# SORAA LED Optical Light Engine

## GaN-on-GaN™ Technology

GaN on GaN™ TECHNOLOGY

SLE-30

SLC-30

SLE-16

SLC-16

SLE-11

SLC-11

## Features

**Point Source Optics™**
Exceptional beam control from 9 degrees narrow spot to 36 degrees flood with smooth uniform light distributions

**$VP_3$ Vivid Color™ and $VP_3$ Natural White™**
Accurate color rendering and white rendering based on light emission across the full visible range from 400nm to 700nm

**SNAP System™ Compatible**
Narrow spot versions compatible with Soraa SNAP for flexible light distribution adjustment and white point change

**Integrated Temperature Sensor**
Reference point temperature readout enables in situ, in fixture temperature assessment

**Qualification**
UL8750 recognized
CE, RoHS

**Projected Lifetime**
50,000 hours to L70 and color stability of 0.006 du'v', at specified operating conditions. Projections based on LM-80 testing.

**Note:**
This specification sheet covers both SLE (with heatsink) and SLC (without heatsink) products. Throughout the specsheet the nomenclature SLx is used to identify both SLE and SLC products.

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## Product Performance Parameters
SLx30

| Reference Number | CCT (K) | CRI | Beam angle | Field angle | Peak Intensity (Cd) | Nominal power consumption (W) | Luminous Flux (lm) | SNAP compatible |
|---|---|---|---|---|---|---|---|---|
| **SLx30** | | | | | | | | |
| SLx30-08-009D-927-03-01 | 2,700K | 95 | 9 | 16 | 22880 | 16.7 | 950 | Yes |
| SLx30-08-025D-927-03-01 | 2,700K | 95 | 25 | 40 | 5020 | 16.7 | 950 | |
| SLx30-08-036D-927-03-01 | 2,700K | 95 | 36 | 60 | 2360 | 16.7 | 950 | |
| SLx30-08-009D-930-03-01 | 3,000K | 95 | 9 | 16 | 24100 | 16.7 | 1000 | Yes |
| SLx30-08-025D-930-03-01 | 3,000K | 95 | 25 | 40 | 5300 | 16.7 | 1000 | |
| SLx30-08-036D-930-03-01 | 3,000K | 95 | 36 | 60 | 2500 | 16.7 | 1000 | |
| SLx30-08-009D-940-03-01 | 4,000K | 95 | 9 | 16 | 25300 | 16.7 | 1050 | Yes |
| SLx30-08-025D-940-03-01 | 4,000K | 95 | 25 | 40 | 5560 | 16.7 | 1050 | |
| SLx30-08-036D-940-03-01 | 4,000K | 95 | 36 | 60 | 2620 | 16.7 | 1050 | |
| SLx30-08-009D-950-03-01 | 5,000K | 95 | 9 | 16 | 25300 | 16.7 | 1050 | Yes |
| SLx30-08-025D-950-03-01 | 5,000K | 95 | 25 | 40 | 5560 | 16.7 | 1050 | |
| SLx30-08-036D-950-03-01 | 5,000K | 95 | 36 | 60 | 2620 | 16.7 | 1050 | |
| SLx30-08-009D-827-03-01 | 2,700K | 80 | 9 | 16 | 27580 | 16.7 | 1145 | Yes |
| SLx30-08-025D-827-03-01 | 2,700K | 80 | 25 | 40 | 6060 | 16.7 | 1145 | |
| SLx30-08-036D-827-03-01 | 2,700K | 80 | 36 | 60 | 2860 | 16.7 | 1145 | |
| SLx30-08-009D-830-03-01 | 3,000K | 80 | 9 | 16 | 29160 | 16.7 | 1210 | Yes |
| SLx30-08-025D-830-03-01 | 3,000K | 80 | 25 | 40 | 6400 | 16.7 | 1210 | |
| SLx30-08-036D-830-03-01 | 3,000K | 80 | 36 | 60 | 3020 | 16.7 | 1210 | |

Notes:
1. At 70°C reference point temperature and 600mA
2. Beam angle defined at 50% of peak intensity
3. Field angle defined at 10% of peak intensity

