

# Oblique Angled Lighting

## Line Lights

### LNIS Series

Achieves bi-directional angled illumination using an original optical design

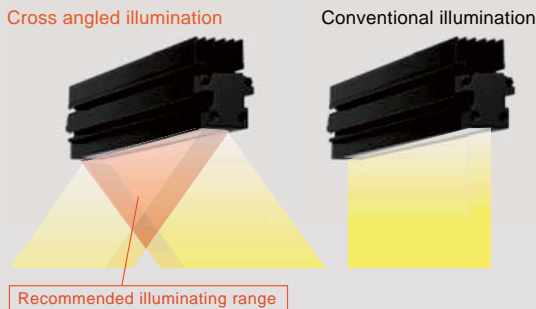


**Applications** Streak inspection of sheet surfaces, scratch inspection on clear film, scratch inspection on glass panels, damage inspection on sheet metal, etc.

#### ➤ Achieves Bi-Directional Angled Illumination

The LNIS series is a completely new concept product that was developed to detect "moving-direction scratches," which were difficult to detect with conventional line sensor lights.

##### Difference between bi-directional angled illumination and conventional illumination



##### Other features

- 1) Fan-less (Natural air cooling)
- 2) Compact design
- 3) Emitting surface 100 to 1,000 mm long (can be made in units of 100 mm)

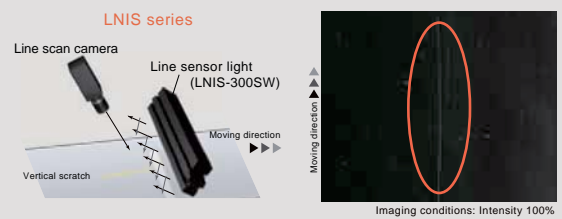
#### ➤ Applications

##### Inspection for scratches on transparent films

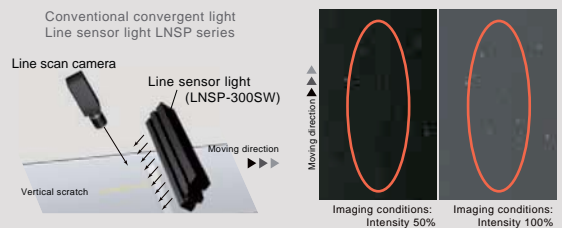


#### ➤ Perfect for Moving-Direction Scratches Such as Streaks

##### Imaging of vertical scratches (moving-direction scratches) on film



Emphasizes only the vertical scratch. Even if you increase the output, the background noise and brightness do not increase.



It's difficult to highlight only the vertical scratch. If you increase the output, the background noise and brightness increase but the contrast ratio does not.

#### ➤ Example Configuration

Achieves bi-directional angled illumination using an original optical design. This is a line sensor light perfect for detecting moving-direction scratches.



