

# SORAA

## Electrical compatibility – MR16-GU10 9W 120V lamps - North America

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## **General compatibility guidelines**

### **Scope**

This document provides the basic guidelines regards electrical compatibility of SORAA 120V MR16 GU10 9W lamps and compatibility tables.

### **Dimmer Compatibility**

SORAA 120V MR16 GU10 lamps are made to work with trailing edge (reverse phase) and leading edge (forward phase) phase cut dimmers. However, the use of trailing edge dimmers is preferred and will show in general better behavior .

Dimmer compatibility tables are on pages 3-5.

The percentages for each 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 dimmer. If this minimum load is not met, there might be compatibility issues.

### **Maximum number of lamps on a dimmer**

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

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 dimmer, and will affect the recommended lamp load on each dimmer.
3. Ultimately the dimmer manufacturer is the only one with authority to rate their product, but SORAA can give an Engineering estimate.
4. We recommend to use a 5.0 de-rating factor for incandescent/halogen dimmers loaded with our 120V lamps.

**For example for a 500W dimmer it would mean  $500/5 = 100W$  of LED, so an estimated maximum of 11 lamps 9W.**

### **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 GU10 120V 9W - DIMMER COMPATIBILITY LIST - North America**

| Dimmer Manufacturer  | Dimmer family     | Dimmer Model | Dimming mode | Dim (%)                       | Comments                      |
|----------------------|-------------------|--------------|--------------|-------------------------------|-------------------------------|
| <b>North America</b> |                   |              |              |                               |                               |
| Cooper               |                   | D106P        | L            | 12%                           |                               |
| Cooper               |                   | SLC03P       | L            | 13%                           |                               |
| Crestron             |                   | DIN-1DIMU4   | T            | 1%                            |                               |
| Forbes & Lomax       |                   | FLR603P      | L            | NC                            |                               |
| Helvar               | DigiDim           | 454          | T            | 20%                           |                               |
| Insteon              |                   | 2477D        | L            | 3%                            |                               |
| Legrand              |                   | ADTP703TU    | T            | 13%                           |                               |
| Leviton              |                   | 6613-P       | L            | 14%                           |                               |
| Leviton              |                   | 6615-P       | T            | 20%                           |                               |
| Leviton              |                   | 6633-P       | L            | 4%                            |                               |
| Leviton              |                   | IPL06        | L            | 9%                            |                               |
| Leviton              |                   | A2000        | L            | 1%                            | Tested by dimmer manufacturer |
| Leviton              |                   | PE400        | T            | 4%                            | Tested by dimmer manufacturer |
| Leviton              |                   | D4206        | L            | 1%                            | Tested by dimmer manufacturer |
| Leviton              |                   | I48E         | L            | 1%                            | Tested by dimmer manufacturer |
| Leviton              | Lumina            | DL6HD        | L            | 1%                            | Tested by dimmer manufacturer |
| Leviton              | Illumatech Decora | IPI06-1LZ    | L            | NC                            | Not suitable for LED          |
| Leviton              | Renoir II         | AWSMG-MBW    | L            | NC                            | Tested by dimmer manufacturer |
| Lightolier           |                   | ZP1000       | L            | 1 lamp: N C<br>2,3 lamps: 18% |                               |
| Lightolier           |                   | ZP600        | L            | NC                            |                               |
| Lutron               | Athena            | T-1000       | L            | NC                            |                               |
| Lutron               | Caseta            | PD-5NE-XX    | T            | 15%                           |                               |

**SORAA GU10 120V 9W - DIMMER COMPATIBILITY LIST - North America**

| Dimmer Manufacturer  | Dimmer family | Dimmer Model        | Dimming mode | Dim (%)                        | Comments |
|----------------------|---------------|---------------------|--------------|--------------------------------|----------|
| <b>North America</b> |               |                     |              |                                |          |
| Lutron               | Contour       | CNLV-600P           | L            | 11%                            |          |
| Lutron               | Contour       | CT-603PG            | L            | 12%                            |          |
| Lutron               | Diva          | DV-600P             | L            | 6%                             |          |
| Lutron               | Diva          | DVCL-153P           | L            | 23%                            |          |
| Lutron               | Diva          | DVELV-300P          | T            | 4%                             |          |
| Lutron               | Diva          | DVLV-600P           | L            | 15%                            |          |
| Lutron               | Glyder        | GL 6B38             | L            | 1,2 lamps: 15%<br>3 lamps: NC  |          |
| Lutron               | Glyder        | GL-600H-DK          | L            | 15%                            |          |
| Lutron               | Grafik Eye    | QSGRJ-3P            | L            | 1,2 lamps: 18%<br>3 lamps: 22% |          |
| Lutron               | Grafik Eye    | QSGRJ+PHPM-PA-DV-WH | T            | 1%                             |          |
| Lutron               | Lumea         | LGCL-153P           | L            | NC                             |          |
| Lutron               | Maestro       | MA-600              | L            | 1 lamp: N C<br>2,3 lamps: 17%  |          |
| Lutron               | Maestro       | MACL-153M           | L            | 14%                            |          |
| Lutron               | Maestro       | MAELV-600           | T            | 6%                             |          |
| Lutron               | Maestro       | MALV-600            | L            | NC                             |          |
| Lutron               | Maestro       | MAW-600             | L            | NC                             |          |
| Lutron               | Maestro       | MRF2-6ND-120        | L            | 17%                            |          |
| Lutron               | Nova          | NTELV-300           | T            | 6%                             |          |
| Lutron               | Nova          | NTLV-600            | L            | 4%                             |          |
| Lutron               | LCP Panel     | LP-RPM-4U-120       | L            | 1%                             | (*)      |
| Lutron               | Radio RA2     | RRD-10D             | L            | 1,2 lamps: N C<br>3 lamps: 21% |          |
| Lutron               | Radio RA2     | RRD-6NA             | adaptive - T | 17%                            |          |
| Lutron               | Rotary        | D-603PGH            | L            | 18%                            |          |

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| Dimmer Manufacturer  | Dimmer family | Dimmer Model | Dimming mode | Dim (%)                       | Comments |
|----------------------|---------------|--------------|--------------|-------------------------------|----------|
| <b>North America</b> |               |              |              |                               |          |
| Lutron               | Skylark       | CT-600P      | L            | 10%                           |          |
| Lutron               | Skylark       | CTCL-153P    | L            | NC                            |          |
| Lutron               | Skylark       | S-600        | L            | 18%                           |          |
| Lutron               | Skylark       | S-603PG      | L            | 11%                           |          |
| Lutron               | Skylark       | SELV-300P    | T            | 5%                            |          |
| Lutron               | Skylark       | SLV-600P     | L            | 10%                           |          |
| Lutron               | Spacer        | SPELV-600    | T            | 7%                            |          |
| Lutron               | Toggler       | TG-600PR     | L            | 1,2 lamps: 15%<br>3 lamps: NC |          |
| Lutron               | Verti         | VTELV-600M   | T            | 5%                            |          |

**Notes:**

Compatibility tests are conducted by Soraa (unless stated otherwise) 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 manufacturer

Regards compatibility tests conducted by dimmer manufacturer, please contact the dimmer manufacturer or Soraa for more details and/or reports.

(\* ) Test results with this dimmer 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                                    |