



OPTO ENGINEERING



INSTRUCTIONS MANUAL

LTLNE series

High power LED line lights



LIGHTING

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1. Product overview

LTLNE series are high power LED line illuminators designed for linescan applications. LTLNE series are available in three opto-mechanical versions: basic configuration with condensing lens, as coaxial line lights (CX) or integrating a 45° mirror (MR).

LTLNE series can be supplied with three different light angles/focusing distances: near field focused (N) with converging rays (10 – 100 mm), far field focused (F) with converging rays (100 - 200 mm) and collimated (C) focusing at a distance between 10 and 200 mm. An optional diffusive sheet (D) can be integrated in any model to obtain the best illumination uniformity.

These LED line lights are available with an emitting surface of 300mm (custom sizes and colours can be requested) and feature 24V supply voltage.

The whole family can efficiently dissipate the generated heat featuring two cooling options: passive cooling (PC) and fan cooling (FC).

Furthermore, LTLNE series features industrial threaded connectors and can be easily installed into any machine vision system thanks to the threaded holes conveniently located on the aluminium housing. These line lights are perfect for applications that require high speed image processing such as transparent films or glass inspection and detection of dents on metal sheets.

2. Disclaimer

Always deploy and store Opto Engineering® products in the prescribed conditions in order to ensure proper functioning. Failing to comply with the following conditions may shorten the product lifetime and/or result in malfunctioning, performance degradation or failure.

Ensure that incorrect functioning of this equipment cannot cause any dangerous situation or significant financial loss to occur. It is essential that the user ensures that the operation of the illuminator is suitable for their application. All trademarks mentioned herein belong to their respective owners.

Except as prohibited by law:

- All hardware, software and documentation are provided on an “as is” basis
- Opto Engineering® accepts no liability for consequential loss, of any kind

Upon receiving your Opto Engineering® product, visually examine the product for any damage during shipping. If the product is damaged upon receipt, please notify Opto Engineering® immediately.

3. Safety notes

Please read the following notes before using this controller. Contact your distributor or dealer for any doubts or further advice.

This device must not be used in an application where its failure could cause a hazard to human health or damage to other equipment. Keep in mind that if the device is used in a manner not foreseen by the manufacturer, the protection provided by its circuits and by its enclosure may be impaired.

The illuminator must be adequately shielded if employed in dusty and humid places.

When operating at the maximum ratings the illuminator can get very hot. The illuminator should be positioned where personnel cannot accidentally touch it and away from flammable materials. Never exceed the power ratings stated in the manual.

4. Product warranty

4.1. Warranty

The device warranty is 12 months from the effective delivery date with reference to the device serial number. The warranty covers the replacement or repairs of the defective part (components, device or part of it) with the exclusion of dismantling and shipping costs.

The replacement of one or more components does not renew the warranty period of the entire device. The manufacturer cannot be held liable for any compensation for whatever reason and the buyer renounces any claims for costs or damages to third parties due to any machine downtime.

The electronics and parts subjected to normal use or deterioration due to atmospheric agents and the external environment are excluded from the warranty. Also, all failure caused by the lack of, insufficient or incorrect maintenance performed by unskilled or unauthorized personnel or due to unintended use or unauthorized replacements, alterations or repairs is excluded from the warranty.

4.2. Product end-of-life handling

Observe the following guidelines when recycling this equipment or its components.

Production of this equipment required the extraction and use of natural resources. The equipment may contain substances that could be harmful to the environment or human health if improperly handled at the product's end of life. In order to avoid release of such substances into the environment and to reduce the use of natural resources, we encourage you to recycle this product in an appropriate system that will ensure that most of the materials are reused or recycled appropriately.



This symbol indicates that this product complies with the applicable European Union requirements according to the **WEEE (Waste Electrical and Electronic Equipment) Directive 2012/19/EU**

5. Optical specifications

The following table depicts all optical information on LTLNE high-power LED line lights.

Part Number	Type	Emitting length	Light colour	Suggested working distance	Diffuser
		(mm)		(mm)	
LTLNE-300-N-PC-W	direct	300	white 6200 K	10 – 100 near field focusing	no
LTLNE-300-N-FC-W				10 – 100 near field focusing	no
LTLNE-300-N-D-PC-W				10 – 100 near field focusing	yes
LTLNE-300-N-D-FC-W				10 – 100 near field focusing	yes
LTLNE-300-F-PC-W				100 – 200 far field focusing	no
LTLNE-300-F-FC-W				100 – 200 far field focusing	no
LTLNE-300-F-D-PC-W				100 – 200 far field focusing	yes
LTLNE-300-F-D-FC-W				100 – 200 far field focusing	yes
LTLNE-300-C-PC-W				10 – 200	no
LTLNE-300-C-FC-W				10 – 200	no
LTLNE-300-C-D-PC-W				10 – 200	yes
LTLNE-300-C-D-FC-W				10 – 200	yes
LTLNE-300-CX-N-PC-W				coaxial	300
LTLNE-300-CX-N-FC-W	10 – 100	no			

