



Smart Dimmer (L22 / L22WH)

Lightwave

# 1 Preparation

## Installation

If you plan to install this product yourself, please follow the electrical wiring instructions carefully to ensure the product is installed safely, if in any doubt please consult a qualified electrician.

It is important to install this product in accordance with these instructions. Failure to do so may risk personal safety, create a fire hazard, violate the law and will also void your warranty. LightwaveRF Technology Ltd will not be held responsible for any loss or damage resulting from not correctly following the instruction manual.

**IMPORTANT:** Any electrical installation must comply with Building Regulations, BS 7671 (IET Wiring Regulations) or local equivalent.

**IMPORTANT:** If conducting an insulation resistance test, any hard-wired Lightwave devices must be disconnected from the mains, or damage to the unit may occur.

## You will need

 A back-box with a minimum depth of 35mm

 Suitable electrical screwdrivers

 Suitable dimmable lamps (bulbs)

 Knowledge of how to safely turn off/on mains electricity

 Your Link Plus, smartphone and dimmer

## Back box and spacers

This Lightwave smart dimmer requires a 35mm deep back box in which to mount it. If you have a back box that is shallower than 35mm, then the Lightwave spacer included can be used to provide 7mm of extra clearance from the wall.

## Compatible lamps

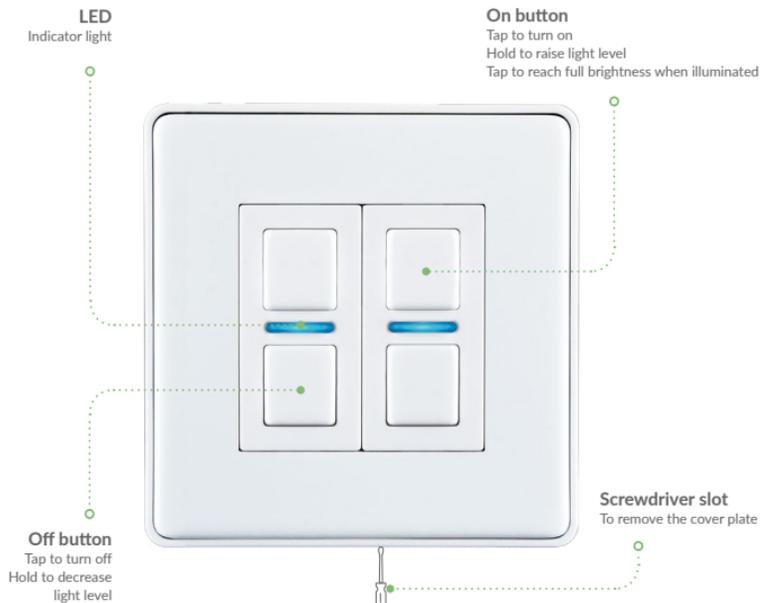
- Mains voltage incandescent lamps (max 200W)
- GU10 / HI spot halogen lamps (max 200W)
- Most dimmable LEDs (max load varies by lamp see [www.lightwaverf.com](http://www.lightwaverf.com) for guidance)

## Not compatible with:

- Wirewound transformers (generally older style)
- Electric motors
- CFLs and CFL tubes
- Incandescent lamps under 10W

## LED Lamp compatibility

Lightwave dimmers are designed to work with the majority of dimmable LEDs, but, as every lamp can behave differently, it is advisable to choose variants that have been tested and proven to work well. If you plan to use LEDs, we strongly recommend that you consult our compatibility chart (see [www.lightwaverf.com](http://www.lightwaverf.com)). The LEDs must be dimmable (not all varieties are), and you should not exceed the maximum loading recommendations provided on the compatibility chart or damage could occur.