|                         |                                    |
|-------------------------|------------------------------------|
| LDR2                    | Direct Lighting                    |
| LDR2-LA                 | Direct Lighting                    |
| LDR-LA1                 | Direct Lighting                    |
| SQR                     | Direct Lighting                    |
| SQR-TP                  | Direct Lighting                    |
| HPR2                    | Diffused Lighting                  |
| LFR                     | Diffused Lighting                  |
| LKR                     | Diffused Lighting                  |
| FPR                     | Diffused Lighting                  |
| FPQ2                    | Diffused Lighting                  |
| LDL2                    | Direct Lighting                    |
| LDLB                    | Direct Lighting                    |
| HLDL2                   | Direct Lighting                    |
| HL                      | Direct Lighting                    |
| TH2 (5 types)           | Direct Lighting                    |
| TH                      | Direct Lighting                    |
| LFL                     | Diffused Lighting                  |
| HPD2                    | Diffused Lighting                  |
| LDM2                    | Diffused Lighting                  |
| LAV                     | Diffused Lighting                  |
| PDM                     | Diffused Lighting                  |
| LFX3                    | Diffused Lighting                  |
| LFX3-PT                 | Diffused Lighting                  |
| LFV3                    | Diffused Lighting                  |
| MSU                     | Strobe / Colored Lighting          |
| MFU                     | Strobe / Colored Lighting          |
| PF                      | Strobe / Colored Lighting          |
| HLDR-IP                 | Water-proof / Ultraviolet Lighting |
| HSL-PCL                 | Water-proof / Ultraviolet Lighting |
| UV2                     | Ultraviolet Lighting               |
| UV                      | Ultraviolet Lighting               |
| LNIS-UV-FN              | Ultraviolet Lighting               |
| IR2                     | Infrared / Control Lighting        |
| IU                      | Infrared / Control Lighting        |
| HLV3                    | Spot Lighting, Etc.                |
| HLV2                    | Spot Lighting, Etc.                |
| LV                      | Spot Lighting, Etc.                |
| LSP                     | Spot Lighting, Etc.                |
| HFS/HFR                 | Spot Lighting, Etc.                |
| HLV3-NR                 | Spot Lighting, Etc.                |
| HLV3-3M-RGB-4           | Spot Lighting, Etc.                |
| HLV2-NR                 | Spot Lighting, Etc.                |
| HLV2-3M-RGB-3W          | Spot Lighting, Etc.                |
| PFBR                    | Spot Lighting, Etc.                |
| PFB3                    | Spot Lighting, Etc.                |
| PFB2                    | Spot Lighting, Etc.                |
| LNLP                    | Convergent Lighting                |
| LNIS2                   | Convergent Lighting                |
| LNIS                    | Convergent Lighting                |
| LNIS-FN                 | Convergent Lighting                |
| Coaxial Units           | Convergent Lighting                |
| LNIS-FN                 | Convergent Lighting                |
| LN/LN-HK                | Convergent Lighting                |
| LNISD                   | Convergent Lighting                |
| LNIS2                   | Convergent Lighting                |
| HLND                    | Diffused Lighting                  |
| LT                      | Diffused Lighting                  |
| LNIS                    | Diffused Lighting                  |
| LNIS2                   | Diffused Lighting                  |
| LNIS-FN                 | Diffused Lighting                  |
| Oblique Angled Lighting | Oblique Angled Lighting            |
| Telecentric Lens        | Lenses                             |
| Macro Lens              | Lenses                             |



# LNIS Series

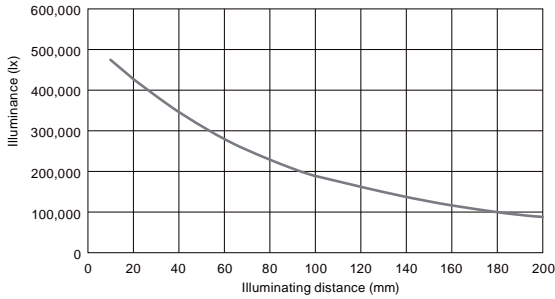


## Data (Representative Example)

The graph included is for reference only. Actual values may vary.

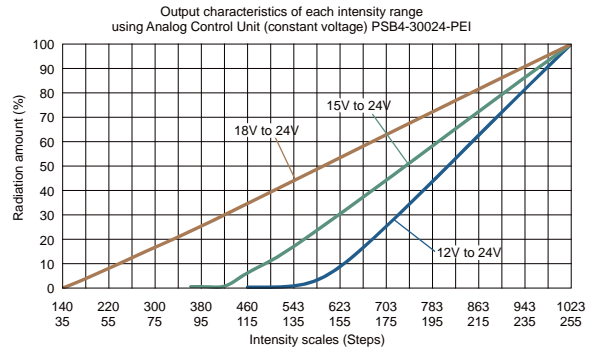
### LNIS-500SW

#### Change in illuminance



Actual measurement values at the center of the emitting surface, 100% intensity. Results for individual products may vary.

#### Graph of the correlation between intensity and output



Actual measurement values using Analog Control Unit PSB4-30024-PEI. Results for individual products may vary.

Measured in each voltage range because the Analog Control Unit PSB4-30024-PEI has a switching function for the lower limit of output voltage.

