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# LED Try-Before-You-Buy Kit Instructions

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More detailed information, videos, interactive calculators etc. is available here:

[www.transitionbath.org/ledkit](http://www.transitionbath.org/ledkit)



# Safety

- Always turn lights off before replacing bulbs
- Avoid handling hot bulbs, particularly halogen bulbs which can be too hot to touch for 15 minutes after being turned off
- If you need to rewire further safety instructions are available on Transition Bath's website: [www.transitionbath.org/ledkit](http://www.transitionbath.org/ledkit)
- Make sure if you are using the kit's mains to GU10 adaptor to test bulbs the mains is turned off before you change a bulb



# Contents of kit

- 11 GU10 LED bulbs
- 11 MR16 LED bulbs
- 4 Standard GLS Bulbs
- 4 Candle Bulbs
- 5 Golf Bulbs
- 1 mains adaptor for standalone testing
- 5 socket adaptors for use with above
- 1 LED Compatible Dimmer Switch



# Why swap halogen downlighters for LEDs?

- The answer is basically economics:
  - LEDs use about 10% of the electricity for the same light output as a halogen
  - LEDs have lifespans almost 10 times that of halogens, meaning you will need to replace the bulbs less often
- If you use a 50W halogen downlighter for 2 hours per day, it will cost about £5 to run in electricity
- Homes on average have 10 halogen downlighters, so replacing all of them will save £50/year, or approximately 10% of an annual electricity bill
- The only reasonable reason not to switch is if you don't like the quality of the light produced by LEDs (CRI)



# Why a Try-Before-You-Buy LED kit?

- The aim is to encourage people to switch, to reduce the barriers to switching
- LEDs provide much more choice in colour (warm white, daylight white, cool white), brightness and beam angle, which can be bewildering
- There are potentially some compatibility issues with dimmers and transformers
- The kit allows you to test colour, beam angles and compatibility before purchase



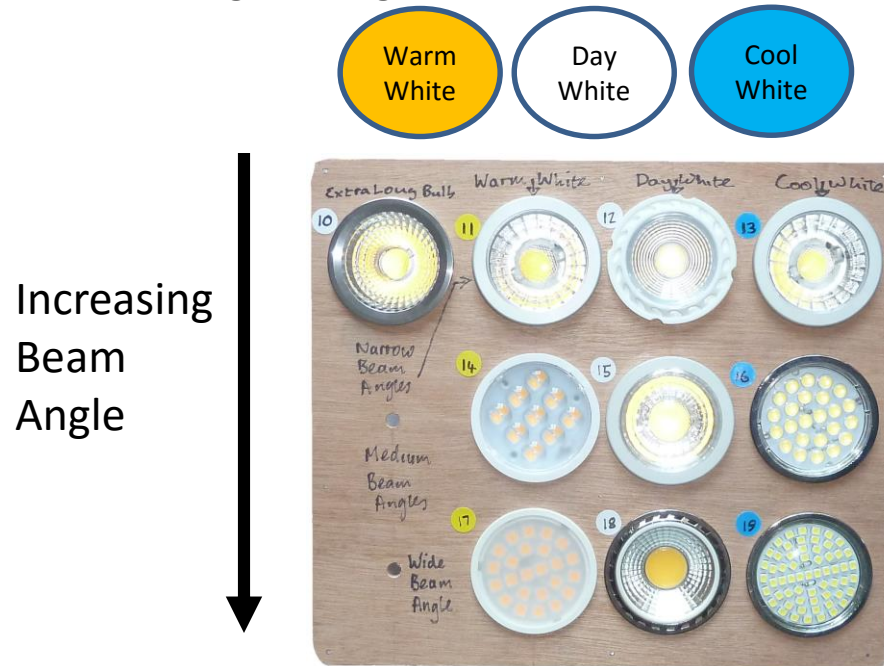
# How to use the kit

- We don't suggest any prescriptive method but...
- **Choose Colour:** First of all we suggest you decide what colour light you prefer? LEDs vary from 'Warm White' (similar colour to halogens) to 'Cool White' (bluer than natural daylight)
- **Choose Beam Angle:** Then, decide on the 'beam angle', whether you want a narrow spotlight or a wider 'flood' beam of light
- **Additionally:** you then need to decide on cost, brightness, dimmer switch and transformer compaitibility, but these are less important



# Organisation of Kit

- The GU10s and MR16s are arranged in a grid of 'Colour' versus 'Beam Angle':



- Each bulb is labelled with a number, which corresponds to a description in the 'database' printout supplied with the kit (please put bulbs back in their correct place)
- Generally there 'Warm White' and 'Day White' versions of most bulbs, and some have 'Day White' versions as well



# 'Database' - documentation

- At the end of this documentation is a summary of the specification of each labelled bulb: e.g.

