

# SORAA

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

### Table of contents

- General compatibility guidelines.....Page 2
- Transformer compatibility.....Page 3-7
- Dimming compatibility.....Page 8-15
  - Soraa Optima Phase-cut electronic transformer.....Page 8-10
  - Phase-cut large multi-channel dimmers with electronic transformers.....Page 11
  - Phase-cut small dimmers with electronic transformers.....Page 12-13
  - Dimmers with magnetic transformers.....Page 14
  - Non phase dimmers (DALI, 0-10V, etc).....Page 15

## 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 3-7. 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](mailto:techsupport@soraa.com) for guidance.

## Dimmer Compatibility

SORAA 12V MR16 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. Dimmer compatibility tables are on pages 8-15.

Along the top of the dimmer compatibility tables you will see the different dimmers that we have tested, and along the left side of the chart you will see the different transformers we tested. The percentages for each transformer/dimmer combination are the percentage of light output that we were able to dim down to without seeing any problems like flicker/shimmer. Anything 30% or above is considered not compatible and you will see a "NC" in a grey cell. 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. 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 incandescent/halogen 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 - International**

**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 upto the maximum lamp wattage limit;

**3 Lamp Min** - The transformer supports three or more lamps upto the maximum lamp wattage limit

Brand	Model	Wattage	Voltage (Vac)	Country	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		
<b>International</b>										
ABB	Speedy ETR 105	105	230	Germany	Electronic	NC	NC	NC	NC	NC
ABB	Speedy TED 105	105	230	Germany	Electronic	NC	NC	NC	NC	NC
Actec	Ultra 70	70	230	HK/China	Electronic	PASS	PASS	PASS	5	4
Actec	DIM12-25	25W	220-240V	EU, CN	Electronic	NC	NC	NC	NC	NC
Atco	Speedy TED 105	105	230	Nordic	Electronic	NC	NC	NC	NC	NC
Berker	Tronic Trafo 150W	150	230	EU	Electronic	3 Lamp Min	3 Lamp Min	3 Lamp Min	8	7
Beyond Illumination	BY12T-1W12V-1	12	40-240	EU, Asia	Electronic/DC	PASS	PASS	PASS	1	1
BLV	45600101	60	220/240	Germany	Electronic	PASS	PASS	PASS	4	4
BLV	45600201	105	230	Germany	Electronic	PASS	PASS	PASS	8	6
Bright Star Lighting (MSD)	MSD-DALI-DIM-CV-30W	30W	230	EU, Asia	Electronic/DC	NC	NC	NC	NC	NC
ECOPAC	ELED-100-12D	100	230	EU	Electronic/DC	PASS	PASS	PASS	7	5
ECOPAC	ELED-180-12D	180	230	EU	Electronic/DC	PASS	PASS	PASS	16	13
ECOPAC	ELED-80-12T	80	230	EU	Electronic/DC	NC	NC	NC	NC	NC
ECOPAC	ELED-100-12T	100	230	EU	Electronic/DC	PASS	PASS	PASS	8	7
ECOPAC	ELED-150-12T	150	230	EU	Electronic/DC	PASS	PASS	PASS	12	10
EldoLED	LINEARdrive 100A	100	120-250	EU	Electronic/DC	NC	NC	NC	NC	NC
Emcolite	EMRED60	60	230/240	EU	Electronic	PASS	NC	PASS	4	3
Euchips	EUP12T-1W12V-1	12	40-240	EU, Asia	Electronic/DC	PASS	PASS	PASS	1	1
EVN	PD.2/150	150	230	EU	Electronic	NC	NC	NC	NC	NC
Fulham	T1M1UNV012V-20L	20	100-277	EU-Asia	Electronic/DC	PASS	PASS	PASS	1	1
Fulham	T1M1UNV012V-60L	60	100-277	EU-Asia	Electronic/DC	PASS	PASS	PASS	5	4
Fullham Pony	PET-230-12-105	105	220/240	EU	Electronic	3 Lamp Min	3 Lamp Min	3 Lamp Min	7	5
GIRA	Tronic Trafo 20-105	105	230/240	EU	Electronic	2 Lamp Min	2 Lamp Min	2 Lamp Min	8	7
Govena	YT50	50	230	EU	Electronic	PASS	PASS	PASS	4	3
Govena	YT60	60	220-240	EU	Electronic	PASS	PASS	PASS	4	4
Hatch	RS12-60-230M-LED	60	230	EU	Electronic	PASS	PASS	PASS	5	4
LCI	DC DIM MINI - PUSH Code 1700124	10	230	EU	Electronic/DC	NC	NC	NC	NC	NC
LCI	DC DIM 1-10V 35W Code 1750129	35	220/240	EU	Electronic/DC	PASS	PASS	PASS	3	2
LCI	ET3-60C	60	230	EU	Electronic	PASS	PASS	PASS	5	4
Lightech	LET 75W 12V Dimming Loop	75	230	EU	Electronic	PASS	PASS	PASS	4	4
Lightech	LET75	75	230	Italy/Spain/UK	Electronic	PASS	PASS	PASS	4	4
Light-Dept	Ultra 70	70	230	HK/China	Electronic	PASS	PASS	PASS	5	4
LTF	TU150WA12-0000	150	220/240	EU	Electronic	3 Lamp Min	3 Lamp Min	3 Lamp Min	9	7
LTF	TU75WA12-0000	75	220/240	EU	Electronic	2 Lamp Min	2 Lamp Min	2 Lamp Min	4	3

