

## General compatibility guidelines

This document provides the basic guidelines for electrical compatibility of CIRCAMAN 12V lamps and compatibility tables for transformers.

We would advise the homeowners and contractors test the product first before going full-scale installation especially if you are retrofitting them with your existing setup.

## Transformer Compatibility

CIRCAMAN 12V MR16 and AR111 lamps are design to work with 12V AC magnetic (MLV) and electronic (ELV) transformers and 12V DC transformers. Transformer compatibility tables are on this document. If multiple lamps are installed on one transformer, they need to be connected in parallel. They cannot be installed in series.

- 12V AC Magnetic transformers and 12V DC transformers are in general compatible. We are highly recommended our customers using these transformers for full functions of our lamps.
- 12V AC Electronic transformers generally have a minimum load issue. For full functions of our lamps, we recommend using only transformers that have been tested and found compatible. In general, we recommend to use transformers with very little (2W) or no minimum load (0W). If your transformer is not in the compatibility tables below, we recommend our customer to test in-situ before installation. Please contact sales@circadian-light.com for guidance.

## Dimmer Compatibility

Our lamps are not compatible with dimmer but the lamps could be dimming with our remote control and CIRCAM remote control - Android Apps

## Maximum number of lamps on a transformer

The following need to be considered when determining the numbers of lamps on a transformer.

1. Our tests have been carried out with 1 lamp unless stated otherwise.
2. There is a repetitive, very brief current spike the LED lamp will see twice per cycle. This current spike has to be provided by the transformer, and will affect the recommended lamp load on each transformer.
3. Ultimately the transformer/dimmer manufacturer is the only one with authority to rate their product, but we can give an Engineering estimate.
4. We have added the maximum amount of MR16 lamps we recommend for each transformer in the transformer compatibility tables.
5. We recommended test the lamps and transformer in-situ before installation.

## Distance between transformer and lamp(s)

- 12V AC Magnetic transformers and 12V DC transformers do not have a limitation regards the maximum length of the wires between transformer and lamp. Only the voltage drop has to be taken into account (losses because of the inner resistance of the conductors).
- 12V AC Electronic transformers have a limitation in the length of the wires between transformer and lamp(s). This length is usually stated by the transformer manufacturer on its specs or on the transformer itself, and generally it is limited to 1.5 meters (6 feet).

Disclaimer Compatibility tests are conducted by CIRCAMAN only as guidance for the user. All tests are conducted under bench conditions; results may differ from test results depending on conditions at the application site. Results may vary due to variability in component choices and manufacturing processes by the transformer manufacturers. For more information on the transformers, please find specs on the manufacturer's website.

## Transformer Compatibility List – MR16-07 (GU5.3 12V)

Brand	Model	Voltage (Vac)	Wattage (W)	Transformer Type	Country	Compatibility @100% Brightness	Dimming Brightness	Max. no. of lamps per transformer	Tested by
LEDVANCE	LVED VAL 12/220-240/12	220 – 240V	12W	Electronic	CN, HK	PASSED	5%	1	In-house
LEDVANCE	LVED VAL 12/220-240/12VAC DIM	220 – 240V	12W	Electronic	Asia, Middle East	PASSED	5%	1	In-house
LEDVANCE	LVED VAL 20/220-240/12	220 – 240V	2 – 20W	Electronic	CN, HK	PASSED	25%	1	In-house
MEAN WELL	APV-8-12	100 – 240V	8W	Electronic (DC)	Worldwide	PASSED	5%	1	In-house
MEAN WELL	APV-16-12	100 – 240V	16W	Electronic (DC)	Worldwide	PASSED	5%	2	In-house
MEAN WELL	APV-25-12	100 – 240V	25W	Electronic (DC)	Worldwide	PASSED	5%	3	In-house
MEAN WELL	LPV-20-12	100 – 240V	20W	Electronic (DC)	Worldwide	PASSED	5%	3	In-house
MEAN WELL	LPV-35-12	100 – 240V	35W	Electronic (DC)	Worldwide	PASSED	5%	4	In-house
NIUGUY	AB-F15W12CV	110 – 240V	15W	Electronic (DC)	Worldwide	PASSED	5%	1	In-house
OSRAM	ET-L 30/220-240	220 – 240V	30W	Electronic	CN, HK	NC (Slow start-up)	5%	3	In-house
PHILIPS	ET-S 15 LED 15	220 – 240V	15W	Electronic	EU, CN	NC (Flickering)			Distributor
PHILIPS	ET-E 10	220 – 240V	2 – 10W	Electronic	CN, HK	NC (Flickering)			In-house

## Transformer Compatibility List – AR111-18 (G53 12V)

Brand	Model	Voltage (Vac)	Wattage (W)	Transformer Type	Country	Compatibility @100% Brightness	Dimming Brightness	Max. no. of lamps per transformer	Tested by
LEDVANCE	LVED VAL 20/220-240/12	220 – 240V	2 – 20W	Electronic	CN, HK	NC (Flickering)			In-house
L&W	LW-11	230V	50W-100W	Electronic	HK	PASSED	5%	5	In-house
MEAN WELL	APV-25-12	100 – 240V	25W	Electronic (DC)	Worldwide	PASSED	5%	1	In-house
MEAN WELL	APV-35-12	100 – 240V	35W	Electronic (DC)	Worldwide	PASSED	5%	1	In-house
MEAN WELL	LPV-20-12	100 – 240V	20W	Electronic (DC)	Worldwide	PASSED	5%	1	In-house
MEAN WELL	LPV-35-12	100 – 240V	35W	Electronic (DC)	Worldwide	PASSED	5%	1	In-house
OSRAM	ET-L 30/220-240	220 – 240V	30W	Electronic	CN, HK	PASSED	50%	1	In-house
OSRAM	ET-A60	220 – 240V	20 – 60W	Electronic	CN, HK	NC (Flickering)			In-house
PHILIPS	ET-E60 220-240V	220 – 240V	60W	Electronic	CN, HK	NC (Flickering)			In-house
SUNLUSH	MT50WH	220V	50W	Electronic	CN, HK	PASSED	50%	2	In-house

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