## Specification

**RF frequency:**  
868 MHz

**Input rating:**  
230V~ 50Hz

**Output rating:**  
200W max (per gang)

**Incandescent Load:**  
10W min 200W max (per gang)

**Back Box Depth:**  
35mm min

**Earthing Requirement:**  
Not essential (double insulated)

**Circuit Type:**  
non-SELV

**On button**  
Tap to turn on  
Hold to raise light level  
Tap to reach full brightness when illuminated

**Screwdriver slot**  
To remove the cover plate

**Off button**  
Tap to turn off  
Hold to decrease light level

## Help video & further guidance

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

## Environmentally friendly disposal

Old electrical appliances must not be disposed of together with residual waste, but have to be disposed of separately. The disposal at the communal collecting point via private persons is for free. The owner of old appliances is responsible to bring the appliances to these collecting points or to similar collection points. With this little personal effort, you contribute to recycle valuable raw materials and the treatment of toxic substances.



## EU Declaration of Conformity

**Product:** Dual Channel Dimmer

**Model/Type:** L22 / L22WH

**Manufacturer:** LightwaveRF

**Address:** Innovation Campus Birmingham, Faraday Wharf, Holt Street, Birmingham, B7 4BB

This declaration is issued under the sole responsibility of the LightwaveRF. The object of the declaration described above is in conformity with the relevant union harmonisation legislation.

Directive 2011/65/EU ROHS,  
Directive 2014/53/EU: (The Radio Equipment Directive)

Conformity is shown by compliance with the applicable requirements of the following documents:

**Reference and date:**

EN 301 489-1 V2.2.0 (2017/03) (EMC), EN300220-1 V3.1.1 (RF), EN300220-2 V3.1.1 (RF), EN62479:2010 (RF Exposure), EN60669-2-5:2016 (Safety) EN62321-1:2013 (RoHS)

**Signed for and on behalf of:**

**Place of Issue:** Birmingham

**Date of Issue:** 30th April 2018

**Name:** John Shermer

**Position:** CTO

# UK

## 2 Installing the Dimmer

Carefully follow the instructions in this section in order to install the dimmer. Please remember that live electricity is dangerous. Do not take any risks. For other advice, please contact our dedicated technical support team at [www.lightwaverf.com](http://www.lightwaverf.com).

The easiest way to learn how to install the Lightwave Dimmer is to watch our short installation video which is accessible at

[www.lightwaverf.com/product-manuals](http://www.lightwaverf.com/product-manuals)

### 2.1 Turn off the mains electricity

Turn off the mains power supply to your existing lighting circuit at the consumer unit.

### 2.2 Remove the existing Switch

Unscrew the existing light-switch and remove the wires. It is often a good idea to take a quick photo of the existing wiring configuration. This can help you to remember which wires connect to which terminals if there are more than two, or if they are not distinctly labelled. The existing wiring should be colour coded and arranged as per the wiring diagram provided in these instructions, however, please be aware that not all existing wiring will conform to this standard and may differ.



### 2.3 Remove the Faceplate

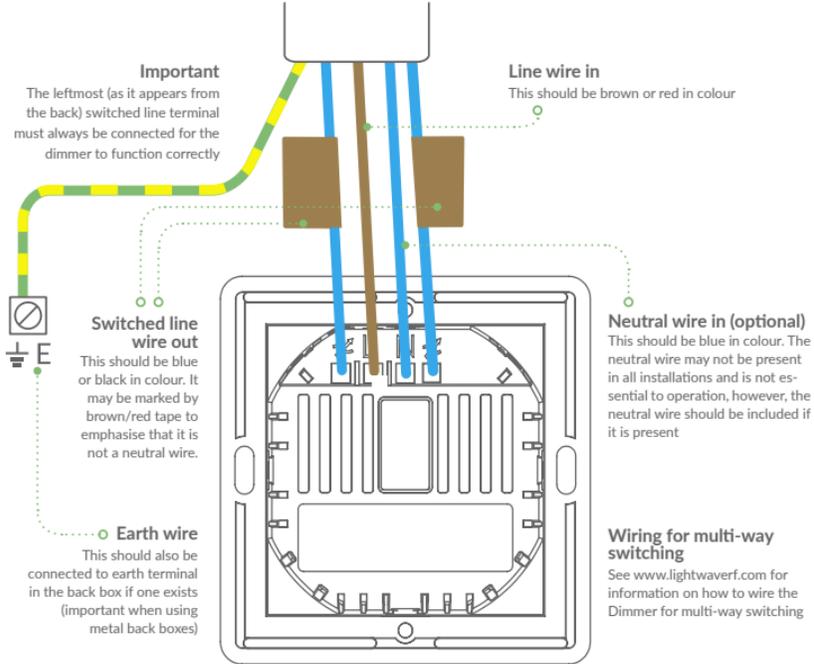
Remove the faceplate from the Lightwave Dimmer by carefully inserting a screwdriver into the small slot located at the bottom edge of the cover.