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## Product Performance Parameters
SLx16

| Reference Number | CCT (K) | CRI | Beam angle | Field angle | Peak Intensity (Cd) | Nominal power consumption (W) | Luminous Flux (lm) | SNAP compatible |
|---|---|---|---|---|---|---|---|---|
| **SLx16** | | | | | | | | |
| SLx16-06-010D-927-03-01 | 2,700K | 95 | 10 | 20 | 6940 | 8.3 | 475 | Yes |
| SLx16-08-025D-927-03-01 | 2,700K | 95 | 25 | 40 | 5020 | 16.7 | 950 | |
| SLx16-08-036D-927-03-01 | 2,700K | 95 | 36 | 60 | 2360 | 16.7 | 950 | |
| SLx16-06-010D-930-03-01 | 3,000K | 95 | 10 | 20 | 7320 | 8.3 | 500 | Yes |
| SLx16-08-025D-930-03-01 | 3,000K | 95 | 25 | 40 | 5300 | 16.7 | 1000 | |
| SLx16-08-036D-930-03-01 | 3,000K | 95 | 36 | 60 | 2500 | 16.7 | 1000 | |
| SLx16-06-010D-940-03-01 | 4,000K | 95 | 10 | 20 | 7680 | 8.3 | 525 | Yes |
| SLx16-08-025D-940-03-01 | 4,000K | 95 | 25 | 40 | 5560 | 16.7 | 1050 | |
| SLx16-08-036D-940-03-01 | 4,000K | 95 | 36 | 60 | 2620 | 16.7 | 1050 | |
| SLx16-06-010D-950-03-01 | 5,000K | 95 | 10 | 20 | 7680 | 8.3 | 525 | Yes |
| SLx16-08-025D-950-03-01 | 5,000K | 95 | 25 | 40 | 5560 | 16.7 | 1050 | |
| SLx16-08-036D-950-03-01 | 5,000K | 95 | 36 | 60 | 2620 | 16.7 | 1050 | |
| SLx16-06-010D-827-03-01 | 2,700K | 80 | 10 | 20 | 8340 | 8.3 | 570 | Yes |
| SLx16-08-025D-827-03-01 | 2,700K | 80 | 25 | 40 | 6060 | 16.7 | 1145 | |
| SLx16-08-036D-827-03-01 | 2,700K | 80 | 36 | 60 | 2860 | 16.7 | 1145 | |
| SLx16-06-010D-830-03-01 | 3,000K | 80 | 10 | 20 | 8860 | 8.3 | 605 | Yes |
| SLx16-08-025D-830-03-01 | 3,000K | 80 | 25 | 40 | 6400 | 16.7 | 1210 | |
| SLx16-08-036D-830-03-01 | 3,000K | 80 | 36 | 60 | 3020 | 16.7 | 1210 | |

Notes:
1. At 70°C reference point temperature and 600mA (SLx-08) or 300mA (SLx-06)
2. Beam angle defined at 50% of peak intensity
3. Field angle defined at 10% of peak intensity

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## Product Performance Parameters
SLx11

| Reference Number | CCT (K) | CRI | Beam angle | Field angle | Peak Intensity (Cd) | Nominal power consumption (W) | Luminous Flux (lm) | SNAP compatible |
|---|---|---|---|---|---|---|---|---|
| **SLx11-xx** | | | | | | | | |
| SLx11-06-025D-927-03-01 | 2,700K | 95 | 25 | 40 | 2660 | 8.3 | 475 | |
| SLx11-06-036D-927-03-01 | 2,700K | 95 | 36 | 60 | 1180 | 8.3 | 475 | |
| SLx11-06-025D-930-03-01 | 3,000K | 95 | 25 | 40 | 2800 | 8.3 | 500 | |
| SLx11-06-036D-930-03-01 | 3,000K | 95 | 36 | 60 | 1240 | 8.3 | 500 | |
| SLx11-06-025D-940-03-01 | 4,000K | 95 | 25 | 40 | 2940 | 8.3 | 525 | |
| SLx11-06-036D-940-03-01 | 4,000K | 95 | 36 | 60 | 1300 | 8.3 | 525 | |
| SLx11-06-025D-950-03-01 | 5,000K | 95 | 25 | 40 | 2940 | 8.3 | 525 | |
| SLx11-06-036D-950-03-01 | 5,000K | 95 | 36 | 60 | 1300 | 8.3 | 525 | |
| SLx11-06-025D-827-03-01 | 2,700K | 80 | 25 | 40 | 3180 | 8.3 | 570 | |
| SLx11-06-036D-827-03-01 | 2,700K | 80 | 36 | 60 | 1420 | 8.3 | 570 | |
| SLx11-06-025D-830-03-01 | 3,000K | 80 | 25 | 40 | 3380 | 8.3 | 605 | |
| SLx11-06-036D-830-03-01 | 3,000K | 80 | 36 | 60 | 1500 | 8.3 | 605 | |

