

# Oblique Angled Lights for Line Sensor

## LNDG Series



# Better detection of bumps and subtle vertical wrinkles

(in the direction of material flow).



### Application examples

- 1) Inspections for vertical wrinkles in paper
- 2) Inspections for vertical striations in cardboard
- 3) Inspections for vertical wrinkles and folding in non-woven fabric
- 4) Inspections for vertical wrinkles in bonded sheets
- 5) Inspections for bumps and vertical wrinkles in other types of plain sheets

Inspections for vertical wrinkles in paper



# Oblique Angled Lights for Line Sensor LNDG Series

# Better detection of bumps and subt

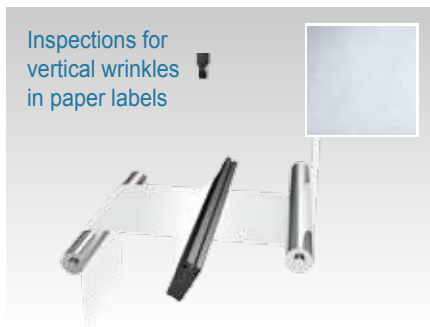


LED color	White
Light-emitting surface length	300 to 3,000 mm (in 100-mm increments)
Number of models	28
Illuminance	80,000 lx (LWD = 50 mm)

### Application examples

- Inspections for **vertical wrinkles in paper**
- Inspections for **vertical striations in cardboard**
- Inspections for **vertical wrinkles and folding in non-woven fabric**
- Inspections for **vertical wrinkles in bonded sheets**
- Inspections for **vertical wrinkles in other types of plain sheets**

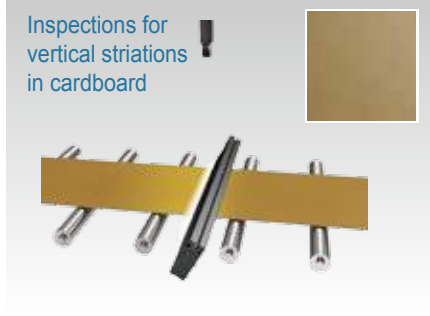
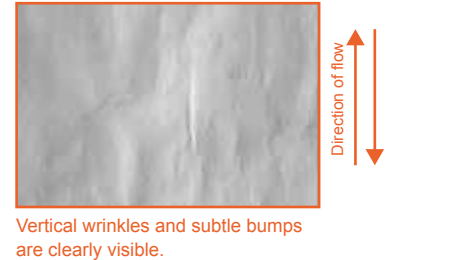
### Imaging samples



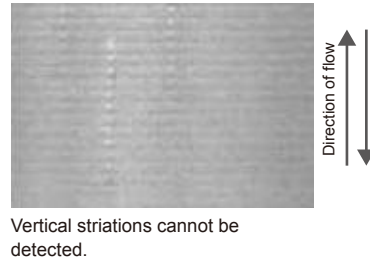
Typical Line Lights (LNSP Series)



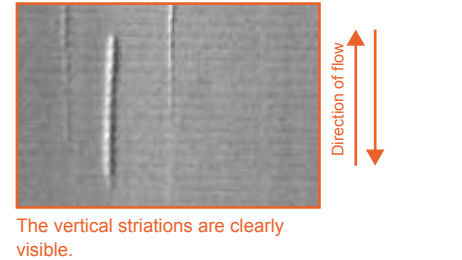
Oblique Light Unit (LNDG Series)



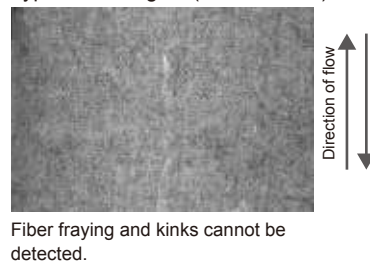
Typical Line Lights (LNSP Series)



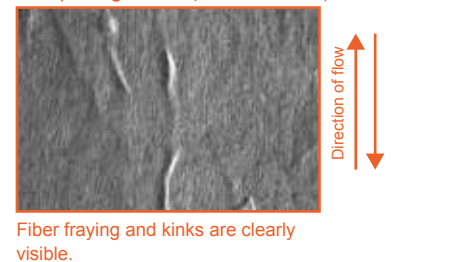
Oblique Light Unit (LNDG Series)



Typical Line Lights (LNSP Series)



Oblique Light Unit (LNDG Series)



**Recommendation!** Use the LNIS Series for glossy workpieces.

Ideal for detection of vertical scratches (in the direction of flow) on glossy workpieces, such as transparent films and sheets of glass.

