

Dimmable Electronic Transformers for LED Lamps 12VAC Installation Instructions



Features

- Dimmable with trailing edge dimmers
- Transformer for independent mounting
- Electric Class Protection II
- Protection degree IP20
- Screw clamps

INPUT VOLTAGE	INPUT FREQUENCY	AMOUNT OF SORAA LAMPS*	OUTPUT VOLTAGE	OUTPUT FREQUENCY	POWER FACTOR CORRECTION	WEIGHT
220-240VAC	50 – 60Hz	1-5pcs MR16 7.5W 1-4pcs MR16 9W 1-7pcs AR111 6W 1-3pcs AR111 12.5W 1-2pcs AR111 18.5W	11.5V±5%	32 – 38kHz	0.99 λ	110 g (3.88 oz.)

*To ensure compatibility between dimmer, transformer and lamps before installation, visit www.soraa.com for the latest compatibility information with Soraa lamps.

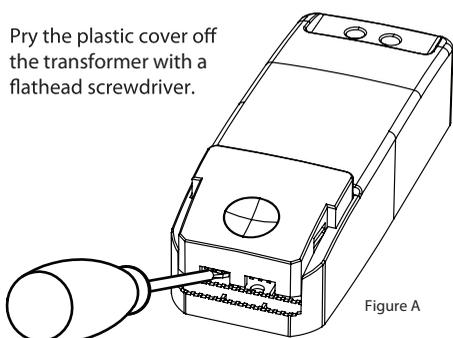
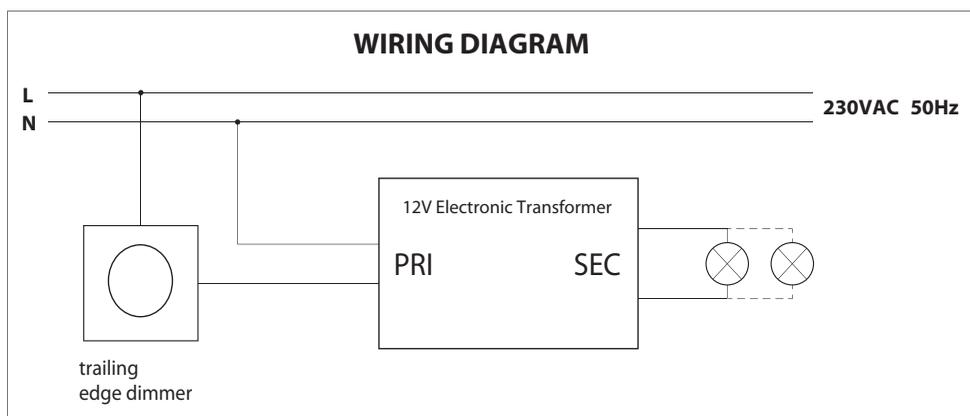
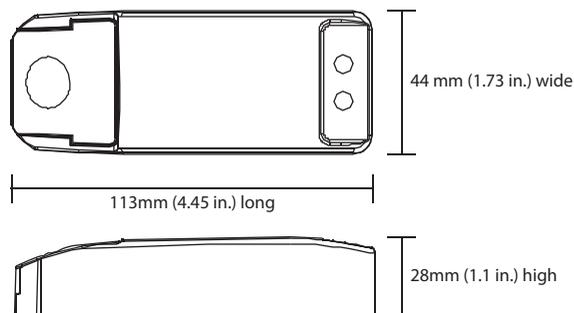


Figure A



Specifications

- Input voltage range: 220-240VAC
- Input frequency: 50 – 60Hz
- Voltage output: 11.5V±5%
- Output frequency: 32 – 38kHz
- Dimmable with trailing edge dimmers
- Overtemperature protection (OTP)
- Overload protection (OLP)
- Short circuit protection (SCP)
- Power factor correction (PFC): $\geq 0.99 \lambda$
- Max. ambient air temperature: -20°C ... + 50°C



NOTE: Secondary power supply cables must be less than 30 cm long.



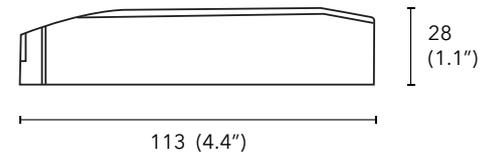
Must not be disposed of in regular rubbish bins, mixed with regular household or other commercial waste, or by other regular municipal waste collection means. Instead, and in order to prevent possible harm to the environment or human health, all EEE products (including any cables that came with the product) should be responsibly discarded or recycled.