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

**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 upto the maximum lamp wattage limit;

**3 Lamp Min** - The transformer supports three or more lamps upto the maximum lamp wattage limit

Brand	Model	Wattage	Voltage (Vac)	Country	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		
<b>International</b>										
LTSYS	DALI-36-12-F1P1	36	230	APAC	Electronic/DC	NC	NC	NC	NC	NC
LTSYS	DALI-36-12-F1P1-SORAA	36	230	APAC	Electronic/DC	PASS	PASS	PASS	2	2
Lutron	ELVXF-60-T20-CE	60	230	EU & Asia	Electronic	PASS	PASS	PASS	5	4
Mean Well	LVP-20-12	20	100-240	Asia	Electronic/DC	PASS	PASS	PASS	1	1
Mean Well	PWM-90-12	90	100-305	World wide	Electronic/DC	PASS	PASS	PASS	8	6
Mean Well	PWM-120-12	120	100-305	World wide	Electronic/DC	PASS	PASS	PASS	10	8
Mode Lighting	ET-105-C	105	230	UK	Electronic	NC	NC	NC	NC	NC
Mode Lighting	MOE-050-D-240	50	230	UK	Electronic	PASS	PASS	PASS	1	1
Mode Lighting	MOE-075-D-240	75	230	UK	Electronic	PASS	PASS	PASS	6	5
Mode Lighting	ET-040-PL-230-RD (Puma LED)	40	240	EU	Electronic	PASS	PASS	PASS	3	2
Multiloal	VMD300/12	300	240	UK	Magnetic	NC	NC	NC	NC	NC
Niko (*)	320-00101 70W	70	230	EU	Electronic	PASS	2 Lamp Min	PASS	5	4
NOBILE	EN-60D	60	230/240	Nordic	Electronic	NC	NC	NC	NC	NC
NOBILE	Konverter EN-150F	150	230	EU	Electronic	2 Lamp Min	2 Lamp Min	2 Lamp Min	12	10
OSRAM	ET A-60	60	230	HK/China	Electronic	2 Lamp Min	2 Lamp Min	2 Lamp Min	3	2
OSRAM	ET-LED 30	30	230	HK/China	Electronic	PASS	PASS	PASS	2	1
OSRAM	ET-P 60	60	220/240	HK/China	Electronic	2 Lamp Min	2 Lamp Min	2 Lamp Min	3	2
OSRAM	ET-PARROT 70	70	220/240	EU	Electronic	NC	NC	NC	NC	NC
OSRAM	ET-PARROT 105	105	220/240	EU	Electronic	2 Lamp Min	2 Lamp Min	2 Lamp Min	7	6
OSRAM	ET-REDBACK 40VA	40	220/240	Australia	Electronic	NC	NC	NC	NC	NC
OSRAM	Hti Dali 105	105	230/240	France/Germany	Electronic	NC	NC	NC	NC	NC
OSRAM	HTM 105	105	230/240	EU, CN	Electronic	PASS	PASS	PASS	5	4
OSRAM	HTM 70	70	230/240	EU	Electronic	PASS	PASS	PASS	2	2
OSRAM	HTM150	150	230/240	EU, ME	Electronic	3 Lamp Min	3 Lamp Min	3 Lamp Min	9	8
PHILIPS	CERTALINE 105W	105	220/240	Italy/Spain	Electronic	3 Lamp Min	3 Lamp Min	3 Lamp Min	6	5
PHILIPS	CERTALINE 60W	60	230	EU	Electronic	2 Lamp Min	2 Lamp Min	2 Lamp Min	4	3
PHILIPS	ET-LD15A16	2.6-15	127	Brazil	Electronic	PASS	PASS	PASS	1	1
PHILIPS	ET E-60	60	230	HK/China	Electronic	2 Lamp Min	2 Lamp Min	2 Lamp Min	4	3
PHILIPS	ET-E-10 LED	10	230	HK/China	Electronic	NC	NC	NC	NC	NC
PHILIPS	ET-R 50A26	20-50	220	Brazil	Electronic	NC	NC	NC	NC	NC
PHILIPS	ET-S 15 LED	15	220/240	EU, CN	Electronic	NC	NC	NC	NC	NC
PHILIPS	ET-S 30 LED	30	220/240	EU, CN	Electronic	NC	NC	NC	NC	NC
PHILIPS	ET-S 60	60	230	EU, Asia	Electronic	PASS	PASS	PASS	4	3
PHILIPS	PRIMALINE 105	105	230	EU, CN	Electronic	NC	NC	NC	NC	NC
PHILIPS	PRIMALINE 70	70	220/240	EU, CN	Electronic	3 Lamp Min	3 Lamp Min	3 Lamp Min	3	3

