate for the most typical variations in the diameter of the valve and screw thread.

Valve head



Collar  
OPTIONAL

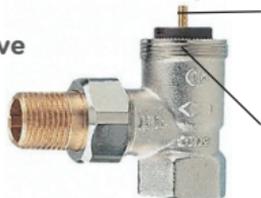


Pin  
insert

Screw  
thread



Valve



Pin

Screw  
thread

There are 2 types of collar (type A, type B). If Type A fits the valve screw thread, this is the more desirable collar to use. It has 4 insert pin lengths options provided for the collar. The most suitable pin is the one that (when in the collar) replicates the length of the existing pin.

Type B provides a clamp fit around the valve body and can be tightened using the screw provided.

### Inserting the batteries / calibration

The battery compartment is located at the top of the TRV. Remove the cover and insert 2x AA batteries.

Once the batteries are inserted, the TRV will automatically calibrate itself (this can take up to a minute). This requires it to be attached to the radiator, therefore do not insert the batteries until the TRV is securely installed. If the 'error' LED lights up during calibration, the TRV is not seated properly and may need adjustment (see troubleshooting section).



**Type A (with pin inserted)**



**Type B**



**Battery compartment**

## Manual and remote operation

The TRV is designed to achieve a set room temperature by controlling the flow of heat to the radiator. It is remotely controlled by the LightwaveRF Smartphone App and Web App (you will also need the Lightwave Link). The TRV automatically abides by the temperatures and schedules set from the App. The TRV also has buttons to allow you to control the radiator manually. If linked directly to the valve, a LightwaveRF Heating Remote or Magnetic Trigger can also be used to control the radiator in place of or alongside the App. The following section will show you how to use the manual buttons and how to link the TRV to the App and to a Heating Remote / Magnetic Trigger.

### Understanding the indicator LEDs

**Steady green 'on':** TRV is opening the radiator valve

**Steady amber 'off':** TRV is closing the radiator valve

**Alternating On/Off (longer on LED):** linking mode

**Alternating Off/On (longer off LED):** unlinking mode

**Steady red & amber:** valve jammed or wrong pin

**Steady red & green:** not mounted correctly / wrong pin

**Flashing red:** low battery (App should also report low battery status).



## The Standby button

Pressing the 'Standby' button on the TRV toggles between the fully open and fully closed positions. This will turn the radiator on or off by enabling or preventing the flow of hot water to it. When the 'Standby' button is pressed, a green light will illuminate to indicate that the valve is opening, or an amber light will illuminate to indicate that the valve is closing.

**NOTE:** When linked to the App, the target room temperature that the TRV will achieve will be automatically set by the App (see App instructions to learn how to set this) unless the 'Standby' or 'Boost' buttons are pressed. Pressing the 'Standby' button will fully open or close the valve, but **ONLY** until the next scheduled change. At the next scheduled temperature change, the TRV will revert to the target room temperature preset by the heating schedule.

The current target temperature, and the heating schedule for the TRV can be changed at any time using the App.



**Standby button**

## The Boost button

Pressing the 'Boost' button on the TRV raises the target temperature a few degrees above the current room temperature for the duration of one hour. If the target temperature is already several degrees higher than the actual room temperature, then pressing 'Boost' will simply match this temperature.

## Using the Heating Handset

A LightwaveRF Heating Remote can be linked to a TRV to directly control it (see Handset instructions).

Once linked, toggling the 'Standby' button on the remote will turn the radiator on and off in the same way as the 'Standby' button on the TRV. The 'Boost' button operates the TRV 'Boost' button.

The plus and minus arrows on the handset will raise or lower the target temperature a few degrees above or below the current room temperature.



## Linking the TRV to the Heating Remote or Magnetic Trigger

If you intend to use a LightwaveRF Heating Remote or Magnetic Trigger to control the TRV directly then you will need to 'link' them. The TRV can be linked to other LightwaveRF heating devices using the following method.