## 11: LEDHut LumiLife 5W GU10



450  
lumens

60W  
equiva  
-lent



Non-dimmable: £6 ✓

Dimmable: NA



38°



Warm White ✓

Day White

Cool White

- This tells you that bulb no. 11 in a GU10 consumes 5 watts, has a brightness of 450 lumen equivalent to a 60W halogen, is only available as a non-dimmable costing £6, has a 38° beam angle and is available in a choice of 3 colours (Warm, Day and Cool White) but the version in the kit is the warm white version signified by the tick





# Down-lighter types

- GU10: mains 240C AC



- MR16: 12V DC  
– uses a transformer



There are 2 types of sockets for downlighters, the GU10 which runs off mains electricity and has rounded knurled connectors and the MR16 which has pointed connectors and is attached to the mains via a transformer which is normally found hidden in your ceiling void. There are 2 trays in the kit, one for GU10s (28 LEDs) and one for MR16s (11 LEDs). You need to determine which of these you have before starting – you may have both in different rooms of the house. If you are testing MR16's and have a DAB radio, test both at the same time for radio interference.



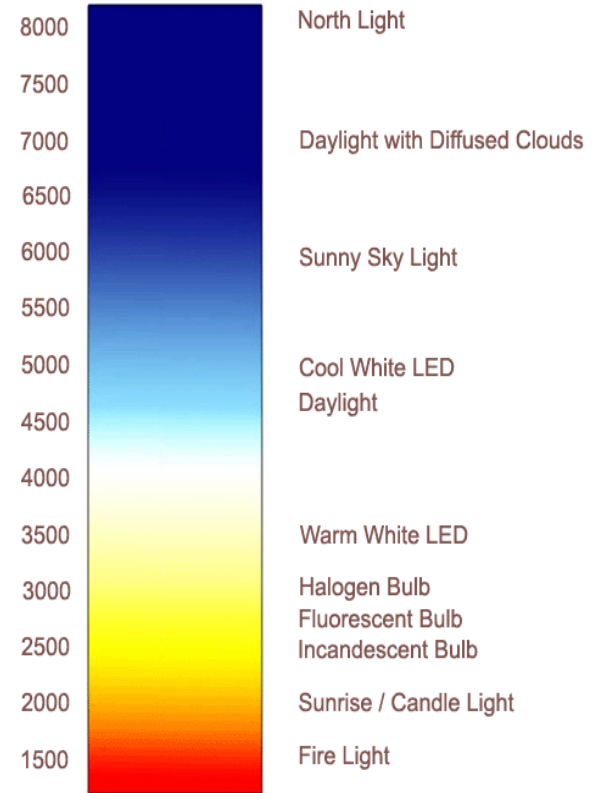
# Other bulb types

- The kit also includes standard GLS, candle and golf shape bulbs
- These bulbs come with a choice of sockets including ‘large bayonet’, ‘small bayonet’, ‘large Edison screw’ and ‘small Edison screw’
- Some of these bulbs are available as dimmable and non-dimmable, and in more than one colour



# Choice 1: Colour Temperature

- The colour of lights is rated in Kelvin ranging from 1500K (red) to 8000K (blue) – see chart to the right
- Halogen and incandescent bulbs only come in 1 colour temperature (3000K)
- LEDs come in a range of temperatures
  - Warm white 2700K
  - Day/natural white 4000K
  - Cool white 6000K
- The choice is personal but cooler whites make you feel more active (kitchen?) and warmer whites, more relaxed (living rooms?)