Reference Standards

- EN 61347-2-1
- EN 55015
- EN 61000-3-2
- EN 61547

MADE IN P.R.C.

The Soraa Optima Series electronic transformer is ideal for 12V LED or halogen lamps. It's highly efficient, works with trailing edge dimmers, is easy to install, and features open circuit, short circuit, overload, and over-temperature protections and a 30,000 hour lifetime.



110g

Construction

Thermally stable shatter proof PC plastic casing.
 Primary Terminal 2-pole, Screw 5.2mm
 Secondary Terminal 2-pole, Screw 3.2mm

Dimming

Compatible with trailing edge dimmers. Visit www.soraa.com for details

Compliance

Safety EN 61347-2-1
 RFI EN 55015
 Harmonics EN61000-3-2
 Immunity EN 61547

Ambient

Storage Temperature- t_s -20 to +70°C
 Operating Temperature- t_a -20 to +50°C
 Case Temperature @ t_c +80°C

Protection

No Load, Overload, Short Circuit, Overtemperature Auto-Recovery if Fault is Removed

Withstand Voltage

3.75KVAC, leakage < 5.0mA, 60S

Electrical: Input

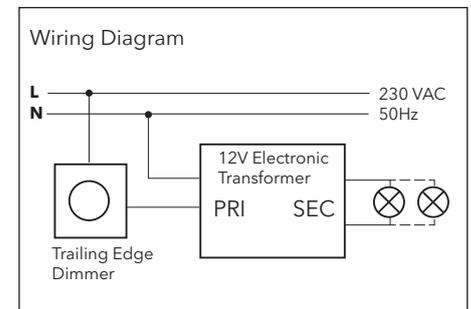
Rated Input Voltage 220-240VAC
 Input Current (Full Load) 0.29A
 Input Frequency 50/60Hz
 Max Input Power 71W
 Power Factor ≥ 0.99
 THD (Full Load) ≤ 10%
 Efficiency (Full Load) ≥ 93%
 Input Capacitance 100nF

Electrical: Output

Output Voltage 11.2V ±5%
 Output Current 6.0A
 Output Power (Full Load) 67.2W
 Operating Frequency 32-38KHz

Lifetime & Warranty

Average service life: 30,000 hours.
 Three year warranty. See www.soraa.com.



Order Number Sample Number: TCVW - P - 12- 600 - 70 - 01 - S3

Constant	Type	Input Voltage	Dimming	Output Voltage	Output Current	Power	Variation	Region
T	CV Constant Voltage	W 230VAC	P Phase Dim	12 12VAC	600 6.0A (Full Load)	70 Max Input (W)	01 Default	S3 International

SORAA

Dimming compatibility –

Soraa Optima 230V electronic transformer with Soraa 12V lamps

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Scope

This document provides the basic guidelines regarding dimming compatibility of SORAA 12V lamps with the Soraa Optima 230V electronic transformer.

Soraa Optima 230V to 12V electronic transformer

SORAA Optima 230V to 12V is an electronic transformer with no minimum load requirement, which makes it the perfect companion for Soraa 12V lamps.

SORAA Optima 230V Electronic 12V transformer compatibility with SORAA lamps - Lamp Only (no dimmer)					
SORAA lamp	Lamp Power	SKU	Compatibility	Minimum number of lamps per transformer	Maximum number of lamps per transformer
12V MR16	7.5W	SM16-07-xxD-yyy-03-S3	PASS	1	5
12V MR16	9W	SM16-09-xxD-yyy-03-S3	PASS	1	4
12V AR111	6W	SR111-06-04D-yyy-03-S3	PASS	1	7
12V AR111	12.5W	SR111-12-xxD-yyy-03-S3	PASS	1	3
12V AR111	18.5W	SR111-18-xxD-yyy-03-S3	PASS	1	2

If multiple lamps are installed on one transformer, they need to be connected in parallel. They cannot be installed in series.

Dimmer Compatibility

SORAA Optima 230V to 12V transformer is made to work with trailing edge (reverse phase) phase cut dimmers.

Dimmer compatibility tables with all Soraa 12V lamps are shown from page 3.

For each dimmer, you can see the amount of transformers that were tested per dimmer, and how many lamps per transformer, followed by the results expressed in %.