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

**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 upto the maximum lamp wattage limit;

**3 Lamp Min** - The transformer supports three or more lamps upto the maximum lamp wattage limit

Brand	Model	Wattage	Voltage (Vac)	Country	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		
<b>International</b>										
QLT	DPV105	20-105	230	EU	Electronic	NC	NC	NC	NC	NC
Relco	ICE 105 PFS TH	105	230	Italy/Spain	Electronic	NC	NC	NC	NC	NC
Relco	ICE 60 PFS TH	60	230	Italy/Spain	Electronic	3 Lamp Min	3 Lamp Min	3 Lamp Min	4	3
SELF	SLT60-12VL-1	60	230	Italy/Spain	Electronic/DC	PASS	PASS	PASS	6	5
SilverStar	MS-700	12	100-234	EU	Electronic/DC	NC	NC	NC	NC	NC
<b>SORAA</b>	<b>Optima</b>	70	230	EU,Asia, Australia	Electronic	PASS	PASS	PASS	5	4
TCI	DC JOLLY DALI (cod.123424)	10	220-240	EU	Electronic/DC	NC	NC	NC	NC	NC
TCI	DC LED 12V EFUR (Cod 122321)	20	100-240	EU,CN,JP	Electronic/DC	PASS	PASS	PASS	1	1
TCI	MW 70 LED(Ref. 119772)	70	230	Italy/Spain	Electronic	NC	NC	NC	NC	NC
TCI	Round 50(Ref. 119649)	50	230	EU/ME	Electronic	NC	NC	NC	NC	NC
Trafelstar	TISG 105.235-12	35-105	230	EU	Electronic	NC	NC	NC	NC	NC
Tridonic	LGBU 25W 12V BASIC phase-cut SR	25	220-240	EU, Turkey	Electronic/DC	PASS (no dimmable)	PASS (no dimmable)	PASS (no dimmable)	2	1
Tridonic	Speedy TE-0050 C101	50	230	France	Electronic	2 Lamp Min	2 Lamp Min	2 Lamp Min	2	2
Tridonic	Speedy TE-0070 C101	70	230/240	France	Electronic	2 Lamp Min	2 Lamp Min	2 Lamp Min	4	3
Tridonic	Speedy TE-0105 C101	105	230/240	France	Electronic	NC	NC	NC	NC	NC
Tridonic	TE-0105 One4All SC	105	230	Italy/Spain	Electronic	NC	NC	NC	NC	NC
Tridonic	TE-0105 U	105	230	Italy/Spain	Electronic	NC	NC	NC	NC	NC
Truelux	DA12VPWM	20	230	EU, ME, Asia	Electronic/DC	PASS	PASS	PASS	2	1
Truelux	DA12VPWM10	10	230	EU, ME, Asia	Electronic/DC	PASS	PASS	PASS	1	1
Truelux	AN12VPWM	20	230	EU, ME, Asia	Electronic/DC	PASS	PASS	PASS	2	1