### 2.4 Wire the Dimmer

Carefully wire the Dimmer as shown in the diagram. Be aware that existing cables can vary in colour and may not always be correctly labelled. If in any doubt, always consult a qualified electrician. Replace the faceplate by hooking it onto the top edge of the Dimmer and clipping in the bottom. Check the wiring and load; remember not to exceed the 200W incandescent load per gang and to only use recommended dimmable LED lamps.

### 2.5 Replace the Faceplate

Replace the faceplate by hooking it onto the top edge of the Dimmer and clipping in the bottom.



### Calibration

Once the dimmer has been installed, lamps added to the circuit and the power switched on, it will enter calibration mode. This mode calculates the appropriate settings and dimming range to maximise compatibility with the lamps being used on the circuit.

#### Automatic calibration

If the dimmer has not previously been calibrated, it will automatically calibrate itself to the lamps detected on the circuit after 5 seconds. If the dimmer has been calibrated previously, these settings will be restored unless the on button is pressed within 5 seconds to overwrite them with a new calibration (recommended if lamps are changed). Auto calibration is denoted by flashing green LEDs.

#### Manual calibration (use in the event of persistent lamp flicker or instability)

Pressing the off button within 5 seconds of introducing power to the Dimmer will initiate manual calibration. This is initially denoted by flashing green and red LEDs. Pressing the on and off buttons now will extend or shorten the lower dimming limit. Pressing both buttons together will save the setting. Next, flashing green and blue LEDs denote that pressing the on and off buttons will now alter the upper limit. Press both buttons to save this setting.

## 3 Linking the Dimmer

### Locking the Dimmer

The Dimmer can be 'locked' using the App so that the manual buttons will not operate it. If it is locked on, then the Dimmer will not turn off manually. A locked dimmer is signified by a slow flashing magenta LED. To lock / unlock the Dimmer, press the 'lock' button on the Smartphone App. Clearing the memory will remove the lock.

### Change the colour of the indicator LED

The colour of the LED indicator lights on the Dimmer can be changed or the LED dimmed using the Lightwave App. See the App for more details.

### Error reporting

A permanently flashing red LED indicates that a software or hardware error has been encountered. Press the on/off button to reset the indicator LED. If the error light persists, please contact Lightwave support via [www.lightwaverf.com/support](http://www.lightwaverf.com/support).

### Firmware updates

Firmware updates are over the air software improvements that keep your device up to date as well as providing new features. Updates can be approved from the App before being implemented, and generally take 2-5 minutes. The LED will flash cyan in colour during an update. Please do not interrupt the process during this time.

To be able to command the Dimmer, you will need to link it to the Link Plus. Please follow the in-app instructions which will explain how to link devices.



Using the Lightwave App, select 'add device', and follow the in-app instructions.



On the Dimmer, press and hold down one pair of 'on' / 'off' buttons until the LEDs flash blue and red alternately. The Dimmer is now in linking mode.



The LED on the Dimmer will flash blue to confirm that it is linked to the App.

### Unlinking the Dimmer

To unlink the Dimmer and clear the memory, enter linking mode by holding down both on/off buttons until the LED flashes red. Release the buttons, then hold the off button until the LED flashes rapidly to confirm that the memory has been cleared. On clearing the memory, automatic calibration will be initiated.

# 4 Troubleshooting

For advice and guidance on any aspect of the installation or setup process, please visit the help & support section on [lightwaverf.com](http://lightwaverf.com) or call our dedicated tech support line on 0121 250 3625.