The % for each transformer/dimmer combination are the % 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 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. For dimmers rated for LED loads, Soraa recommends following the dimmer manufacturer indications.
4. Ultimately the dimmer manufacturer is the only one with authority to rate their product, but SORAA can give an Engineering **estimate**. For dimmers rated for halogen/incandescent loads, we recommend to use a 4.0 de-rating factor for trailing edge dimmers driving Low Voltage lamps on electronic transformers.

Distance between transformer and lamp(s)

12V AC Electronic transformers have a limitation in the length of the wires between transformer and lamp(s). We recommend that the secondary transformer cables are less than 30 cm long

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 dimmer manufacturers. For more information on the dimmers, please find specs on the manufacturer's website.

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%	(*)
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%	
Legrand		572239	Trailing	1	1	9%	
Lutron	Energy Savr Node QS (for Quantum and QS systems)	QSNE-4A-D	Trailing	5	1	6%	
Lutron	Grafik Eye QS	Grafik Eye QS	Leading	1, 2, 5	1	NC	(*)
Lutron	Grafik Eye QS + Interface	Grafik Eye QS + ELVI interface	Adaptive-TE	5	1	7%	Limited by dimmer travel
Lutron	LCP Panel	RPM-4A-230	Adaptive-TE	5	1	6%	
Merten		MEG5136-0000 (SBD315RC)	Trailing	1	1	7%	
MK		K1526	Leading	1	1	NC	
Osram		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**

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

**SORAA Optima 230V Electronic 12V transformer with 12V Soraa AR111 18.5W lamps - DIMMER
COMPATIBILITY LIST**

Dimmer Manufacturer	Dimmer family	Dimmer model number	Dimming mode	Number of transformers per dimmer	Number of lamps per transformer	Dim (%)	Comments
Aurora		DSP400X	Leading	2	1	NC	
Clipsal		32ELEDM	Trailing	2	1	9%	Limited by dimmer travel
Clipsal		L5504D2U	Adaptive-TE	5	1	9%	
DIGINET		DGLCDM400 (MEDM)	Trailing	2	1	2%	Limited by dimmer travel
Feller		3314.12 FMI.61	Trailing	2	1	11%	
Feller		40200.LED.FMI.61	Trailing	2	1	24%	Limited by dimmer travel
Gira		238500 / I01	Adaptive-TE	2	1	9%	Limited by dimmer travel
Helvar	Digidim	452	Trailing	5	1	7%	
Helvar	Digidim	454	Trailing	5	1	9%	
Honeywell	Inncom	H454	Trailing	5	1	8%	
Jung		1224 LED UDE	Trailing	2	1	9%	Limited by dimmer travel
Lutron	Energy Savr Node QS (for Quantum and QS systems)	QSNE-4A-D	Trailing	1 and 5	1	NC	
Lutron	Grafik Eye QS	Grafik Eye QS	Leading			NC	(*)
Lutron	Grafik Eye QS + Interface	Grafik Eye QS + ELVI interface	Adaptive-TE	5	1	9%	
Lutron	LCP Panel	RPM-4A-230	Adaptive-TE	5	1	9%	
Mode Lighting	Tiger / Mirage / Evo	Trailing edge card	Trailing	1	1	6%	
Osram		HTI DALI 315 DIM	Trailing	2	1	17%	
Philips Dynalite		DGLEDM401	Trailing	1 and 5	1	16%	Limited by dimmer travel
Philips Dynalite		DGTM402	Trailing	5	1	28%	Limited by dimmer travel
RVE		RV-LED 250	Trailing	5	1	5%	Limited by dimmer travel
Varilight	V-PRO	JQP401W	Trailing	1 and 2	1	8%	Limited by dimmer travel
Vossloh-Schwabe		554591 (5-250W)	Trailing	1 and 2	1	10%	
Vossloh-Schwabe		554592 (5-500W)	Trailing	1	1	10%	
Vossloh-Schwabe		OneDim	Trailing	1 and 2	1	10%	