Truelux	AN12VPWM10	10	230	EU, ME, Asia	Electronic/DC	PASS	PASS	PASS	1	1
Truelux	PH12VLN	50	230	EU	Electronic	PASS	PASS	PASS	3	2
Varilight	YT50L	50	230	EU	Electronic	PASS	PASS	PASS	4	3
Varilight	YT50LZ	50	230	UK	Electronic	PASS	PASS	PASS	4	3
Verbatim	nr. 52901	50	230	Australia	Electronic	PASS	PASS	PASS	4	3
Vossloh Schwabe (*)	Discline EST 70	70	230	Nordic, HK, China	Electronic	PASS	2 Lamp Min	PASS	6	5
Vossloh Schwabe	EDXe 112/12	12	230	Nordic, HK, China	Electronic/DC	PASS	PASS	PASS	1	1
Vossloh Schwabe	EST60/12.6	60	220/240	EU	Electronic	NC	NC	NC	NC	NC
Vossloh Schwabe	EST 70 12.380 (ref no 186072)	70	240	EU	Electronic	PASS	PASS	PASS	5	4
Vossloh Schwabe	EST 120/12.651 Ref186526	20	230	EU, Asia	Electronic	PASS	NC	PASS	2	1
Vossloh Schwabe	Lifeline EST 105/12-381	105	240	EU	Electronic	2 Lamp Min	2 Lamp Min	2 Lamp Min	7	6

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

**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 upto the maximum lamp wattage limit;

**3 Lamp Min** - The transformer supports three or more lamps upto the maximum lamp wattage limit

Brand	Model	Wattage	Voltage (Vac)	Country	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		
<b>International</b>										
Vossloh Schwabe	Lifeline EST 105/12-481	105	240	EU	Electronic	2 Lamp Min	2 Lamp Min	2 Lamp Min	8	6
ABB Stotz	SI-TR200	200	230	EU	Magnetic	PASS	PASS	PASS	19	15
B&T	ALV 200 NM	200	230	EU	Magnetic	PASS	PASS	PASS	19	15
ETE	MV0300P1S3	300	230	EU	Magnetic	PASS	PASS	PASS	28	23
GATA	T50/209.23	50	220	Thailand	Magnetic	PASS	PASS	PASS	5	4
Houben	SICHERHEITSFAFO EKT V1 200	200	230/240	EU	Magnetic	PASS	PASS	PASS	19	15
Light Ideas	T-UNO/20/LI/00	20	230	EU	Magnetic	PASS	PASS	PASS	1	1
Light Scape Projects	n. 121-077 50W	50	230	EU	Magnetic	PASS	PASS	PASS	4	3
Noratel	LF84A-22012-GS	105	220/240	Nordic	Magnetic	PASS	PASS	PASS	10	8
Vossloh Schwabe	STR 50/12.342	50	230	EU	Magnetic	PASS	PASS	PASS	4	4

