The Best Professional Provider of

Philips Fortimo LED
Spot Light Module SLM System

800lm-3000lm (17W-40W)
Sunon high-efficiency active cooling module with DR MagLev design (Dust-Resistance) provides high reliability and long service life

The two innovative design concepts of DR MagLev development are B&S (Blanked & Seamless) Technology and S&C (Seal & Clip) Design. These fans can be customized with IP5X for customer’s demand.

Three excellent efficiencies to extend fan life:
1. To reduce dust invasion
2. To prevent oil leakage
3. To prevent the motor components from falling

Sunon’s Super Silence Series is below 20 phon, the minimum level discernible in daily living. These figures are industry standards based upon the ISO 532B Hearing Sensation test and charts on human auditory reactions plotted for different decibel and frequency levels.

The innovative S&C Design provides the best resistance to dust invasion available in the marketplace.

DR MagLev’s one-piece structure with the B&S Technology and S&C Design provides the best prevention of oil leakage.

Super Silence Fan can satisfy acoustic requirement for low noise indoor lamps

Sunon’s Super Silence Series is below 20 phon, the minimum level discernible in daily living. These figures are industry standards based upon the ISO 532B Hearing Sensation test and charts on human auditory reactions plotted for different decibel and frequency levels.
# LED Spot Lighting Specification

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Module Dimension</th>
<th>Weight</th>
<th>Thermal Resistance</th>
<th>Cooling Module Noise @ 1M</th>
<th>Rated Voltage</th>
<th>Power Consumption</th>
<th>Fan Speed (with Heat Sink)</th>
<th>Heat Sink Material</th>
<th>Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA001-11002</td>
<td>Ø 86 x 30.4 mm</td>
<td>114g</td>
<td>0.85°C / Watt</td>
<td>14.0dB(A)</td>
<td>12VDC</td>
<td>0.28Watts</td>
<td>2200 RPM +/- 10%</td>
<td>AL6063</td>
<td>UL/CUR/TUV/CE</td>
</tr>
<tr>
<td>TA003-10003</td>
<td>Ø 86 x 52.4 mm</td>
<td>237g</td>
<td>0.70°C / Watt</td>
<td>15.1dB(A)</td>
<td>12VDC</td>
<td>0.28Watts</td>
<td>2200 RPM +/- 10%</td>
<td>AL6063</td>
<td>UL/CUR/TUV/CE</td>
</tr>
<tr>
<td>TA004-10003</td>
<td>Ø 86 x 52.4 mm</td>
<td>233g</td>
<td>0.52°C / Watt</td>
<td>16.2dB(A)</td>
<td>12VDC</td>
<td>0.34Watts</td>
<td>2200 RPM +/- 10%</td>
<td>AL6063</td>
<td>UL/CUR/TUV/CE</td>
</tr>
</tbody>
</table>

### Phillips Fortimo SLM LED Modules

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Module Dimension</th>
<th>Weight</th>
<th>Thermal Resistance</th>
<th>Cooling Module Noise @ 1M</th>
<th>Rated Voltage</th>
<th>Power Consumption</th>
<th>Fan Speed (with Heat Sink)</th>
<th>Heat Sink Material</th>
<th>Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLM 1100 lm(17W)</td>
<td>Tc=47°C @Ta=35°C</td>
<td>Tc=47°C @Ta=35°C</td>
<td>Tc=45°C @Ta=35°C</td>
<td>12VDC</td>
<td>0.28Watts</td>
<td>2200 RPM +/- 10%</td>
<td>AL6063</td>
<td>UL/CUR/TUV/CE</td>
<td></td>
</tr>
<tr>
<td>SLM 1500 lm(20W)</td>
<td>Tc=50°C @Ta=35°C</td>
<td>Tc=50°C @Ta=35°C</td>
<td>Tc=47°C @Ta=35°C</td>
<td>12VDC</td>
<td>0.28Watts</td>
<td>2200 RPM +/- 10%</td>
<td>AL6063</td>
<td>UL/CUR/TUV/CE</td>
<td></td>
</tr>
<tr>
<td>SLM 2000 lm(32W)</td>
<td>Tc=58°C @Ta=35°C</td>
<td>Tc=58°C @Ta=35°C</td>
<td>Tc=54°C @Ta=35°C</td>
<td>12VDC</td>
<td>0.28Watts</td>
<td>2200 RPM +/- 10%</td>
<td>AL6063</td>
<td>UL/CUR/TUV/CE</td>
<td></td>
</tr>
<tr>
<td>SLM 3000 lm(43W)</td>
<td>X</td>
<td>Tc=60°C @Ta=35°C</td>
<td>Tc=54°C @Ta=35°C</td>
<td>12VDC</td>
<td>0.28Watts</td>
<td>2200 RPM +/- 10%</td>
<td>AL6063</td>
<td>UL/CUR/TUV/CE</td>
<td></td>
</tr>
<tr>
<td>SLM 5000 lm(75W)</td>
<td>X</td>
<td>Tc=68°C @Ta=35°C</td>
<td>Tc=54°C @Ta=35°C</td>
<td>12VDC</td>
<td>0.28Watts</td>
<td>2200 RPM +/- 10%</td>
<td>AL6063</td>
<td>UL/CUR/TUV/CE</td>
<td></td>
</tr>
<tr>
<td>SLM Lexel TW(22W)</td>
<td>Tc=50°C @Ta=35°C</td>
<td>Tc=48°C @Ta=35°C</td>
<td>Tc=44°C @Ta=35°C</td>
<td>12VDC</td>
<td>0.28Watts</td>
<td>2200 RPM +/- 10%</td>
<td>AL6063</td>
<td>UL/CUR/TUV/CE</td>
<td></td>
</tr>
<tr>
<td>SLM Lexel RGB(25W)</td>
<td>X</td>
<td>Tc=52°C @Ta=35°C</td>
<td>Tc=49°C @Ta=35°C</td>
<td>12VDC</td>
<td>0.28Watts</td>
<td>2200 RPM +/- 10%</td>
<td>AL6063</td>
<td>UL/CUR/TUV/CE</td>
<td></td>
</tr>
</tbody>
</table>

