

SORAA

Electrical compatibility – MR16 12V GU5.3 7.5W & 9W lamps - Japan

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Scope

This document provides the basic guidelines regards electrical compatibility of SORAA 12V MR16 lamps and compatibility tables for transformers and dimmers.

Transformer Compatibility

SORAA 12V MR16 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.

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. We have added the maximum amount of MR16 lamps we recommend for each transformer in the transformer compatibility tables.
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 33 lamps 7.5W.

For example for a 400W trailing edge dimmer it would mean $400/4=100W$ of LED, so an estimated maximum of 13 lamps 7.5W.

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.

SORAA MR16 12V 7.5W & 9W - TRANSFORMER COMPATIBILITY LIST - Japan

PASS - The transformer supports one or more lamps up to the maximum wattage;

NC - SORAA does not recommend this transformer for use with its lamps;

2 Lamp Min - The transformer supports two or more lamps up to the maximum lamp wattage limit;

Transformer Brand	Transformer Model	Transformer Wattage	Input Voltage (VAC)	Transformer Type	7.5W		9W	Maximum Number of 7.5-Watt Lamps per Transformer	Maximum Number of 9-Watt Lamps per Transformer
					Free Air or Open Fixture	Enclosed Fixture	Free Air or Open Fixture		
Japan									
DAIKO	A/F 53179	75	100	Electronic	PASS	PASS	PASS	6	5
DAIKO	DP-36282E	75	100	Electronic	PASS	PASS	PASS	7	6
ENDO	X-223B	35	100	Electronic	PASS	PASS	PASS	3	3
ENDO	X-224B	75	100	Electronic	PASS	PASS	PASS	7	6
ENDO	X-228B	75	100	Electronic	PASS	PASS	PASS	6	5
GLEX	Z6129	50	100	Electronic	PASS	PASS	PASS	4	3
GLEX	Z6132	35	100	Electronic	PASS	PASS	PASS	3	2
GLEX	Z6149	50	100	Electronic	PASS	PASS	PASS	4	3
IWASAKI	DTE12651	65	100	Electronic	PASS	PASS	PASS	5	4
Japan Lighting	JTR-LA1-07-B1	7.5	100	Electronic DC	PASS	PASS	NC	1	NC
Japan Lighting	JTR-LA1-37-B1	47	100	Electronic DC	PASS	PASS	PASS	4	3
Koizumi	AEE690156	75	100	Electronic	PASS	PASS	PASS	6	5
MAXRAY	OPO 1010-70	50	100	Electronic	PASS	2 lamp min	PASS	4	3
National	NK00813	50	100	Electronic	PASS	PASS	PASS	4	3
ODELIC	OJ068016 M13040	75	100	Electronic	PASS	PASS	PASS	6	5
RAL (Ricardo Architectural)	ES012-V012-0E	12	100-242	Electronic DC	PASS	PASS	PASS	1	1
Tokyo Trans	HSDL 35-12	35	100	Electronic	PASS	2 lamp min	PASS	3	2
TOSHIBA	DTF-36	35	100	Electronic	PASS	PASS	PASS	3	2
Tozai Denko	LA1-30-B1 (*)	30	100	Electronic	PASS	PASS	PASS	2	2
Unity	T-1275TH	75	100	Electronic	PASS	PASS	PASS	8	6
USHIO SPAX	TR-E055D	55	100	Electronic	PASS	PASS	PASS	5	4
USHIO SPAX	TR-E090D	90	100	Electronic	PASS	PASS	PASS	8	7

SORAA MR16 12V 7.5W & 9W - TRANSFORMER COMPATIBILITY LIST – Japan

Notes:

- Compatibility tests are conducted by Soraa under bench conditions as guidance for the user; results at the application site may differ due to variability in usage conditions or in transformer components/manufacturing
- 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 transformer is not listed, please consult with Soraa before making recommendations to the 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.

(*) This transformer added to the compatibility list as of Revision 18Q4

SORAA MR16 12V 7.5 & 9W - DIMMER/TRANSFORMER COMPATIBILITY LIST - Japan

NC - SORAA does not recommend this transformer/dimmer combination for use with its lamps;

DIMMER/TRANSFORMER COMPATIBILITY LIST at 100V 50/60Hz , Japan

Transformer manufacturer	Transformer model	Transformer type	Number of Lamps per transf. tested ↓	Number of transf. per dimmer tested ↓	Dimmer →	Daiko LZA-90306E	Koizumi AE36745E-C	Maxray OP01346-00	Odelic LC 211 (LED)	Panasonic NQ20615	Panasonic WN57512	Panasonic WN575159	Panasonic WN575259	Panasonic WT57511W	Panasonic WTA57583W	Panasonic WTC57523W	Panasonic WTC575251	Panasonic WTY54110W	TES LIGHTING TLC-0003
					Dimming mode →														
Japan Lighting	JTR-LA1-37-B1	Electronic/DC	1	1		10%	7%		7%		7%	NC	NC	11%	29%	10%	NC		9%
Tozai Denko	LA1-30-B1	Electronic	1	1		NC	6%	6%	6%	6%				23%	8%	25%	NC	5%	13%

Transformer	PWM dimmers -->		Panasonic NQ20356 (PWM)
RAL (Ricardo Architectural)	ES012-V012-0E	Electronic/DC	5%

Notes:

- Compatibility tests are conducted by Soraa (unless stated otherwise) under bench conditions as guidance for the user.
- Regards compatibility tests conducted by dimmer / transformer manufacturer, please contact Soraa or the manufacturer for more details and/or reports.
- Results at the application site may differ due to variability in usage conditions or in dimmer or transformer components/manufacturing.
- 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).
- Transformer maximum load listed in the transformer compatibility table should not be exceeded.
- If the dimmer and/or transformer is not listed, please consult with Soraa before making recommendations to the end customer.
- (*) One or more test results with this transformer added to the compatibility list as of Revision 18Q4

--%	Dims to < 20% (of the measured light output)
--%	Dims to 20-30% (of the measured light output)
NC	Not compatible (or dims to >30%)
Blank cell	Not tested