

Home Energy Check-up Information Sheet

Issue Number 9	Subject / Source MR16 12V LED transformer issues	Date 08.2020
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Incompatible MR16 LED transformers symptoms

The symptoms which you may experience when incompatible transformers are used with MR16 LEDs are; no light at all, flickering lights and random shut down of the LED lights.

Background

There are primarily 2 types of light fitting for the traditional halogen bulb LED replacement; the 240V GU10 and the 12V MR16. The GU10 bulbs have a small transformer inside each bulb; the MR16 bulbs require an external transformer to reduce the mains voltage from 240V to the required 12V.

These external transformers fall into 3 categories:

- 1) traditional wire-wound magnetic transformers
- 2) 1st generation electronic transformers
- 3) 2nd generation electronic transformers

All MR16 LED bulbs will work with the wire-wound and the 2nd generation transformers.

The 1st generation transformers require a minimum load of about 8 Watts before they will work. (The minimum required load is usually stated on the actual transformer) A typical MR16 LED bulb is less than 8 Watts and therefore insufficient to enable these 1st generation electronic transformer to supply a constant 12V output.

Connecting 4 LED bulbs in parallel to the same transformer will provide a higher load which is sufficient to operate the LEDs. Alternatively, combining one halogen lamp with several LED lamps on the same circuit also provides a solution; although of course, one will not achieve all the electricity consumption savings if this is one of your desired objectives.

In most MR16 installations, the transformers are positioned in an easily accessible place for replacement.

In many installations, the transformers are positioned in a convenient place for replacement as they are the weak link within the lighting circuit; almost a consumable item.

The 2nd generation electronic transformers have been designed to operate with zero loads and therefore work perfectly with all LED lights.