Line Sensor Light Unit
LNSD Series

Versatile Light Unit of High Luminance and High Uniformity

LED colors: White, red, and blue
Emitting surface length: 100 to 3,000 mm

Inspection Applications
1) Dents, foreign substances, and fish-eye holes on transparent film
2) Blots, unevenness, and scratches on metallic foil
3) Oil spots, holes, and edge breaking on paper
4) Blots, mixing of hairs, and crude density on non-woven fabric

CCS Inc.
Easy-to-use, compact, and lightweight!

Features

1. Easy to set up with a Line camera
   The wide and uniform emitting surface facilitates the positioning of the camera. You can improve the efficiency of the setting work.

2. Compact and lightweight
   Space-saving 30-mm width!

3. No need for replacement for 5 years
   Expected life time: 50,000 hours

4. Stable quality even in a harsh environment
   Heat resistant design for a high temperature environment
   - Optimized case design for heat dissipation
   - Heat resistant cable and diffusion plate
   - Other components for thorough heat resistance

5. Abundant lineup, total of 180 models
   - Two types: High luminance and high uniformity
   - Three colors: White, red, and blue
   - Length of 100 to 3,000 mm
     (Emitting surface length, 100-mm pitch)
Try the LNSD! It’s the quickest way.

Optimum for replacing your fluorescent lights!!

1. It has excellent brightness and the same uniformity as a fluorescent light.

2. Great for replacing fluorescent lights due to the equal size.

3. Cost-reducing

4. Supports 1,600 to 2,400 mm length as with the fluorescent light.

Balanced performance of the LNSD series

The performance balance map below shows the usability of the LNSD series.

Consider the LNSD series first for your workpiece inspection!
Data  (White)

**Brightness**

<table>
<thead>
<tr>
<th>Luminance</th>
<th>High luminance type</th>
<th>265,000 cd/m²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High uniformity type</td>
<td>125,000 cd/m²</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Illuminance (LWD=50 mm)</th>
<th>High luminance type</th>
<th>101,000 lx</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High uniformity type</td>
<td>56,000 lx</td>
</tr>
</tbody>
</table>

* *“LWD” is a distance from the Light Unit to the workpiece.
* This data is for reference only. This does not guarantee the quality of this product.

**Uniformity** (Radiance distribution)

**High luminance type**

**High uniformity type**

**Graph of the correlation between intensity and light output**

* Each curve represents an intensity range.

* Actual measured values when the Analog Control Unit PSB3-30024 is used. They do not guarantee the quality of this product.

* Actual measured values when the Digital Control Unit PD3-10024-8 series is used. They do not guarantee the quality of this product.

* Custom products with a PWM frequency of 500 kHz are also available. Please contact your CCS sales representative for details.
### Product lineup