1. Press and release the 'Linking' button on the TRV (the on and off LEDs will flash alternately).
2. Press the Linking button on the heating device you wish to link. The 'on' LED should flash to indicate a successful link.

To unlink a heating device from the TRV, press and release the 'Linking' button and then press the 'Standby' button. This activates 'unlinking' mode. Press the Linking button on the heating device you wish to unlink. The 'off' LED should flash to indicate that the devices have been unlinked.

To completely clear the memory of the TRV, press and release the Linking button. Then hold the Linking button until the LEDs flash rapidly. Finally, press and release the Linking button once more. The off LED should flash.



## Lightwave Link Installation

Indicator LED

Main button



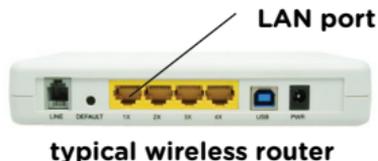
### Help video

For additional guidance, and to watch a video that will help guide you through the installation process, please visit [www.lightwaverf.house](http://www.lightwaverf.house).

## INSTALLING THE LIGHTWAVE LINK

Lightwave<sup>RF</sup>

**The Lightwave Link requires a wireless router with a permanent internet connection in order to operate. You will also require a WiFi enabled smartphone, tablet or PC.**



**1.** Take the Ethernet Connector Cable (supplied) and connect it to any spare available LAN port on your wireless router. Connect the other end of the cable to the Lightwave Link's single port.



**2.** Plug in the power supply, and push the jack plug into the AC connection on the back of the Lightwave Link. Turn on the power supply. The green LED on the Lightwave Link will illuminate to indicate that the Link has power and is ready to be set up from the LightwaveRF Smartphone or Web App.



## LED indicator lights

The LED indicators on the Link are used to indicate the status of the Link and to indicate if there is a problem. If there is a problem reported it will usually refer to an insecure cable connection or a server connection problem. If it has been set up correctly, the App will display details of any specific problem. See [www.lightwaverf.house](http://www.lightwaverf.house) for support. There are three states: green, amber and red.

**Steady Green:** Status normal

**Flashing Green:** Transmitting

**Flashing Green/Amber:** Linking mode

**Steady Red:** Cannot contact server

**Flashing Red:** Cable / Router problem



## Registering devices

Once the App is set up you will be able to register multiple smartphones / tablets to work with the Lightwave Link (see in-App instructions).

## De-registering / Factory reset

To de-register all linked smartphones / tablets devices, and to return the Lightwave Link to factory settings, press and hold the Reset button on the rear of the device for 10 seconds. When the LEDs flash red / green, press the Link button. The LED will flash red ten times to confirm the reset.

## App setup

- 1.** Download the LightwaveRF App from the App Store or from Google Play. It should automatically install onto your device.
- 2.** Select the App icon and enter the App.
- 3.** Please follow the in-App instructions which will take you through the setup procedure. This section of the booklet will confirm how to link TRVs to the App.
- 4.** If you need extra help with setup, please refer to the 'help' section in the App (you can find this by entering the App, pressing the 'more' tab on the menu bar and selecting 'Help').



## Web App

You can also control the Lightwave Link from the LightwaveRF Web App. This is a more extensive platform very suited to setting up and viewing large installs. This can be accessed at **[www.lightwaverf.house](http://www.lightwaverf.house)**.

## Heating devices

From the App you can monitor and control LightwaveRF TRVs and other heating devices such as Thermostats and Boiler Switches. Heating devices are displayed on the 'Heating Page'. This can be accessed from the tab marked 'Heating' on the main menu bar. From the Heating Page you can view and set real time temperatures for each TRV, Thermostat or Electric Switch. You can also use the LightwaveRF Web App (accessed from [www.lightwaverf.house](http://www.lightwaverf.house)) to operate and schedule heating devices. This is ideal for use on a tablet or PC.