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

### 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 this Revision

**SORAA Optima 230V Electronic 12V transformer with 12V Soraa MR16 7.5W & 9W lamps - DIMMER COMPATIBILITY LIST**

Dimmer Manufacturer	Dimmer family	Dimmer model number	Dimming mode	Number of transformers tested per dimmer	Number of lamps per transformer	Dim (%)	Comments
Aurora		DSP400X	Leading	2	1	NC	
Busch		6523 U-102	Trailing	1, 10	1	8%	
Casambi		CBU-TED	Trailing	1	1	4%	
Clipsal		32ELEDM	Trailing	2	1	7%	
Clipsal		L5504D2U	Adaptive-TE	5, 15	1	7%	
DIGINET		DGLCDM400 (MEDM)	Trailing	2, 15	1	5%	
Elko		315GLE	Trailing	1	1	7%	
ETC	DRd	EELV6	Trailing	6	1	7%	(*) Tested by dimmer manufacturer
Feller		3314.12 FMI.61	Trailing	1, 2, 15	1	10%	
Feller		40200.LED.FMI.61	Trailing	1, 2, 15	1	25%	Limited by dimmer travel
Feller		40300.RC	Trailing	1	1	7%	
Gira		238500 / I01	Adaptive-TE	1, 2, 10	1	11%	Limited by dimmer travel
Govena		PRO-250-LT-LED	Leading	1	1	NC	
Helvar	Digidim	452	Trailing	5, 15	1	5%	
Helvar	Digidim	454	Trailing	5, 15	1	5%	
Honeywell	Inncom	H454.F.CE	Trailing	1, 5, 15	1	12%	
Jung		1224 LED UDE	Trailing	2	1	7%	Limited by dimmer travel
Jung		225 TDE	Trailing	1	1	21%	

**SORAA Optima 230V Electronic 12V transformer with 12V Soraa MR16 7.5W & 9W lamps - DIMMER COMPATIBILITY LIST**

Dimmer Manufacturer	Dimmer family	Dimmer model number	Dimming mode	Number of transformers tested per dimmer	Number of lamps per transformer	Dim (%)	Comments
<b>Legrand</b>		572239	Trailing	1	1	9%	
<b>Lutron</b>	Grafik Eye QS	Grafik Eye QS	Leading	1, 2, 5	1	NC	
<b>Lutron</b>	Grafik Eye QS + Interface	NGRX-ELVI-CE with Grafik Eye QS main unit	Adaptive-TE	Min 1-Max 20	1	9%	(*) Tested by dimmer manufacturer
<b>Lutron</b>	Grafik Integrale	GXI-3104	Trailing	Min 1-Max 12 (per channel). Total per module is 40	1	9%	(*) Tested by dimmer manufacturer
<b>Lutron</b>	Homeworks QS Energy Savr Node QS (for Quantum and QS systems)	QSNE-4A-D (Gen2) / LQSE-4A-D (Gen2)	Trailing	Min 1-Max 14 (per zone)	1	6%	(*) Tested by dimmer manufacturer
<b>Lutron</b>	Homeworks QS / My Room	LQSE-4A1-D / MQSE-4A1-D / MQSE-3A1 / MQSE-2A1-D	Trailing	Min 1-Max 4	1	9%	(*) Tested by dimmer manufacturer
<b>Lutron</b>	Homeworks QS	HQRK-R25NE-240	Trailing	Min 1-Max 5	1	10%	(*) Tested by dimmer manufacturer
<b>Lutron</b>	Homeworks QS	HQRM-R25NE-240	Trailing	Min 1-Max 5	1	10%	(*) Tested by dimmer manufacturer
<b>Lutron</b>	LCP Panel	RPM-4A-230	Adaptive-TE	5	1	6%	
<b>Lutron</b>	RA2 Select	RRK-R25NE-240	Trailing	Min 1-Max 5	1	10%	(*) Tested by dimmer manufacturer
<b>Merten</b>		MEG5136-0000 (SBD315RC)	Trailing	1	1	7%	
<b>MK</b>		K1526	Leading	1	1	NC	
<b>Osram</b>		HTI DALI 315 DIM	Trailing	2	1	12%	Limited by dimmer travel