Notes:
1. At 70°C reference point temperature and 300mA
2. Beam angle defined at 50% of peak intensity
3. Field angle defined at 10% of peak intensity

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## Electrical Characteristics

| Product part number | Typical Forward Voltage (V) | Maximum Current (mA) |
|---|---|---|
| SLx30-08-xxxD-xxx-xx-xx | 27.7 | 750 |
| SLx16-06-xxxD-xxx-xx-xx | 27.7 | 375 |
| SLx16-08-xxxD-xxx-xx-xx | 27.7 | 750 |
| SLx11-06-xxxD-xxx-xx-xx | 27.7 | 375 |

Notes:
1. At 70ºC reference point temperature, 300mA for SLE-06-xxx and SLE11-06-xxx and 600mA for SLE30-08-xxx and SLE16-08-xxx.
2. Forward voltage depends on drive current and temperature. For driver selection a supportable range of 20V to 35V is recommended.
3. Dimming can be achieved with Pulse Width Modulation and Current Amplitude Modulation or a combination of both.

## Reference Temperature Readout

| Tc | -20 °C | -10 °C | 0 °C | 10 °C | 20 °C | 30 °C | 40 °C | 50 °C | 60 °C | 70 °C | 80 °C | 90 °C | 100 °C | 110 °C | 120 °C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Resistance (kOhm) | 480 | 271 | 158 | 95 | 59 | 38 | 25 | 16 | 11 | 7.8 | 5.6 | 4.0 | 2.9 | 2.2 | 1.7 |

Notes:
1. Tolerance: +/- 5°C
2. Temperature can be assessed with an NTC next to the LED on the mounting board inside the Light Engine. See figure 1.1 for example.

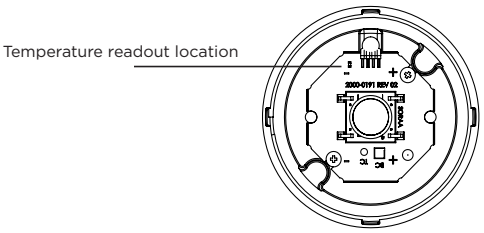



Figure 1.1

## White Point Consistency Characteristics

| | White Point (x,y) | White point accuracy (SDCM) | Beam color uniformity (du'v') | Field color uniformity (du'v') |
|---|---|---|---|---|
| 2,700K 95CRI | (0.4598 ,0.4105 ) | < 3 | <0.004 | <0.006 |
| 3,000K 95CRI | (0.4370 , 0.4041) | < 3 | <0.004 | <0.006 |
| 4,000K 95CRI | (0.3806 , 0.3767) | < 4 | <0.004 | <0.006 |
| 5,000K 95CRI | (0.3450 , 0.3515) | < 5 | <0.004 | <0.006 |
| 2,700K 80CRI | (0.4598 , 0.4105) | < 3 | <0.004 | <0.006 |
| 3,000K 80CRI | (0.4370 , 0.4041) | < 3 | <0.004 | <0.006 |

Notes:
1. At 70ºC reference point temperature, 300mA for SLE-06-xxx and SLE11-06-xxx and 600mA for SLE30-08-xxx and SLE16-08-xxx.
2. Beam angle defined at 50% of peak intensity
3. Field angle defined at 10% of peak intensity