## Planning Heating Schedules

Each heating device can be independently scheduled. This allows you to plan when your heating comes on in each room every day. You can access and save schedules by selecting the relevant device from the Heating Page. This way, you can easily customise your routine as your daily activities change. Plan the schedule for the boiler by selecting and scheduling the main LightwaveRF Home Thermostat.

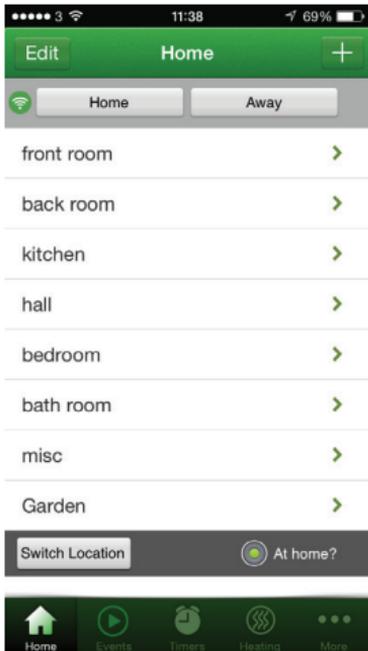
## Other App features

### Rooms

The LightwaveRF Apps organise your linked LightwaveRF lighting and power devices into rooms which you can name. These rooms could be, most commonly, the rooms of your house, such as 'lounge' or 'kitchen', but you can personalise them to represent whatever you like.

Within these rooms you can setup and access LightwaveRF lighting and power devices. You can name these devices as anything that you choose, so, a dimmer could be labelled 'bedside light' or a socket 'kettle', for instance.

The LightwaveRF Web App will also allow rooms to be grouped together to form 'zones'.



## Choosing device type & Moods

Once you have set up a room, you can begin to populate it with LightwaveRF devices. These devices can be set to behave as:

**On/off** (e.g. Sockets or Relays),

**Dimming** (e.g. 1 gang Dimmer),

**Open/close** (e.g. In-line Relay)

Defining the device type allows the correct command buttons to be displayed when you control that device from the App.

When setting up a room, you can also select a 'Mood'. A Mood allows you to group together several LightwaveRF devices and control them from one button. You can also set the dim level or on/off status you want the devices to come on at.



## Events

An Event is simply a list of LightwaveRF devices that you want to control at once. When you activate the Event, all the devices in the list will do whatever you have preset them to do. You could, for instance, set an Event called 'cinema' which, when activated, will drop the projector screen, dim the lights, and close the curtains, all at the touch of one button.

## Timers

You can add a Timer to any single LightwaveRF device to control it automatically at a set time. However, being able to control events is what really makes Timers such a useful feature. You can set up an Event and trigger it automatically at the same time everyday, at dusk, three times a day, every Wednesday, or whatever combination you desire. This can be used to, say, automatically turn on outdoor lights at dusk every day, turn on lights in a random pattern when you are out for security, or to turn on the radio and slowly bring up bedroom lights on a weekday.

## Energy Monitor

The Energy Display screen shows energy usage information gathered from a LightwaveRF Energy Monitor linked to the Lightwave Link. This data is live and updated every 15-30 seconds.

## Triggers

Triggers can be displayed and accessed using the LightwaveRF smartphone App. They are most conveniently set up using the Web App on a tablet. Trigger devices are designed to send an RF signal to the Lightwave Link whenever they are activated. This could be by pressing a button on a Heating Remote, by the opening of a Magnetic Trigger, or by the detection of movement on a PIR. The Lightwave Link will automatically take an action that has been preset using the App; it can turn on/off a number of devices, trigger a mood, or even send an 'alert' to your smartphone.