**SORAA Optima 230V Electronic 12V transformer with 12V Soraa MR16 7.5W & 9W lamps - DIMMER COMPATIBILITY LIST**

<b>Dimmer Manufacturer</b>	<b>Dimmer family</b>	<b>Dimmer model number</b>	<b>Dimming mode</b>	<b>Number of transformers tested per dimmer</b>	<b>Number of lamps per transformer</b>	<b>Dim (%)</b>	<b>Comments</b>
<b>Philips Dynalite</b>		DGLEDM401	Trailing	1 and 5	1	14%	Limited by dimmer travel
<b>Philips Dynalite</b>		DGTM402	Trailing	5	1	NC	Limited by dimmer travel
<b>Rako</b>		RMT500	Trailing	1	1	4%	
<b>RVE</b>		RV-LED 250	Trailing	5	1	7%	Limited by dimmer travel
<b>Schneider</b>		SBD315RC	Trailing	1	1	7%	
<b>Varilight</b>	V-PRO	JQP401W	Trailing	1 and 2	1	8%	Limited by dimmer travel
<b>Vossloh-Schwabe</b>		554591 (5-250W)	Trailing	1 and 2	1	7%	
<b>Vossloh-Schwabe</b>		554592 (5-500W)	Trailing	1	1	7%	
<b>Vossloh-Schwabe</b>		OneDim	Trailing	1 and 2	1	7%	

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

230V PHASE-DIMMABLE ELECTRONIC TRANSFORMERS WITH PHASE DIMMERS

Transformer Manufacturer ↓	Transformer Model ↓	Transformer Type ↓	Number of lamps per transformer ←	Dimmer →	Large multichannel dimmers											
					Dynalite (Philips) DGLEDM401 (TE)	Dynalite (Philips) DGTM402 (TE)	Dynalite (Philips) DGLM402 (LE)	Helvar Digidim 452 (TE)	Helvar 454 (TE)	Honeywell Inncom D454	Lutron Grafik Eye QS QSGR (LE)	Lutron Grafik Eye QS QSGR + ELVI (TE)	Lutron QSNE-4A-D (TE) LQSE-4A-D (TE)	Mode Lighting Evolution (trailing edge card)	RVE RV5 (LE)	RVE RVLED (TE)
AcTec	Ultra 70	Electronic	1		9%			7%	20%	10%	NC	6%	4%			
BLV	Luxia 60W 45600101	Electronic	1		7%			5%	16%	11%	2%	6%	3%		10%	10%
BLV	Luxia 105W 45600201	Electronic	1		12%			3%	4%		4%	4%	4%	1%		
Emcolite	EMRED60	Electronic	1										5%			
Euchips	EUP12T-1W12V-1	Electronic/DC	1		NC	11%	8%									
Govena	YT50	Electronic	1		NC			6%	22%	8%	2%	6%	4%		15%	16%
Govena	YT60	Electronic	1		7%			5%	16%	11%	2%	6%	3%		10%	10%
Hatch	RS12-60M-LED-230V	Electronic	1		9%			4%	6%	9%	5%	6%	6%	6%		
LCI	ET 3-60 C	Electronic	1												19%	NC
Lightech	LET75	Electronic	1		NC			NC	NC	9%	NC	7%	6%			
Lutron	ELVXF-60-T20-CE	Electronic	1		9%	29%		4%	4%		5%	6%	5%			
Mode Lighting	ET-040-PL-230-RD (PUMA LED)	Electronic	1		10%			2%	4%		3%	5%	4%	3%	NC	16%
Mode Lighting	MOE-050-D-240	Electronic	1		18%			5%	6%		3%	5%	4%	4%		
Niko	320-00101 70W	Electronic	1												14%	17%
Osram	ET-LED 30	Electronic	1		7%			5%	8%	7%	0%	4%	3%			
Osram	HTM 70/230-240	Electronic	1		6%			16%	11%		NC	5%	5%		18%	18%
Osram	HTM 105/230-240	Electronic	1		8%			2%	6%		26%	5%	4%	6%	20%	NC
Philips	Certaline 60W	Electronic	2		10%			2%	3%		3%	4%	3%	4%		
Philips	Certaline 105W	Electronic	3		11%			3%	2%		3%	4%	3%	3%		
Truelux	PH12VLN	Electronic	1		NC			6%	22%	8%	2%	6%	4%	4%	15%	16%
Varilight	YT50	Electronic	1		NC			6%	22%	8%	2%	6%	4%		15%	16%
Varilight	YT50LZ	Electronic	1		7%			6%	15%		2%	5%	3%			
Varilight	YT105L	Electronic	1											2%		
Verbatim	V70 (#52900)	Electronic	1		14%			4%	4%		NC	5%	6%	4%		
Vossloh Schwabe	EST 120/12.651 Ref186526	Electronic	1		9%			7%	5%	13%		5%	6%	1%		NC