## Individual Color Rendering Index

| | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,700K 95CRI | 96 | 97 | 98 | 93 | 94 | 93 | 98 | 97 | 95 | 95 | 89 | 76 | 96 | 98 |
| 3,000K 95CRI | 96 | 97 | 97 | 94 | 94 | 92 | 98 | 97 | 96 | 93 | 90 | 75 | 96 | 97 |
| 4,000K 95CRI | 98 | 98 | 97 | 97 | 97 | 94 | 98 | 97 | 94 | 95 | 95 | 84 | 98 | 99 |
| 5,000K 95CRI | 93 | 94 | 94 | 93 | 92 | 90 | 97 | 95 | 90 | 86 | 90 | 79 | 93 | 97 |
| 2,700K 80CRI | 81 | 94 | 88 | 81 | 85 | 97 | 79 | 56 | 7 | 91 | 82 | 91 | 85 | 93 |
| 3,000K 80CRI | 85 | 96 | 89 | 85 | 88 | 97 | 82 | 61 | 16 | 94 | 87 | 86 | 88 | 94 |

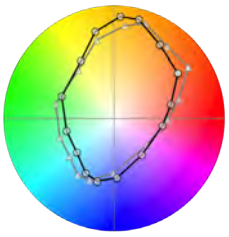
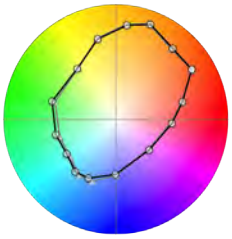
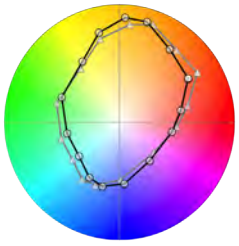
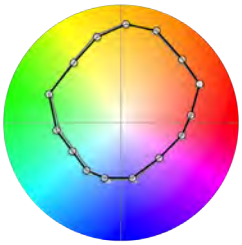
Notes:
1. At 70ºC reference point temperature, 300mA for SLE-06-xxx and SLE11-06-xxx and 600mA for SLE30-08-xxx and SLE16-08-xxx.

## White Rendering

| | White Rendering |
|---|---|
| 2,700K 95CRI | 1.0 |
| 3,000K 95CRI | 1.2 |
| 4,000K 95CRI | 1.5 |
| 5,000K 95CRI | 1.6 |
| 2,700K 80CRI | 1.0 |
| 3,000K 80CRI | 1.2 |

Notes:
1. For more information on white rendering metrics www.soraa.com/resources. Tungsten halogen white rendering typically 1.0
2. At 70ºC reference point temperature, 300mA for SLE-06-xxx and SLE11-06-xxx and 600mA for SLE30-08-xxx and SLE16-08-xxx.

## CQS Color Accuracy

| | 95 CRI | 80 CRI |
|---|---|---|
| 2,700K |  Qg = 102, Qf = 93 |  Qg = 96, Qf = 79 |
| 3,000K |  Qg = 101, Qf = 94 |  Qg = 83, Qf = 96 |
| 4,000K |  Qg = 100, Qf = 94 | |
| 5,000K |  Qg = 100, Qf = 94 | |

Notes:
1. CQS color samples, charts in La'b'
2. At 70ºC reference point temperature, 300mA for SLE-06-xxx and SLE11-06-xxx and 600mA for SLE30-08-xxx and SLE16-08-xxx.