### Standard function

1. Fan Rated Voltage_12V
2. Auto Restart
3. Reverse Polarity Protection

### Optional function

1. Fan Rated Voltage_5V
2. PWM speed control
3. Protection IP 51
4. Fan 3rd wire signal (F/R type)
5. Temperature controller

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**Easy Assembly in 4 Steps**

1. To attach tight the Thermal Interface Materials(TM) bought by yourself to LED cooling substrate. To make sure there is no air bubbles between TIM and cooling substrate to avoid reducing the cooling efficiency.
2. To make sure the three screw holes on LED chip are aligned to the three highlighted holes on the heat sink.
3. Then firmly tighten the three screws (Tapping Screw M3*10mm) in to the heat sink and make sure the LED chip and cooling module are firmly assembled.
4. To join the red & black lines which control the fan (connect the red line to 12V power and the black line is ground wire) and LED connection to complete the entire assembly.

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*Please contact us to know more about the TIM.*
Design Suggestions for Lamp Covers

When working with Sunon's active cooling modules, please refer to these five suggestions for an effective lamp cover design:

1. **Inlet Diameter**
   - $\phi 55\text{mm} \sim \phi 60\text{mm}

2. **Height**
   - $<78\text{mm}$

3. **Gap**
   - $<0.5\text{mm}$, or Adding Plate
   - To prevent heat reserve flow

4. **Outlet Diameter**
   - $>\phi 97\text{mm}$

5. **Estimated Trendline**
   - $R_{th} \cdot \triangle T$ Trendline
   - Show the impact of lamp shape design on the cooling efficiency

$R_{th} : (T_{case} - T_{inlet}) / W_{th}$
- (Thermal resistance in lampshade)

$\triangle T : T_{outlet} - T_{inlet}$
- ($T_{outlet}$ vary with air smoothly flow to environment)

ex: 3000lm
LED Solution for Philips Fortimo LED SLM System

Sunon is at the forefront of developing key technologies for cooling modules and successfully manufacturing high-efficiency, cost-effective modules for over three decades. We know that solving cooling issues is the biggest key point to develop high-power LED lighting and have combined high-end cooling design and micro-cooling technology with active cooling modules for miniaturized high-power LED lighting and lightweight advanced products.

Because of Sunon’s innovative thermal technology and the serviceability of its products, the R&D Team of industry-leader Philips R&D team has chosen Sunon to design essential cooling modules for their products. The Sunon high-efficiency active cooling module meets the high-power cooling requirements of the Philips Fortimo LED SLM system, while allowing its 17W~40W LED Spotlight to give the highest quality lighting possible. For further application in LED lighting, Sunon have many others solutions are under development.

5 Designing Advantages

- **Active Cooling Module**
  Effectively stabilizes LED lighting output

- **High Reliability Cooling Fan**
  Prolongs LED lamp service life
  5 years warranty option

- **Miniaturized and Lightweight Design**
  Enhances LED lamp design and appearance

- **Super Silence Fan**
  Optimizes sound quality of indoor lamps to less than 20 phon

- **Dust-resistance System**
  Patented DR MagLev design helps prevent dust invasion and extends motor life
## Comparison Chart for Passive Cooling versus Active Cooling

<table>
<thead>
<tr>
<th>Cooling Solution</th>
<th>Passive Cooling Solution</th>
<th>Sunon’s Active Cooling Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED Power</td>
<td>Reduced practicality for high-power LED</td>
<td>Ideal cooling solution for high-power LED</td>
</tr>
<tr>
<td>Cooling efficiency</td>
<td>Low cooling efficiency</td>
<td>High cooling efficiency</td>
</tr>
<tr>
<td>Weight of lamp</td>
<td>Heavy, reinforced mounting needs to be considered</td>
<td>Low cost mounting, increased mounting options</td>
</tr>
<tr>
<td>Size of lamp</td>
<td>Large size compromises design/ aesthetic options</td>
<td>Allows for miniaturized design</td>
</tr>
<tr>
<td>Heat sink Material</td>
<td>More material required</td>
<td>Less material required</td>
</tr>
<tr>
<td>Lamp cover and ID design</td>
<td>Metallic lamp cover required for high cooling efficiency</td>
<td>Allows for a more flexible and elegant ID design</td>
</tr>
<tr>
<td>Cooling stability</td>
<td>The temperature of Tcase will increase over time and reduce service life of LED chip</td>
<td>Offers better cooling stability with lower Tcase temperature</td>
</tr>
<tr>
<td>Dust influence</td>
<td>Cooling efficiency is greatly compromised by dust accumulation</td>
<td>Dust-resistant design minimizes dust accumulation Optional Smart Dust Self-Cleaning Fan helps prevent dust build-up</td>
</tr>
<tr>
<td>Sound</td>
<td>No noise</td>
<td>Optimal sound quality of less than 20 phon</td>
</tr>
</tbody>
</table>

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