**SORAA MR16 12V 7.5W & 9W - DIMMER/TRANSFORMER COMPATIBILITY - International**

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

**230V PHASE-DIMMABLE ELECTRONIC TRANSFORMERS WITH PHASE DIMMERS**

Transformer Manufacturer ↓	Transformer Model ↓	Transf. Type ↓	Number of lamps per transformer ←	Dimmer →	Small and rotary dimmers																						
					Busch 6523 U-102 (RC)	Casambi CBU-TEd (TE)	DeltaDore Tyxia 4840 (TE)	DeltaDore Tyxia 4940 (TE)	Feller 3314.12.FMI.61	Feller 40200.LED.FMI.61 (RL)	Govena PRO-250-LT-LED	GIRA Gira 238500 (TE)	Hager EVN002 (TE)	Jung 1224 LED UDE	Jung 225 TDE (TE)	Legrand 572239 (TE)	Lunatone DALI PD 86458619 25W	Merten MEG5136-0000 (SBD315RC)	MIK K1526 (LE)	Rako RMT500 (TE)	Tridonic DALI PCD 1-300 one4all	Varilight V-PRO JQP401W (TE)	Vossloh-Schwabe 554591 (5-250W)	Vossloh-Schwabe 554592 (5-500W)	Vossloh Schwabe Dim One (TE)	Yokis MTV500E (adaptive - TE)	
AcTec	Ultra 70	Electronic	1		8%	4%			8%	NC	NC	7%		NC	21%	9%		7%	NC	4%		9%	6%	6%	10%		
BLV	Luxia 60W 45600101	Electronic	1		8%	9%	7%	7%	7%	21%	21%	7%	22%	6%	22%		4%	6%	NC	2%	16%	2%			9%	7%	
BLV	Luxia 105W 45600201	Electronic	1		8%				7%	24%	24%	7%		6%	20%					0%		0%					
ECOPAC	ELED-100-12T	Electronic/DC	8																	4%							
ECOPAC	ELED-150-12T	Electronic/DC	12																	4%							
Govena	YT50	Electronic	1			11%	8%	9%					21%		21%				NC	4%					9%	5%	
Govena	YT60	Electronic	1		8%	9%	7%	7%	7%	21%	21%	7%	22%	6%	22%		4%	6%	NC	2%	16%	2%			9%	7%	
Hatch	RS12-60M-LED-230V	Electronic	1		5%	8%			7%	NC	9%	6%		6%	NC					6%						11%	
LCI	ET 3-60 C	Electronic	1			10%	11%	8%					NC													NC	
Lightech	LET75	Electronic	1		7%	7%			7%	15%	NC	7%		6%	22%				5%	NC	NC		22%			NC	
Mode Lighting	ET-040-PL-230-RD (PUMA LED)	Electronic	1		7%	11%			7%	21%	21%	7%		6%	19%				5%		3%					14%	6%
Mode Lighting	MOE-050-D-240	Electronic	1		9%				9%	30%	NC	30%		8%	NC				12%		6%					NC	
Niko	320-00101 70W	Electronic	1			10%	9%	30%					15%													NC	
Osram	ET-LED 30	Electronic	1		5%	5%			9%	21%	17%	6%		7%	22%	9%			7%	NC	3%		0%	18%	18%	6%	
Osram	HTM 70/230-240	Electronic	1		18%	11%	8%	8%	6%	30%	9%	18%	19%	9%	26%				6%	NC	4%		1%				29%
Osram	HTM 105/230-240	Electronic	1		5%	10%	9%	8%	7%	9%	8%	9%	NC	8%	6%				5%		4%		5%				NC