Key:
- Refference
- Soraa

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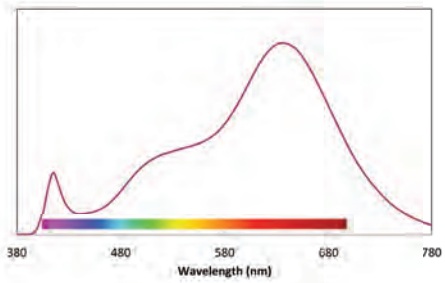
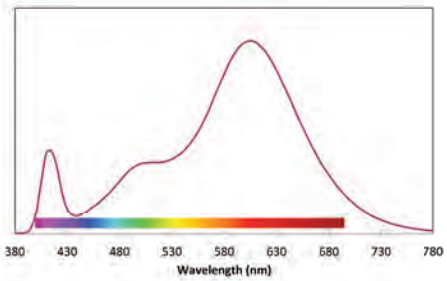
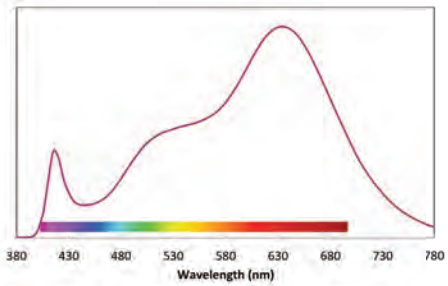
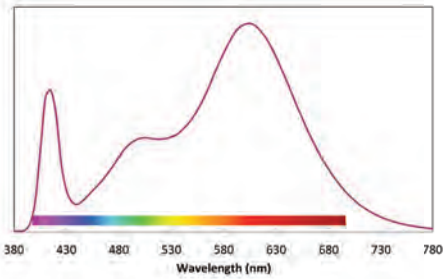
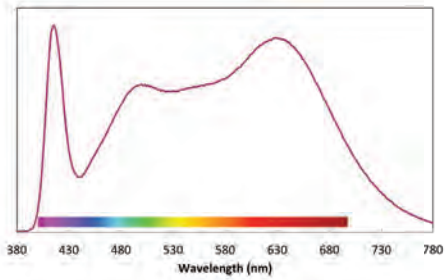
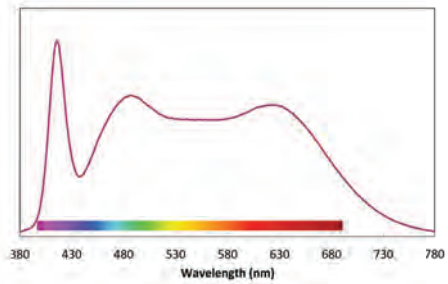
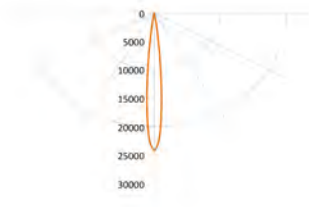
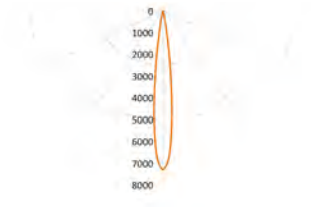
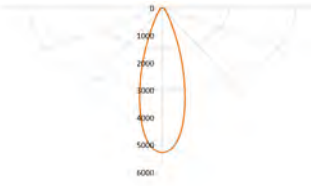
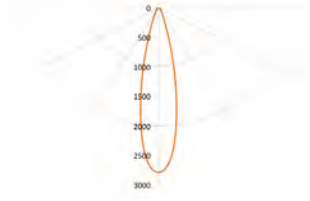
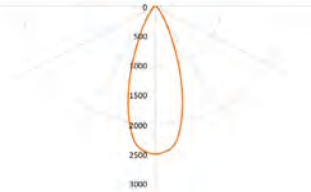
## Spectral Power Distributions