<table>
<thead>
<tr>
<th>Model name</th>
<th>Emitting surface length</th>
<th>LED color</th>
<th>Power consumption (max.)</th>
<th>Extension cable</th>
<th>Recommended Control Unit</th>
<th>Weight (max.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNSD-100</td>
<td>100 mm</td>
<td></td>
<td>11 W</td>
<td></td>
<td>Analog Control Unit</td>
<td>200 g</td>
</tr>
<tr>
<td>LNSD-200</td>
<td>200 mm</td>
<td></td>
<td>21 W</td>
<td></td>
<td>or</td>
<td>320 g</td>
</tr>
<tr>
<td>LNSD-300</td>
<td>300 mm</td>
<td></td>
<td>31 W</td>
<td></td>
<td>Digital Control Unit</td>
<td>460 g</td>
</tr>
<tr>
<td>LNSD-400</td>
<td>400 mm</td>
<td></td>
<td>41 W</td>
<td></td>
<td>PD3-10024-8</td>
<td>590 g</td>
</tr>
<tr>
<td>LNSD-500</td>
<td>500 mm</td>
<td></td>
<td>51 W</td>
<td></td>
<td></td>
<td>720 g</td>
</tr>
<tr>
<td>LNSD-600</td>
<td>600 mm</td>
<td></td>
<td>61 W</td>
<td></td>
<td></td>
<td>860 g</td>
</tr>
<tr>
<td>LNSD-700</td>
<td>700 mm</td>
<td></td>
<td>71 W</td>
<td></td>
<td></td>
<td>990 g</td>
</tr>
<tr>
<td>LNSD-800</td>
<td>800 mm</td>
<td></td>
<td>81 W</td>
<td></td>
<td></td>
<td>1,120 g</td>
</tr>
<tr>
<td>LNSD-900</td>
<td>900 mm</td>
<td></td>
<td>91 W</td>
<td></td>
<td></td>
<td>1,240 g</td>
</tr>
<tr>
<td>LNSD-1000</td>
<td>1,000 mm</td>
<td></td>
<td>101 W</td>
<td></td>
<td></td>
<td>1,370 g</td>
</tr>
<tr>
<td>LNSD-1100</td>
<td>1,100 mm</td>
<td></td>
<td>111 W</td>
<td></td>
<td></td>
<td>1,500 g</td>
</tr>
<tr>
<td>LNSD-1200</td>
<td>1,200 mm</td>
<td></td>
<td>121 W</td>
<td></td>
<td></td>
<td>1,640 g</td>
</tr>
<tr>
<td>LNSD-1300</td>
<td>1,300 mm</td>
<td></td>
<td>131 W</td>
<td></td>
<td></td>
<td>1,770 g</td>
</tr>
<tr>
<td>LNSD-1400</td>
<td>1,400 mm</td>
<td></td>
<td>141 W</td>
<td></td>
<td></td>
<td>1,910 g</td>
</tr>
<tr>
<td>LNSD-1500</td>
<td>1,500 mm</td>
<td></td>
<td>151 W</td>
<td></td>
<td></td>
<td>2,040 g</td>
</tr>
<tr>
<td>LNSD-1600</td>
<td>1,600 mm</td>
<td></td>
<td>161 W</td>
<td></td>
<td></td>
<td>2,170 g</td>
</tr>
<tr>
<td>LNSD-1700</td>
<td>1,700 mm</td>
<td></td>
<td>171 W</td>
<td></td>
<td></td>
<td>2,300 g</td>
</tr>
<tr>
<td>LNSD-1800</td>
<td>1,800 mm</td>
<td></td>
<td>181 W</td>
<td></td>
<td></td>
<td>2,440 g</td>
</tr>
<tr>
<td>LNSD-1900</td>
<td>1,900 mm</td>
<td></td>
<td>192 W</td>
<td></td>
<td></td>
<td>2,570 g</td>
</tr>
<tr>
<td>LNSD-2000</td>
<td>2,000 mm</td>
<td></td>
<td>202 W</td>
<td></td>
<td></td>
<td>2,700 g</td>
</tr>
<tr>
<td>LNSD-2100</td>
<td>2,100 mm</td>
<td></td>
<td>212 W</td>
<td></td>
<td></td>
<td>2,830 g</td>
</tr>
<tr>
<td>LNSD-2200</td>
<td>2,200 mm</td>
<td></td>
<td>222 W</td>
<td></td>
<td></td>
<td>2,960 g</td>
</tr>
<tr>
<td>LNSD-2300</td>
<td>2,300 mm</td>
<td></td>
<td>232 W</td>
<td></td>
<td></td>
<td>3,090 g</td>
</tr>
<tr>
<td>LNSD-2400</td>
<td>2,400 mm</td>
<td></td>
<td>242 W</td>
<td></td>
<td></td>
<td>3,220 g</td>
</tr>
<tr>
<td>LNSD-2500</td>
<td>2,500 mm</td>
<td></td>
<td>252 W</td>
<td></td>
<td></td>
<td>3,350 g</td>
</tr>
<tr>
<td>LNSD-2600</td>
<td>2,600 mm</td>
<td></td>
<td>262 W</td>
<td></td>
<td></td>
<td>3,480 g</td>
</tr>
<tr>
<td>LNSD-2700</td>
<td>2,700 mm</td>
<td></td>
<td>272 W</td>
<td></td>
<td></td>
<td>3,610 g</td>
</tr>
<tr>
<td>LNSD-2800</td>
<td>2,800 mm</td>
<td></td>
<td>282 W</td>
<td></td>
<td></td>
<td>3,740 g</td>
</tr>
<tr>
<td>LNSD-2900</td>
<td>2,900 mm</td>
<td></td>
<td>292 W</td>
<td></td>
<td></td>
<td>3,870 g</td>
</tr>
<tr>
<td>LNSD-3000</td>
<td>3,000 mm</td>
<td></td>
<td>302 W</td>
<td></td>
<td></td>
<td>4,000 g</td>
</tr>
</tbody>
</table>