## 230V PHASE-DIMMABLE MAGNETIC TRANSFORMERS WITH PHASE DIMMERS

230V MAGNETIC TRANSFORMERS WITH PHASE DIMMERS

Transformer Manufacturer ↓	Transformer Model ↓	Transformer Type ↓	Number of lamps per transformer ↓	Dimmer →	Aurora AU-DSP400x	CLIPSAL 32E450UDM (leading edge)	Lutron Grafik Eye QS QSGR-6PCE	Lutron QSNE-4A-D (Leading edge)	Lutron LP-RPM-4U-240 (leading edge)	Panasonic WEG57813	Philips Dynalite DGLM402
ETE	MV0300P153	Magnetic	5		NC	26%	5%	29%	7%	NC	24%
GATA (220V)	T50/209.23	Magnetic	1				10%	9%	NC	NC	29%
			2				11%	11%	NC	NC	23%
			3				15%	15%	10%	NC	18%
Vossloh Schwabe	Str 50/12.342	Magnetic	1		NC	25%	5%	14%	16%	NC	26%

**230V NON PHASE DIMMABLE TRANSFORMERS, WITH DIFFERENT CONTROLS**

Transformer Manufacturer ↓	Transformer Model ↓	Controllers, Potentiometer, PWM dimmers -->	Number of lamps per transformer ←	DALI Controller	0 / 1-10V	Potentiometer	12V DC PWM dimmers					
							Casambi CBU PWM4	Dalcnnet DLB1248-1CV-DALI	Heivar LL1-CV-DA DALI	Multiload LEDixia	Osram Optotronic Oti DALI DIM PWM	RVE DC DIMMER DC 12-24
<b>International</b>												
<b>12V DC POWER SUPPLY</b>	12V DC	Electronic/DC	1				11%	0%	NC	(5 lamps) 0%	0%	7%
<b>ECOPAC</b>	ELED-100-12D	Electronic/DC	1-7 (7.5W)	0%								
<b>ECOPAC</b>	ELED-180-12D	Electronic/DC	1-12 (9W)	0%								
<b>eldoLED</b>	LINEARdrive 100A	Electronic/DC	1	NC	NC	NC						
<b>Fulham</b>	T1M1UNV012V-20L	Electronic/DC	1		8%							
<b>Fulham</b>	T1M1UNV012V-60L	Electronic/DC	1		12%							
<b>LCI</b>	DC DIM 1-10V 35W Code 1750129	Electronic/DC	1		1%							
<b>LTSYS</b>	DALI-36-12-F1P1 -SORAA	Electronic/DC	1	2%								
<b>Meanwell</b>	PWM-90-12 (300Hz version)	Electronic/DC	1		11%	0%						
<b>Meanwell</b>	PWM-120-12 (300Hz version)	Electronic/DC	1		11%	0%						
<b>Osram</b>	OT 60/220-240/12 DIM P	Electronic/DC	4		2%							
<b>Quanzhou Smarts Electronic &amp; Technology Co</b>	SMT-012-030VM	Electronic/DC	1	0%								
<b>TCI</b>	DC LED 12V EFUR (Cod 122321)	Electronic/DC	1		7%							
<b>Truelux</b>	AN12VPWM	Electronic/DC	1		0%	0%						
<b>Truelux</b>	AN12VPWM10	Electronic/DC	1		1%							
<b>Truelux</b>	DA12VPWM10	Electronic/DC	1	1%								
<b>Truelux</b>	DA12VPWM	Electronic/DC	1	0%								

## SORAA MR16 12V 7.5W & 9W – Dimmer COMPATIBILITY LIST - International

### 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 this Revision

--%	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