## The LEDs on the dimmer are not lit when the circuit is live

This is commonly caused when there is no load is connected to the Primary/master 1 Channel on a multi-gang dimmer (the leftmost gang when viewing the dimmer from the rear). It could also be due to the lack of a fully operating load on the circuit (i.e. a working lamp (bulb)). Ensure that any connected lamps are working correctly.

## Lights flicker at all dim levels

This may be because the lamps on the circuit are not compatible. First, check that the lamps are dimmable variants if they are LEDs. If the circuit load is low (i.e. <10W) try increasing the circuit load by changing or adding lamps (bulbs). Where possible, adding a neutral wire to the Dimmer will increase compatibility. Compatibility charts displaying Lightwave tested and approved LED lamps are available on [lightwaverf.com](http://lightwaverf.com).

## Lights flicker at maximum brightness

The existing calibration value set by auto-calibration is too high. Reduce the upper calibration value in the App by manually calibrating the dimmer (Device>Settings>Calibration). See [www.lightwaverf.com](http://www.lightwaverf.com) for further advice and guidance on how to do this.

## Lights remain on at a very low dim level when dimmer is turned off

This can be caused by lamp incompatibility, or insufficient load on the circuit. First, check that the lamps are dimmable variants if they are LEDs. Try increasing the amount of load on the circuit by adding lamps or using lamps with a higher wattage. Connecting a neutral where possible may also solve this issue. Try changing the lamps for variants known to be compatible with the Dimmer (see compatibility charts on [www.lightwaverf.com](http://www.lightwaverf.com) for advice).

## The LED flashes green, and the dimmer restarts every time that the circuit is turned on

The upper calibration value may be too high. Reduce the upper calibration value in the App by manually calibrating the Dimmer (Device>Settings>Calibration>Hold lamp icon). See [www.lightwaverf.com](http://www.lightwaverf.com) for further advice and guidance on how to do this. It is also possible on a multi-way circuit that the dimmer is wired incorrectly. See [www.lightwaverf.com](http://www.lightwaverf.com) for advice on how to connect the and set up the Dimmer for multi-way switching. It is also possible that there may be a voltage imbalance on a multi-way circuit. Connecting a neutral where possible may help to remedy this problem.

## Dim level of the lights reduces to 20% and dimmer LED flashes red slowly

This is usually due to excessive load on the circuit or incompatible lamps. Check that the total load connected to the Dimmer (wattage and quantity of lamps) is suitable (see [www.lightwaverf.com](http://www.lightwaverf.com) for advice on LED loads). Change to alternative lamps (see Lightwave LED Compatibility Charts suitable tested variants).

## Lights flicker/pulse unless both dimmer gangs are turned on (multi-gang dimmers)

There may be a voltage imbalance on the circuit. Ensure there is not a LINE wire in the secondary LINE terminal: only provide power to the primary channel (do not bridge). Connecting a neutral may solve this issue. Fitting an active load balancer on the primary (leftmost as seen from the rear) channel may also provide a solution (this would be fitted across the light fitting of the lamp that is wired to the first/primary gang of the Dimmer).

## The Lights take a long time to dim after holding down the button

There is a deliberate slow initial dim on the dimmer to allow for more precise light levels to be set. It is also possible that this is simply a factor of the performance of the LED lamps on the circuit. However, very slow dimming may be due to the upper calibration value being too high. It is possible to reduce the upper calibration value in the App by manually calibrating the Dimmer (Device>Settings>Calibration>Hold lamp icon). See [www.lightwaverf.com](http://www.lightwaverf.com) for further advice and guidance on how to do this. Dimming may be slightly slowed if the Dimmer is grouped to another dimmer/s and therefore dimming is happening via an automation. Be aware also that if the Dimmer is acting as the 'slave' of a two-way switching setup, then the dim level will only be applied when the Dimmer button is released.

## The LED flashes red when attempting to enter linking mode

The Device memory is full. Clear the memory (see section 3) and attempt to re-link the Device.

## The device does not link (no flashing blue LED to confirm successful link)

Check that the Link Plus is connected and working properly: it should display a solid green light during normal operation. The Dimmer may be out of range from Link Plus, or a large metal object / body of water may be blocking transmissions. Try changing the position of the Link Plus to see if the problem persists.

# Lightwave



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



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