#### Application examples

- Inspections for streaks on sheet surfaces
- Inspections for scratches on transparent films
- Inspections for scratches on sheets of glass
- Inspections for scratches on metal sheets
- Etc.



#### LNIS Series

LED color	White
Light-emitting surface length	100 to 1,000 mm (in 100-mm increments)
Illuminance	310,000 lx (LWD = 50 mm)

#### LNIS-FN Series High-output Light Units (with Fans)

LED color	White
Light-emitting surface length	100 to 1,500 mm (in 100-mm increments)
Illuminance	678,000 lx (LWD = 50 mm)

#### Crossing angled lighting

Light is emitted diagonally so that it intersects.

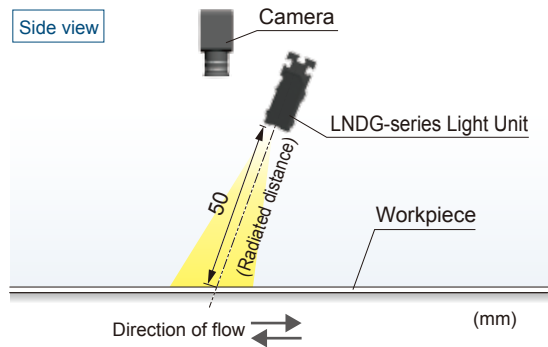
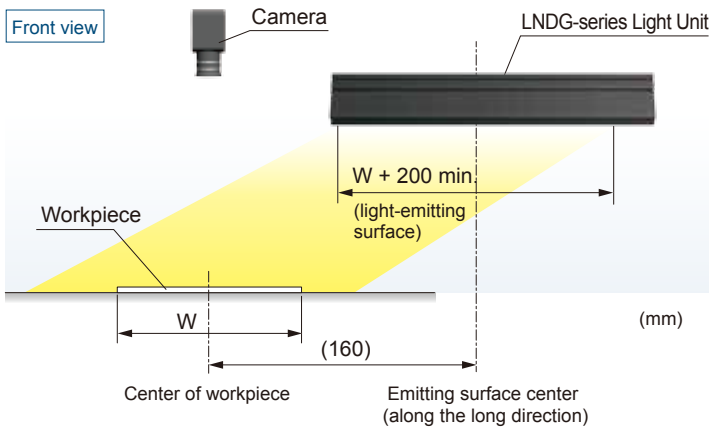


# Detect vertical wrinkles in plain sheets that disperse light.

(wrinkles in the direction of flow)

## Select a Light Unit that is longer than the width of the workpiece.

The LNDG-series Light Units emits light at an angle to enable detecting vertical wrinkles (in the flow direction) and bumps. When you select a Light Unit, select one that is at least 200 mm longer than the width of the workpiece to be inspected. We recommend a working distance of 50 mm to obtain sufficient illumination.

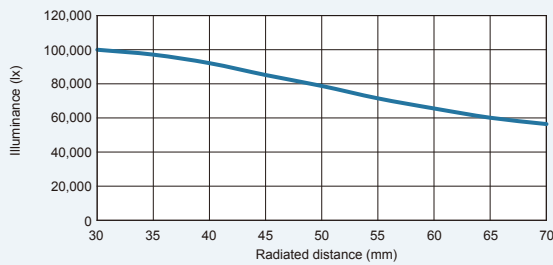


\* Typical installation examples are shown above. Consider the application environment for actual applications.

## Technical data

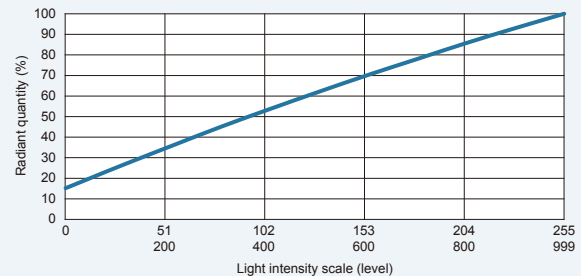
LED Light Unit used: LNDG-500SW-LA

Illuminance graph



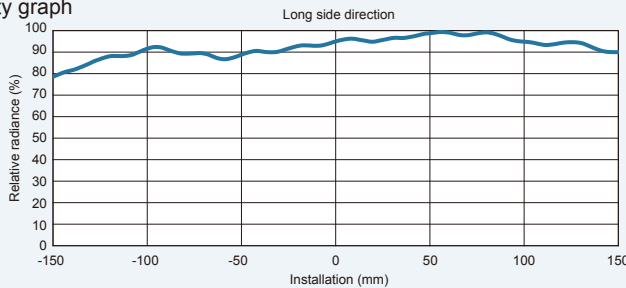
\* Actual measurement values at 100% intensity and the specified radiated distances at the working distance. Results may vary for individual Units.