### LNIS-400SW

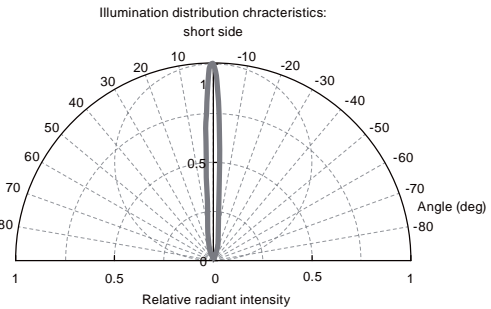
#### Characteristics of the illumination distribution

Measuring direction: long side

Measuring direction: short side



These graphs are for reference only. Actual values may vary.



## Lineup

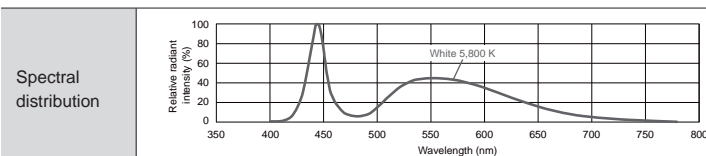
| Model name  | LED color | Power consumption | Correlated color temperature | Extension cables  | Recommended Control Units  | Weight  |
|-------------|-----------|-------------------|------------------------------|---|--|---------|
| LNIS-100SW  | White     | 24 V / 21 W       | 5,800 K                      | <div style="border: 1px solid black; padding: 2px;">FCB-1.25SQ-ME7</div> <div style="border: 1px solid black; padding: 2px;">FCB-20-2.0SQ-ME7</div> | <div style="border: 1px solid black; padding: 2px;">PSB4-30024-PEI</div> | 430 g   |
| LNIS-200SW  |           | 24 V / 41 W       |                              |   |  | 760 g   |
| LNIS-300SW  |           | 24 V / 61 W       |                              |   |  | 1,090 g |
| LNIS-400SW  |           | 24 V / 81 W       |                              |   |  | 1,420 g |
| LNIS-500SW  |           | 24 V / 101 W      |                              |   |  | 1,740 g |
| LNIS-600SW  |           | 24 V / 121 W      |                              |   |  | 2,070 g |
| LNIS-700SW  |           | 24 V / 142 W      |                              |   |  | 2,400 g |
| LNIS-800SW  |           | 24 V / 162 W      |                              |   |  | 2,730 g |
| LNIS-900SW  |           | 24 V / 182 W      |                              |   |  | 3,050 g |
| LNIS-1000SW |           | 24 V / 202 W      |                              |   |  | 3,380 g |

PSB4-30024-PEI Product Page ▶ P.295

The emitting surface is available in sizes of 100 mm units. For details about other sizes, inquire with your sales representative.

In addition, we accept custom orders, such as changes to the LED color (red/blue/IR, etc.) and size changes. Inquire at your sales representative for details.

## LED Properties



Be sure to read the "Instruction Guide" included with the product before use and follow the safety precautions upon use.

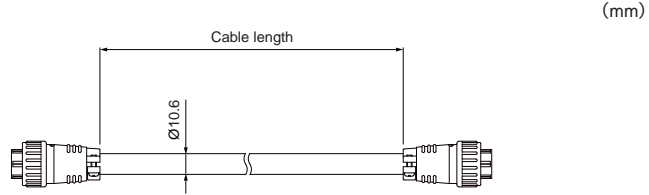
The data included is for reference only. Actual values may vary.

## Extension Cables

Necessary when connecting the Light Unit to the recommended Control Unit, PSB4-30024-PEI.

### FCB-1.25SQ-ME7

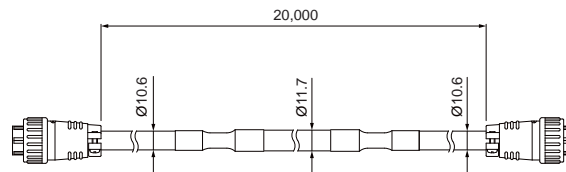
| Model name        | Cable length | Weight  |
|-------------------|--------------|---------|
| FCB-2-1.25SQ-ME7  | 2 m          | 430 g   |
| FCB-3-1.25SQ-ME7  | 3 m          | 580 g   |
| FCB-5-1.25SQ-ME7  | 5 m          | 1,000 g |
| FCB-10-1.25SQ-ME7 | 10 m         | 2,000 g |