**High luminance type/High uniformity type (Add "-HU" at the end of the model name.)**

- White (SW)/Red (RD)/Blue (BL)
- Emitting surface length
- Power consumption (max.)
- Extension cable
- Recommended Control Unit
- Weight (max.)

* For details of the Control Units and the optional parts, refer to the CCS website or General Catalog of LED Lighting for Machine Vision Applications.

*1 There are two input connectors for the Light Unit whose length of the emitting surface is more than 1,200 mm. To install the Light Unit, use two Extension cables of the same length. Using the cables of different length may cause uneven emission due to a difference in voltage drop by DC resistance of the cables.

*2 Custom products with a PWM frequency of 500 kHz are also available for the Digital Control Unit PD3 series. Please contact your CCS sales representative for details.
**Common specifications**

<table>
<thead>
<tr>
<th>Type</th>
<th>Cable length</th>
<th>Operating environment</th>
<th>Storage environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED color</td>
<td>300 mm</td>
<td>Temperature: 0 to 50°C, Humidity: 20% to 85% RH (with no condensation)</td>
<td>Temperature: -20 to 60°C, Humidity: 20% to 85% RH (with no condensation)</td>
</tr>
<tr>
<td>Correlated temp. (typ.)</td>
<td>Red</td>
<td>Aluminum alloy, Resin</td>
<td>Natural air cooling</td>
</tr>
<tr>
<td>Peak wavelength (typ.)</td>
<td>Blue</td>
<td>Peak wavelength (typ.)</td>
<td>Light spectrum</td>
</tr>
<tr>
<td>Input voltage (max.)</td>
<td>470 nm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Dimensions (mm)**

LNSD-#: #/SW RD/BL

- Emitting surface length
- (+), 2: (-)
- *1 There are two connectors only for the Light Unit whose length of the emitting surface is more than 1,200 mm.
- *2 There are reinforcing metal fittings only for the Light Unit whose length of the emitting surface is more than 1,600 mm.

**Optional Accessories**

- Extension cables (EL connector)
- The length of the connecting cable of the Light Unit is 300 mm. Use appropriate Extension cables in accordance with your installation environment.

**Control Units**

**Analog Control Unit (Constant voltage)**

**PSB3-30024**

- Constant voltage system
- Intensity control with variable voltage
- 300 W capacity (EL connectors: 150 W max./connector)
- AC input
- 1 channel (2 connectors)
- 3 ways of external control in a single Unit
  - Parallel communications
  - Analog input
  - EIA-485 communications

**Digital Control Unit**

**PD3-10024-8 Series**

- PWM intensity control
- 85 W capacity (One EL connector)
- AC input
- 3 ways of external control
  - Parallel communications
  - Ethernet communications
  - EIA-485 communications

**CAUTION**

- To ensure proper and safe use of the product, please read the Instruction Guide completely before using the product.
- The design and specifications of this product are subject to change without notification for product improvement.
- The workpiece imaging examples included in this pamphlet are intended to serve only as references to help you select a suitable Light Unit. Please verify the functionality and conditions required for your particular application before you make a final selection. The sample workpieces used in this pamphlet have been processed specifically for sample imaging. They are not intended to represent product quality and performance.

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