**SORAA Optima 230V Electronic 12V transformer with 12V Soraa AR111 12.5W lamps - DIMMER
COMPATIBILITY LIST**

Dimmer Manufacturer	Dimmer family	Dimmer model number	Dimming mode	Number of transformers per dimmer	Number of lamps per transformer	Dim (%)	Comments
Aurora		DSP400X	Leading	2	1	NC	
Clipsal		32ELEDM	Trailing	2	1	12%	Limited by dimmer travel
Clipsal		L5504D2U	Adaptive-TE	5	1	9%	
DIGINET		DGLCDM400 (MEDM)	Trailing	2	1	2%	
Feller		3314.12 FMI.61	Trailing	2	1	14%	
Feller		40200.LED.FMI.61	Trailing	2	1	18%	Limited by dimmer travel
Gira		238500 / I01	Adaptive-TE	2	1	13%	Limited by dimmer travel
Helvar	Digidim	452	Trailing	5	1	7%	
Helvar	Digidim	454	Trailing	5	1	9%	
Honeywell	Inncom	H454	Trailing	5	1	8%	
Jung		1224 LED UDE	Trailing	2	1	12%	Limited by dimmer travel
Lutron	Energy Savr Node QS (for Quantum and QS systems)	QSNE-4A-D	Trailing	5	1	29%	
Lutron	Grafik Eye QS	Grafik Eye QS	Leading	5	1	NC	(*)
Lutron	Grafik Eye QS + Interface	Grafik Eye QS + ELVI interface	Adaptive-TE	5	1	9%	Limited by dimmer travel
Lutron	LCP Panel	RPM-4A-230	Adaptive-TE	5	1	8%	Limited by dimmer travel
Osram		HTI DALI 315 DIM	Trailing	2	1	18%	Limited by dimmer travel
Philips Dynalite		DGLEDM401	Trailing	5	1	19%	Limited by dimmer travel
Philips Dynalite		DGTM402	Trailing	5	1	NC	Limited by dimmer travel
RVE		RV-LED 250	Trailing	5	1	5%	Limited by dimmer travel
Varilight	V-PRO	JQP401W	Trailing	2	1	9%	Limited by dimmer travel
Vossloh-Schwabe		554591 (5-250W)	Trailing	2	1	6%	Limited by dimmer travel
Vossloh-Schwabe		OneDim	Trailing	2	1	3%	Limited by dimmer travel

SORAA Optima 230V Electronic 12V transformer with 12V Soraa AR111 6W lamps - DIMMER COMPATIBILITY LIST

Dimmer Manufacturer	Dimmer family	Dimmer model number	Dimming mode	Number of transformers per dimmer	Number of lamps per transformer	Dim (%)	Comments
Aurora		DSP400X	Leading	2	1	NC	
Clipsal		32ELEDM	Trailing	2	1	29%	
Clipsal		L5504D2U	Adaptive-TE	5	1	17%	
DIGINET		DGLCDM400 (MEDM)	Trailing	2	1	16%	
Feller		3314.12 FMI.61	Trailing	2	1	26%	
Feller		40200.LED.FMI.61	Trailing	2	1	NC	Limited by dimmer travel
Gira		238500 / I01	Adaptive-TE	2	1	NC	
Helvar	Digidim	452	Trailing	5	1	8%	
Helvar	Digidim	454	Trailing	5	1	8%	
Honeywell	Inncom	H454	Trailing	5	1	9%	
Jung		1224 LED UDE	Trailing	2	1	NC	
Lutron	Energy Savr Node QS (for Quantum and QS systems)	QSNE-4A-D	Trailing	5	1	8%	Limited by dimmer travel
Lutron	Grafik Eye QS	Grafik Eye QS	Leading	5	1	NC	(*)
Lutron	Grafik Eye QS + Interface	Grafik Eye QS + ELVI interface	Adaptive-TE	5	1	14%	Limited by dimmer travel
Lutron	LCP Panel	RPM-4A-230	Adaptive-TE	5	1	13%	Limited by dimmer travel
Osram		HTI DALI 315 DIM	Trailing	2	1	23%	Limited by dimmer travel
Philips Dynalite		DGLEDM401	Trailing	5	1	NC	
Philips Dynalite		DGTM402	Trailing	5	1	NC	
RVE		RV-LED 250	Trailing	5	1	NC	
Varilight	V-PRO	JQP401W	Trailing	2	1	13%	
Vossloh-Schwabe		554591 (5-250W)	Trailing	2	1	15%	
Vossloh-Schwabe		OneDim	Trailing	2	1	15%	

Notes:

- Compatibility tests are conducted by Soraa (unless stated otherwise) under bench conditions as guidance for the user.
- Regards compatibility tests conducted by dimmer 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 a dimmer is not listed, it does not mean is not compatible, but it has not been tested yet. Please consult with Soraa before making recommendations to the end customer.

--%	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