Cable permitted bending radius: 63.6 mm

### FCB-20-2.0SQ-ME7

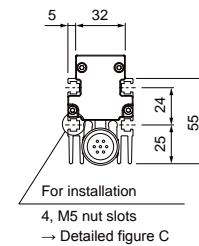
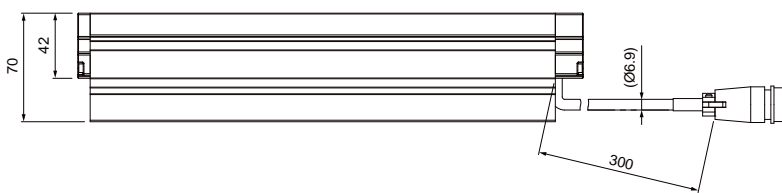
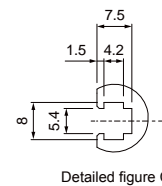
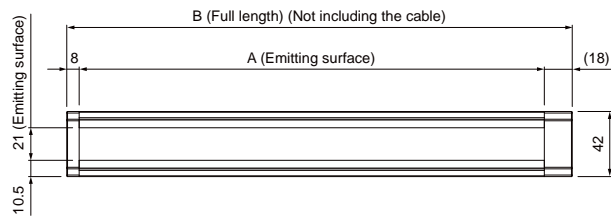
| Model name       | Cable length | Weight  |
|------------------|--------------|---------|
| FCB-20-2.0SQ-ME7 | 20 m         | 5,000 g |



Cable permitted bending radius: 63.6 mm

The above cable permitted bending radii are reference values. Actual values may vary.

## Dimensions (mm)



| Model name | A (Emitting surface) | B (Full length) | Model name  | A (Emitting surface) | B (Full length) |
|------------|----------------------|-----------------|-------------|----------------------|-----------------|
| LNIS-100SW | 100                  | 126             | LNIS-600SW  | 600                  | 626             |
| LNIS-200SW | 200                  | 226             | LNIS-700SW  | 700                  | 726             |
| LNIS-300SW | 300                  | 326             | LNIS-800SW  | 800                  | 826             |
| LNIS-400SW | 400                  | 426             | LNIS-900SW  | 900                  | 926             |
| LNIS-500SW | 500                  | 526             | LNIS-1000SW | 1,000                | 1,026           |

|                         |   |
|-------------------------|---|
| Direct Lighting         | LDR2<br>LDR2-LA<br>LDR-LA1<br>SQR<br>SQR-TP   |
| Diffused Lighting       | HPR2<br>LFR<br>LKR<br>FPR<br>FPQ2   |
| Direct Lighting         | LDL2<br>LDLB<br>HLDL2<br>HL   |
| Diffused Lighting       | TH2 (5 types)<br>TH<br>LFL<br>HPD2<br>LDM2<br>LAV<br>PDM<br>LFX3<br>LFX3-PT<br>LFV3                           |
| Coaxial Lighting        | MSU<br>MFU  |
| Strobe Lighting         | PF  |
| Water-proof             | HLDL-IP/<br>HSL-PCL   |
| Ultraviolet Lighting    | UV2<br>UV<br>LNSP-UV-FN   |
| Infrared Lighting       | IR2   |
| Intensity Control       | IU  |
| Spot Lighting, Etc.     | HLV3<br>HLV2<br>LV<br>LSP<br>HFS/HFR<br>HLV3-NR<br>HLV3-3M-RGB-4<br>HLV2-NR<br>HLV2-3M-RGB-3W<br>PFB3<br>PFB2 |
| Convergent Lighting     | LNLP<br>LNSP2<br>LNSP<br>Coaxial Units<br>LNSP-FN<br>LN/LN-HK   |
| Diffused Lighting       | LNLD<br>LND2<br>HLND<br>LT<br>LNV   |
| Oblique Angled Lighting | LNLDG<br>LNIS2<br>LNIS<br>LNIS-FN   |
| Lenses                  | Telecentric Lens<br>Macro Lens  |