

SORAA

Electrical compatibility – AR111 12.5W 12V lamps – Japan

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Scope

This document provides the basic guidelines regards electrical compatibility of SORAA 12V AR111 12.5W lamps and compatibility tables for transformers.

Transformer Compatibility

SORAA 12V AR111 lamps are made to work with 12V AC magnetic (MLV) and electronic (ELV) transformers and 12V DC transformers. Transformer compatibility tables are on pages 3-4. 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.
- 12V AC Electronic transformers generally have a minimum load, and SORAA recommends using only transformers that have been tested and found compatible. In general we recommend to use transformers with very little or no minimum load (0W). If your transformer is not in the compatibility tables below, it does not mean it is incompatible, but it means that we have not tested it to date, please contact techsupport@soraa.com for guidance.

Dimmer Compatibility

SORAA 12V AR111 lamps are made to work with trailing edge (reverse phase) and leading edge (forward phase) phase cut dimmers.

Electronic dimmable transformers need trailing edge dimmers, while Magnetic transformers need leading edge dimmers.

There might be a minimum wattage load on the transformer/dimmer. If this minimum load is not met, there might be compatibility issues.

Maximum number of lamps on a dimmer/transformer

The following need to be considered when determining the amount of lamps on a dimmer/transformer.

1. SORAA 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/or dimmer, and will affect the recommended lamp load on each transformer or dimmer.
3. Ultimately the transformer/dimmer manufacturer is the only one with authority to rate their product, but SORAA can give an Engineering estimate.
4. For transformers, we recommend to use a 1.4 de-rating factor:
For example for a 50W transformer it would mean $50/1.4=35W$ of LED, so an estimated maximum of 2 lamps 12.5W.
5. For dimmers, we recommend to use a 2.0 de-rating factor for leading edge dimmers with magnetic transformers; and a 4.0 de-rating factor for trailing edge dimmers driving Low Voltage lamps on electronic transformers.

For example for a 500W leading edge dimmer it would mean $500/2=250W$ of LED, so an estimated maximum of 20 lamps 12.5W.

For example for a 400W trailing edge dimmer it would mean $400/4=100W$ of LED, so an estimated maximum of 8 lamps 12.5W.

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 2 meters (6 feet).

Disclaimer

Compatibility tests are conducted by Soraa 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 and dimmer manufacturers. For more information on the dimmers/transformers, please find specs on the manufacturer's website.

AR111 12V 12.5W TRANSFORMER COMPATIBILITY LIST - Japan

Brand	Model	Wattage	Voltage (Vac)	Class / Frequency	Country	Transformer Type	1 Lamp
Japan							
Cosel	SPLFA30F-12	25	100-120	12VDC	JP	Electronic	Pass
DAIKO	A/F 53179	50-75	100	12VAC	JP	Electronic	Pass
DAIKO	DP-36282E	10-75	100	12VAC	JP	Electronic	Pass
ENDO	223B	35-75	100	12VAC	JP	Electronic	Pass
ENDO	224-B	50-75	100	12VAC	JP	Electronic	NC
ENDO	X-228B	50-75	100	12VAC	JP	Electronic	NC
GLEX	Z6149	50	100	12VAC	JP	Electronic	Pass
IWASAKI	DTE12651	10-50	100	12VAC	JP	Electronic	Pass
MAXRAY	OPO 1010-70	10-50	100	12VAC	JP	Electronic	Pass
National	NK00813	50	100	12VAC	JP	Electronic	Pass
ODELIC	OJ068016 M130410	75	100	12VAC	JP	Electronic	Pass
Panasonic	HNK00844	15-50	100	12VAC	JP	Electronic	Pass
TOSHIBA	DTF-36	20-35	100	12VAC	JP	Electronic	Pass
Unity	T-1275TH	20-75	100	12VAC	JP	Electronic	NC
USHIO SPAX	TR-E055D	50	100	12VAC	JP	Electronic	Pass
USHIO SPAX	TR-E090D	50-90	100	12VAC	JP	Electronic	Pass

SORAA AR111 12V 12.5W - TRANSFORMER COMPATIBILITY – Japan

Transformer compatibility Notes:

- Compatibility tests are conducted by Soraa 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 manufacturer
- If the transformer's minimum wattage is not met, the lamp may only operate under nominal conditions (nominal line voltage and thermal conditions where the lamp is at full power).
- If the fixture/transformer is not listed as tested, please consult with Soraa first before making any recommendations to end customer.
- Above table is for applications where no dimmer is used. If a dimmer is used, the user should consult the Dimmer/Transformer table, or contact Soraa if their desired combination is not listed.
- Transformer maximum load should not be exceeded. Please follow transformer/dimmer manufacturer's guidelines regarding maximum load with LED lamps. To calculate the estimated maximum number of lamps, please download our calculator from the following link:
<https://res.cloudinary.com/soraa/raw/upload/v1452276139/content/max-lamp-load-calculator.xlsx>
Or following the guidelines stated on page 2 of this document.
- (*) This transformer added to the compatibility list as of Revision 17Q3