Correlation graph between light intensity and optical output

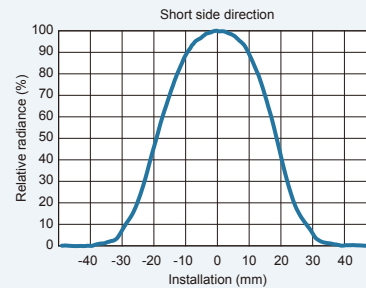


\* Actual measurement values with a PSCC-30048 Analog Control Unit. Results may vary for individual Units.

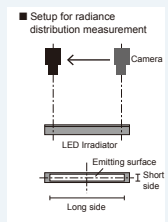
Uniformity graph



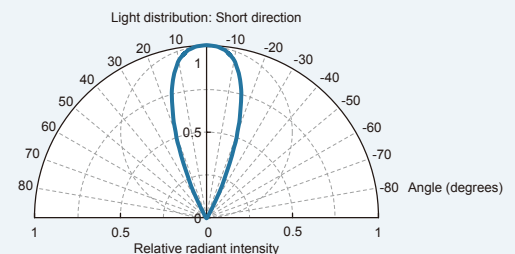
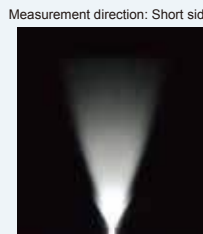
\* Actual measurement values at 100% intensity. Results may vary for individual Units.



\* The graphs provided here are for reference only. Results for individual Irradiators may vary.



Light distribution characteristics



\* The graphs provided here are for reference only. Results for individual Irradiators may vary.

## Specifications

LED color	White (SW)	Environmental regulations	RoHS compliant
Correlated color temperature	7,000 K (typ.)	Cooling method	Natural air-cooling
Case material	Aluminum alloy	Accessories	Instruction Guide
Cable length	300 mm	Light spectrum	
Connector	Metal connector (PRC04-12A26S-37M18)		
Operating environment	0 to 40°C, Humidity: 20 to 85%RH (with no condensation)		
Storage environment	-20 to 60°C, Humidity: 20 to 85%RH (with no condensation)		
CE marking	Safety standard: Conforms to EN 62471, EMC standard: Conforms to EN61000-6-2, EN61000-6-4		

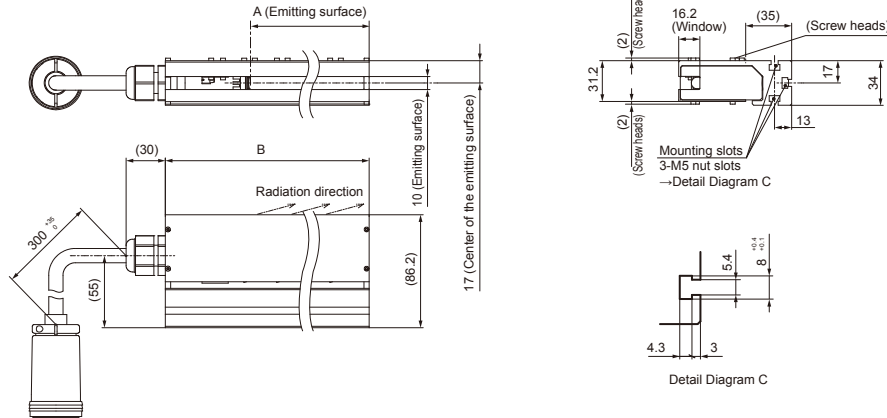
\* This data is for reference only. It does not guarantee product quality.