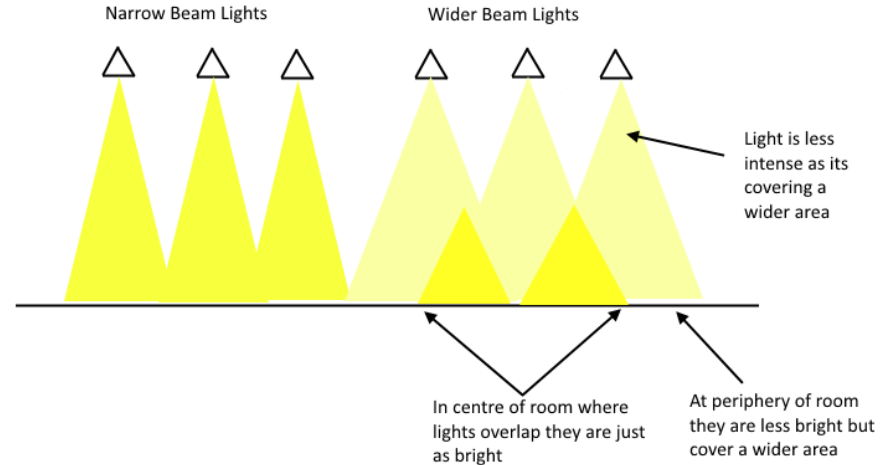


**Suggestion:** Pick a 'Warm White', 'Day White' and 'Cool White' bulb from the kit and try them to see what you prefer, then focus on trying bulbs of your preferred colour



# Choice 2: Beam Angle

- Halogens normally have a beam angle of  $38^{\circ}$
- LEDs vary from  $24^{\circ}$  to  $120^{\circ}$



- Narrower beams provide brighter more intense light. Wider beams less intense broader light, but as per the diagram above, they create more overlap with surrounding bulbs so the light can be as intense
- The kit provides a variety of beams angles for you to try, you may want more intense light on work surfaces and less elsewhere



# Other choices: 1

- **Dimmable:** most LEDs are available in dimmable (50p to £3 premium) and non dimmable versions; if you have a dimmer you will most likely need to replace it; the kit contains a sophisticated LED compatible dimmer if you need to try it
- **Types:** there are 3 types of LEDs used SMD (lots of small LEDs), Normal (3 to 5 LEDs) and COB (1 large LED) – the differences aren't critical, more information is provided on our webpage



## Other choices: 2

- **Depth:** Some LED bulbs are deeper than the standard halogen (51mm to 55mm), so you need to check whether there is space for the longer LEDs in your light enclosures before purchasing (most are flexible)
- **Transformers:** MR16 bulbs are attached to transformers, older transformers may not be compatible with all LED bulbs, if they are not compatible the light will tend to flicker. If you can't find any which work, then you may have to change your transformer, or better still switch to GU10's – in either case we are happy to provide advice ([ledlighting@transitionbath.org](mailto:ledlighting@transitionbath.org) or [www.transitionbath.org/ledkit](http://www.transitionbath.org/ledkit) )



# Where to buy

- **Online suppliers:** We would recommend you purchase from one of the 2 online suppliers (LEDHut, LightRabbit) who provided the samples for the kit, because:
  - They come with 5 year guarantees
  - They specialise in LEDs so if there are any technical problems they should be able to provide the answers
- **Or Screwfix:** if you prefer a local store (opposite Homebase in Bath) – they have a reasonable range of bulbs which come with a 3 year guarantee

If you like one of the bulbs in the kit then go to [www.transitionbath.org/ledbuy](http://www.transitionbath.org/ledbuy) and click on the image of the enumerated bulb you like and you will be taken to the vendors website. For LEDHut and LightRabbit it is worth registering your email with them as several times a month they have 20% to 30% off deals on all their LEDs – hence it is worth waiting for one of these deals

- **High street retailers e.g. Homebase:** generally offer poor performing expensive bulbs with 1 year guarantees – who we recommend you avoid
- **Ebay:** can be much cheaper, down to £1 per bulb, but we have found:
  - They are often of poor quality
  - Don't come with guarantees
  - The delivered bulbs seems to consistently underperform their quoted specifications



# Finally

- Please provide us with feedback:  
<http://www.transitionbath.org/ledfeedback>
- Our website [www.transitionbath.org/ledkit](http://www.transitionbath.org/ledkit) contains a lot more detailed advice; if you have any technical issues or queries please email us:  
[ledlighting@transitionbath.org](mailto:ledlighting@transitionbath.org)
- Recommend the service to friends, family and colleagues? And get them to sign up to be notified by the library when the kit is available:  
[www.transitionbath.org/ledsignup](http://www.transitionbath.org/ledsignup)