| | 95 CRI | 80 CRI |
|---|---|---|
| 2,700K |  |  |
| 3,000K |  |  |
| 4,000K |  | |
| 5,000K |  | |

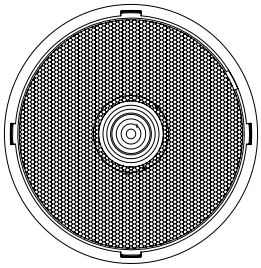
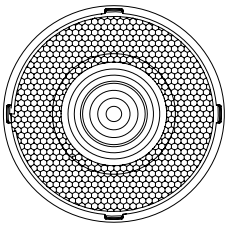
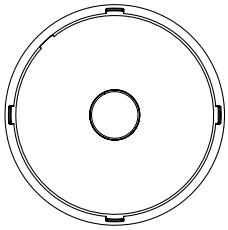
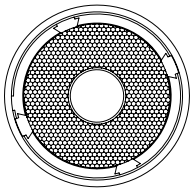
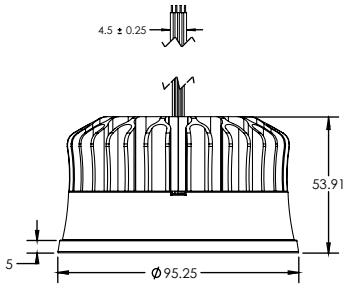
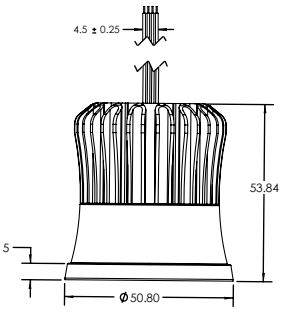
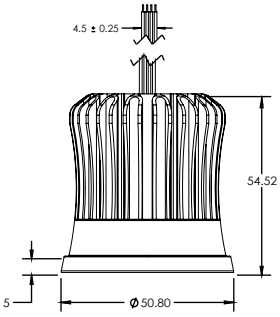
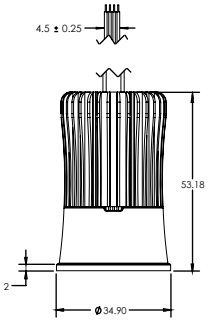
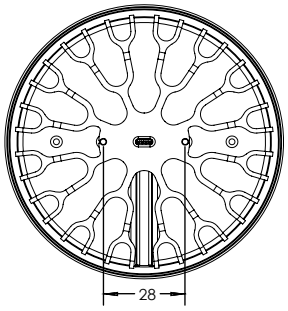
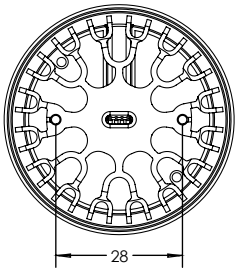
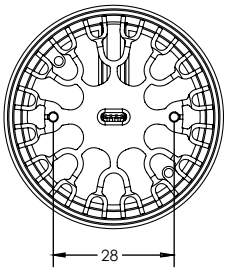
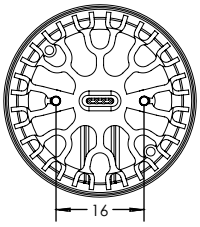
Notes:
1. At 70ºC reference point temperature, 300mA for SLE-06-xxx and SLE11-06-xxx and 600mA for SLE30-08-xxx and SLE16-08-xxx.

## Beam Diagrams

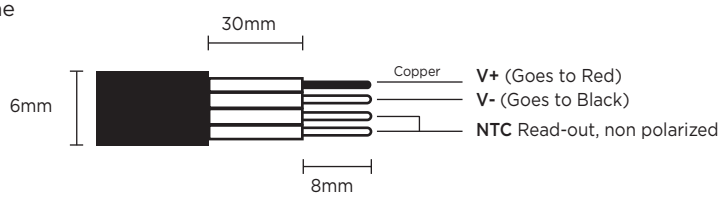
| | SLx30 | SLx16 | SLx11 |
|---|---|---|---|
| Narrow Spot<br>9 & 10 Degree | 9 Degree<br>  | 10 Degree<br>  | |
| Narrow Flood<br>25 Degree |  |  |  |
| Flood<br>36 Degree |  |  |  |

Notes:
1. Beam plots for 3,000K 95CRI
2. At 70ºC reference point temperature, 300mA for SLE-06-xxx and SLE11-06-xxx and 600mA for SLE30-08-xxx and SLE16-08-xxx.

## Mechanical Outline: SLE

| SLE30 | SLE16-08-XX | SLE6-06-10D-xx | SLE11 |
|---|---|---|---|
| Top View | Top View | Top View | Top View |
|  |  |  |  |
| 87.0 Lens Diameter | 47.0 Lens Diameter | 46.7 Lens Diameter | 27.6 Lens Diameter |
|  |  |  |  |
| Bottom View | Bottom View | Bottom View | Bottom View |
|  |  |  |  |