## Linking the TRVs to the LightwaveRF Apps

To use the App or Web App to control TRVs, you will first need to install the Lightwave Link. This allows any LightwaveRF devices to be linked to and controlled by a smartphone, tablet or PC. The TRVs can be linked to the App using the following method:

- 1.** Download the App and follow the in-App setup instructions to setup the Lightwave Link and App. Access the 'Heating Page' and follow the instructions regarding how to add a device.
- 2.** When prompted, press and release the 'Link' button on the TRV (the on and off LEDs will flash alternately).
- 3.** Send the linking command from the App (the in-App instructions will explain how to do this). The 'on' LED should flash to indicate a successful link.



## Using the TRV with the LightwaveRF App

**NOTE:** For full instructions on how to use the TRV with the LightwaveRF App or Web App follow the in-App help or visit [www.lightwaverf.house](http://www.lightwaverf.house).

The Heating Page allows you to view every LightwaveRF Heating Device that you have set up on the App. Displayed for each device is its current temperature, set target temperature and the next change to be enacted by the heating schedule.

If you select a device, you can view more options. From this screen you can change the current target temperature using the main dial. You can also view the heating schedule for each day by selecting the individual week days. To edit the heating schedule for this device, select the 'edit schedule button'.



## ADDING OTHER HEATING DEVICES

Lightwave<sup>RF</sup>

**Home Thermostat**  
(monitors house temp.)



**Boiler OR Electric Switch**  
(turns boiler on/off)



**Lightwave App**  
(control from anywhere)



**Heating Remote**  
(sets house temp.)



**Lightwave Link**  
(runs the show)



**Home or Away button**  
(turn house on/off)



**TRV**  
(controls radiator)



**Magnetic Trigger**  
(open window turns off TRV)



**Electric Switch**  
(controls electric radiators)

**Room by room radiator control**

**Problem:** *The TRV will not consistently operate remotely.*

**Solution:** The Remote/Thermostat/Lightwave Link may be encountering interference or may be at the edge of its reliable range of operation. First, ensure that there are no large pieces of metal or bodies of water in the path of the transmission. If the problem persists, try moving the Remote / Lightwave Link closer to the TRV.

**Problem:** *The TRV 'error' LED flashes after calibration/operation.*

**Solution:** The TRV is not calibrated correctly or may be jammed. This may be because it is not mounted properly; check that it is screwed down securely (finger tight) and not over tightened or cross threaded. If you are using an adapter collar, try changing the length of pin being used (there are four different lengths).

**Problem:** *The TRV no longer functions and the LEDs do not illuminate.*

**Solution:** Check the batteries. The average battery life should be at least one year, although this will vary depending on use. A red error LED will flash ten times to report a low battery status. If this measure fails, there may be a fault. Please contact technical support via [www.lightwaverf.house](http://www.lightwaverf.house).

**Problem:** *The Indicator LED on the Lightwave Link constantly flashes red*

**Solution:** There may be a connection problem between your network and the LightwaveRF server. First, check the Ethernet cable connection. If this is properly connected, try plugging the cable into another port on your WiFi router. If possible, try using an alternative Ethernet cable to ensure that there is not a cable fault. Also, make sure that there are no non-standard firewall/port forwarding rules on your network (the Lightwave Link operates on ports 69 & 2011 on UDP for remote connectivity and 9760 & 9761 for local connectivity).

**Problem:** *On the restoration of power after a power cut, my LightwaveRF devices remain in the 'off' state even if they were previously 'on'.*

**Solution:** After a power cut, mains powered LightwaveRF Heating Devices will revert to the 'off' status until the next change in the heating schedule. Other LightwaveRF devices will default to the 'off' position as a safety measure. The exception to this are the LightwaveRF CFR bulbs which default to 'on'. If you would like a device to default to 'on' after a power cut instead, a fridge for example, you can set the Lightwave Link to automatically send an 'on' command on startup (resumption of power). To link your devices to this on command, place your devices into linking mode, then cut power to the Lightwave Link and immediately restore it. If successful, the LED indicator light/s on the device will flash to indicate that they have stored the new command from the Lightwave Link.