## Dimensions (mm)

### LNDG-□□□SW-LA

(□□□: Emitting surface length)

CE



Model name	A: Emitting surface (mm)	B: Total length (mm)	Power consumption (W)	Weight (g) (max.)	Applicable Control Unit	Model name	A: Emitting surface (mm)	B: Total length (mm)	Power consumption (W)	Weight (g) (max.)	Applicable Control Unit	Model name	A: Emitting surface (mm)	B: Total length (mm)	Power consumption (W)	Weight (g) (max.)	Applicable Control Unit		
LNDG-300SW-LA	300	365	39	1,600	PSCC-30048(A) PSCC-60048(A)	LNDG-1300SW-LA	1,300	1,365	169	5,500	PSCC-30048(A) PSCC-60048(A)	LNDG-2300SW-LA	2,300	2,365	299	9,500	PSCC-60048(A)		
LNDG-400SW-LA	400	465	52	2,000		LNDG-1400SW-LA	1,400	1,465	182	5,900		LNDG-2400SW-LA	2,400	2,465	312	9,900			
LNDG-500SW-LA	500	565	65	2,400		LNDG-1500SW-LA	1,500	1,565	195	6,300		LNDG-2500SW-LA	2,500	2,565	325	10,300			
LNDG-600SW-LA	600	665	78	2,800		LNDG-1600SW-LA	1,600	1,665	208	6,700		LNDG-2600SW-LA	2,600	2,665	338	10,700			
LNDG-700SW-LA	700	765	91	3,200		LNDG-1700SW-LA	1,700	1,765	221	7,100		LNDG-2700SW-LA	2,700	2,765	351	11,100			
LNDG-800SW-LA	800	865	104	3,600		LNDG-1800SW-LA	1,800	1,865	234	7,500		LNDG-2800SW-LA	2,800	2,865	364	11,500			
LNDG-900SW-LA	900	965	117	4,000		LNDG-1900SW-LA	1,900	1,965	247	7,900		LNDG-2900SW-LA	2,900	2,965	377	11,900			
LNDG-1000SW-LA	1,000	1,065	130	4,400		LNDG-2000SW-LA	2,000	2,065	260	8,300		LNDG-3000SW-LA	3,000	3,065	390	12,300			
LNDG-1100SW-LA	1,100	1,165	143	4,800		LNDG-2100SW-LA	2,100	2,165	273	8,700									
LNDG-1200SW-LA	1,200	1,265	156	5,200		LNDG-2200SW-LA	2,200	2,265	286	9,100									

\* The applicable Control Units for these products are the PSCC(A)-series Control Units that have "A" at the end of the model number. For details on the applicable Control Units, refer to the CCS website or to the PSCC(A) product pamphlet.

## Options

### Light Unit cables

These cables are used to connect the Light Unit and the Control Unit. You can choose the cable length that is suitable for your installation site.

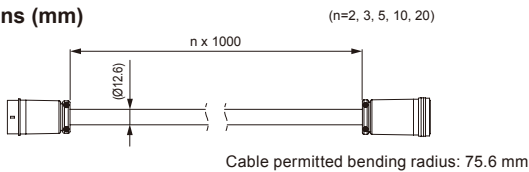
Applicable Control Unit: PSCC-30048(A)

Model	QCBM-2	QCBM-3	QCBM-5	QCBM-10	QCBM-20
Cable length	2 m	3 m	5 m	10 m	20 m
Weight	800 g	1,000 g	1,500 g	2,700 g	5,000 g

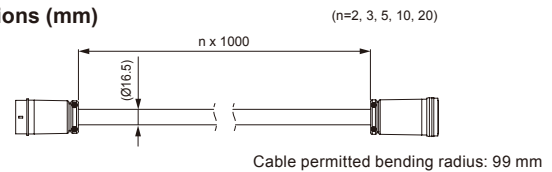
Applicable Control Unit: PSCC-60048(A)

Model	QCB-2	QCB-3	QCB-5	QCB-10	QCB-20
Cable length	2 m	3 m	5 m	10 m	20 m
Weight	1,100 g	1,500 g	2,400 g	4,600 g	8,900 g

### Dimensions (mm)



### Dimensions (mm)



\* The allowable cable bending radius is a reference value. The values are not guaranteed.

• "CCS", "LIGHTING SOLUTION", "LNDG", and "PSCC" are registered trademarks or trademarks of CCS Inc.

## 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.

## Vision Light Tech B.V.

Protonenlaan 22, 5405 NE UDEN, P.O. Box 345, 5400 AH UDEN, The Netherlands

Phone: +31 (0)413 26 00 67, Fax +31 (0)413 26 09 38, E-mail: inquiry@vlt.nl, Website: www.vlt.nl

Trade register No. 17150044, VAT No. NL8112.30.946.B01