Wire Outline




**V+** (Goes to Red)
**V-** (Goes to Black)
**NTC** Read-out, non polarized

* Wire Tickness: 2mm
* Total Wire Length: 430mm

Notes:
1. Drawings not to scale, different scales used
2. Dimensions in mm

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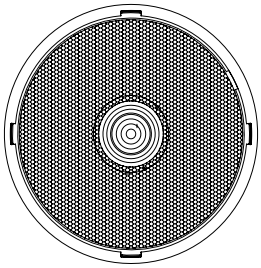
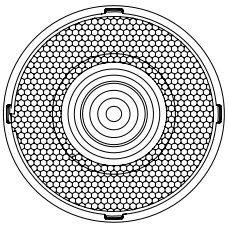
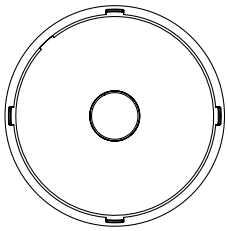
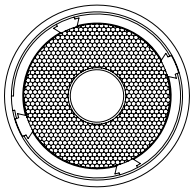
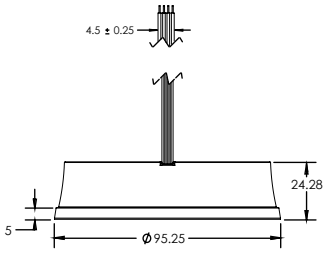
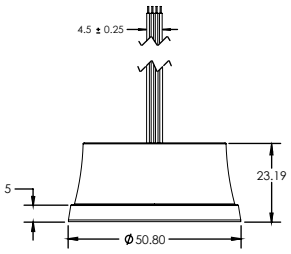
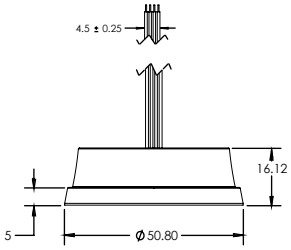
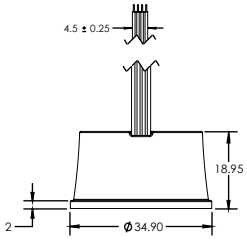
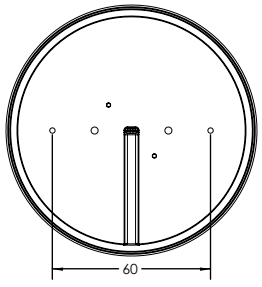
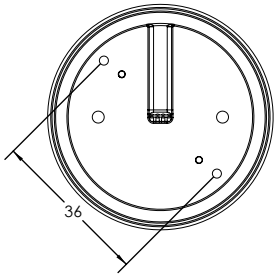
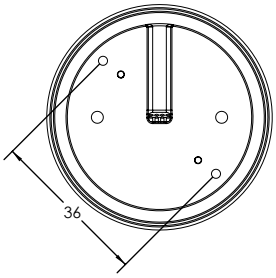
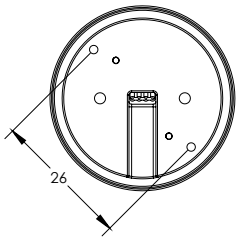
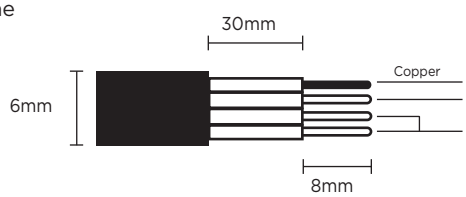
## Mechanical Outline: SLC

| SLC30 | SLC16-08-XX | SLC16-06-10D-xx | SLC11 |
|---|---|---|---|
| Top View | Top View | Top View | Top View |
|  |  |  |  |
| 87.0 Lens Diameter | 47.0 Lens Diameter | 46.7 Lens Diameter | 27.6 Lens Diameter |
|  |  |  |  |
| Bottom View | Bottom View | Bottom View | Bottom View |
|  |  |  |  |

Wire Outline




**V+** (Goes to Red)
**V-** (Goes to Black)
**NTC** Read-out, non polarized

* Wire Tickness: 2mm
* Total Wire Length: 430mm

Notes:
1. Drawings not to scale, different scales used
2. Dimensions in mm

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Simply Perfect™ Light

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Information and specifications subject to change. Light Engine HS Rev 1 02.12.15

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