**Problem:** *My Lightwave Link will not connect (the red indicator LED constantly flashes). I have a BT HomeHub 4.*

**Solution:** If you have a BT HomeHub 4 and are now experiencing connectivity issues with your Lightwave Link, it is likely that it will be related to the 'Smart Setup' feature of the HomeHub router. Disabling this fixes the connectivity issues on most setups. To do this, you will need to use your internet browser to adjust the Home Hub settings by going to <http://bthub.home> and then clicking 'Advanced Settings'. In this section, select 'Home Network' and choose to disable the 'Smart Setup' feature. The Lightwave Link should be able to connect and behave as expected once this has been done.

**Problem:** *My Lightwave Link will not connect (the red indicator LED constantly flashes). I have a BT HomeHub 5.*

**Solution:** Plug the Lightwave Link ethernet cable into port number 4 on the Homehub Router. This should solve the connection problem.

**Q. *How do I know that the TRV will fit my radiator?***

**A.** The TRV is designed to fit the vast majority of thermostatic radiator valves. It also comes with adjustable adapter collars to cater for any exceptions, therefore it should fit any standard radiators.

**Q. *Can I link more than one TRV to a Thermostat or Remote?***

**A.** Yes. Please refer to [www.lightwaverf.house](http://www.lightwaverf.house) for current device limits.

**Q. *Is it legal for me to install a LightwaveRF TRV myself?***

**A.** Yes, LightwaveRF products are fully legal for you to install in your own home.

**Q. *How long do the batteries last?***

**A.** This depends on use but a minimum of one year is a realistic timeframe.

**Q. *How do I know if the batteries need replacing?***

**A.** The red 'error' light will flash 10 times when receiving a command. The App should also report that battery levels are running low.

**Q. *How do I know if I have the latest firmware?***

**A.** The Lightwave Link will automatically check for firmware updates several times a day and on boot up. There is no need to manually update this.

**Q. *Does the Lightwave Link require a static IP address?***

**A.** Our system uses the MAC address of the Lightwave Link for remote commands and as such does not require you to have a static IP. The system will work with or without a static IP address.

**Q. *How much power does the Lightwave Link use?***

**A.** 3W (approximately).

**Q. *Can I set the time manually?***

**A.** No. This is set by checking with an internet NTP Server.

**Q. *How many heating devices can I have on the LightwaveRF system?***

**A.** The Lightwave Link can control up to 80 heating devices.

**Q. *Which ports does the Lightwave Link use?***

**A.** The Lightwave Link operates on ports 69 & 2011 on UDP for remote connectivity and 9760 & 9761 for local connectivity.

**Q. *How do I use a Signal Booster with the Lightwave Link?***

**A.** The Signal Booster can extend the range of 6 unique commands from the Lightwave Link. Each of these commands needs to be transmitted using the LightwaveRF App whilst the Booster is in linking mode for it to be saved and stored. It will then automatically repeat the signal when ever that command is sent using the LightwaveRF App.

**Q. *Do I need a permanent internet connection?***

**A.** On startup the Lightwave Link always needs an internet connection to acquire the time and its location. It is possible to use the Link without this connection later, however remote commands will not function.

## TRV Specification

**RF frequency:** 868 MHz

**Batteries:** 2 x 1.5V (AA)

**Warranty:** 2 year standard warranty

## Lightwave Link Specification

**RF frequency:** 433.92 MHz & 868 MHz

**Input rating:** 12V

**Energy usage:** 3W approx.

**Warranty:** 2 year standard warranty



Lightw<sup>w</sup>ave<sup>RF</sup>

**MEGAMAN<sup>®</sup>**

2 Quadrant Park  
Mundells  
Welwyn Garden City  
Herts  
AL7 1FS  
01707 386035

[www.lightwaverf.house](http://www.lightwaverf.house)