				near field focusing	
LTLNE-300-CX-N-D-PC-W				10 – 100 near field focusing	yes
LTLNE-300-CX-N-D-FC-W				10 – 100 near field focusing	yes
LTLNE-300-CX-F-PC-W				100 – 200 far field focusing	no
LTLNE-300-CX-F-FC-W				100 – 200 far field focusing	no
LTLNE-300-CX-F-D-PC-W				100 – 200 far field focusing	yes
LTLNE-300-CX-F-D-FC-W				100 – 200 far field focusing	yes
LTLNE-300-CX-C-PC-W				10 – 200	no
LTLNE-300-CX-C-FC-W				10 – 200	no
LTLNE-300-CX-C-D-PC-W				10 – 200	yes
LTLNE-300-CX-C-D-FC-W				10 – 200	yes
LTLNE-300-MR-N-PC-W	with 45° mirror	300	white 6200 K	10 – 100 near field focusing	no
LTLNE-300-MR-N-FC-W				10 – 100 near field focusing	no
LTLNE-300-MR-N-D-PC-W				10 – 100 near field focusing	yes
LTLNE-300-MR-N-D-FC-W				10 – 100 near field focusing	yes
LTLNE-300-MR-F-PC-W				100 – 200 far field focusing	no
LTLNE-300-MR-F-FC-W				100 – 200 far field focusing	no
LTLNE-300-MR-F-D-PC-W				100 – 200 far field focusing	yes
LTLNE-300-MR-F-D-FC-W				100 – 200 far field focusing	yes
LTLNE-300-MR-C-PC-W				10 – 200	no
LTLNE-300-MR-C-FC-W				10 – 200	no
LTLNE-300-MR-C-D-PC-W				10 – 200	yes
LTLNE-300-MR-C-D-FC-W				10 – 200	yes

Table 1: optical specifications

6. Electrical specifications

This section reports all electrical information on LTLNE high-power LED line lights.

6.1. Specification table

	Supply voltage	Continuous driving current max	Power consumption	Connection type
	(V)	(mA)	(W)	
Part Number				
LTLNE-300-N-PC-W	24 ± 2 %	2000	50	20 cm pigtail terminated with industrial circular male connector
LTLNE-300-N-FC-W		4000	100	
LTLNE-300-N-D-PC-W		2000	50	
LTLNE-300-N-D-FC-W		4000	100	

LTLNE-300-F-PC-W		2000	50	
LTLNE-300-F-FC-W		4000	100	
LTLNE-300-F-D-PC-W		2000	50	
LTLNE-300-F-D-FC-W		4000	100	
LTLNE-300-C-PC-W		2000	50	
LTLNE-300-C-FC-W		4000	100	
LTLNE-300-C-D-PC-W		2000	50	
LTLNE-300-C-D-FC-W		4000	100	
LTLNE-300-CX-N-PC-W	24 ± 2 %	2000	50	20 cm pigtail terminated with industrial circular male connector
LTLNE-300-CX-N-FC-W		4000	100	
LTLNE-300-CX-N-D-PC-W		2000	50	
LTLNE-300-CX-N-D-FC-W		4000	100	
LTLNE-300-CX-F-PC-W		2000	50	
LTLNE-300-CX-F-FC-W		4000	100	
LTLNE-300-CX-F-D-PC-W		2000	50	
LTLNE-300-CX-F-D-FC-W		4000	100	
LTLNE-300-CX-C-PC-W		2000	50	
LTLNE-300-CX-C-FC-W		4000	100	
LTLNE-300-CX-C-D-PC-W		2000	50	
LTLNE-300-CX-C-D-FC-W		4000	100	
LTLNE-300-MR-N-PC-W	24 ± 2 %	2000	50	20 cm pigtail terminated with industrial circular male connector
LTLNE-300-MR-N-FC-W		4000	100	
LTLNE-300-MR-N-D-PC-W		2000	50	
LTLNE-300-MR-N-D-FC-W		4000	100	
LTLNE-300-MR-F-PC-W		2000	50	
LTLNE-300-MR-F-FC-W		4000	100	
LTLNE-300-MR-F-D-PC-W		2000	50	
LTLNE-300-MR-F-D-FC-W		4000	100	
LTLNE-300-MR-C-PC-W		2000	50	
LTLNE-300-MR-C-FC-W		4000	100	
LTLNE-300-MR-C-D-PC-W		2000	50	
LTLNE-300-MR-C-D-FC-W		4000	100	

Table 2: electrical specifications

NOTE: models with fan cooling are capable of more power. Ask technical support for details. Other colours are available on request.

6.2. Connections

The illuminator is equipped with a 20 cm pigtail and a 9 poles male connector.
The illuminator is provided with a 5 m cable for connection to the vision machine.

6.2.1. Illuminator connectors

The illuminator is equipped with a pigtail (20 cm length) and 5 poles male connector WEIPU SP1710/P9 straight. The pinout is listed in the following table.

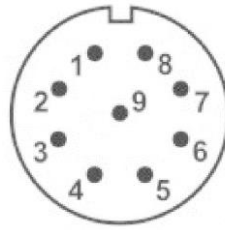


Figure 1: illuminator side, front view

Pin number	Name	Description
PIN 1	LED+	Light supply. Positive terminal
PIN 2	LED+	Light supply. Positive terminal
PIN 3	LED-	Light supply. Negative terminal
PIN 4	LED-	Light supply. Negative terminal
PIN 5	NTC	Thermal sensor input.
PIN 6	NTC	Thermal sensor input.
PIN 7	FAN-	Fan supply. Negative terminal
PIN 8	FAN+	Fan supply. Positive terminal
PIN 9	-	Not used and not connected

Table 3: pin out of power supply connector

6.2.2. Illuminator cables

The illuminator is provided with a 5 m cable for connection to the vision machine.

- Side 1: 9 poles female connector WEIPU SP1711/S9 straight
- Side 2: cable end

The pinout is listed in the following table.

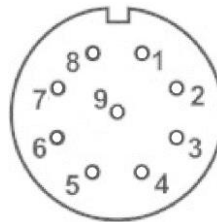


Figure 2: cable side, front view

Pin number	Colour	Name
PIN 1	White	LED+
PIN 2	Brown	LED+
PIN 3	Green	LED-
PIN 4	Yellow	LED-
PIN 5	Grey	NTC
PIN 6	Pink	NTC
PIN 7	Blue	FAN-
PIN 8	Red	FAN+
PIN 9	-	-

Table 4: pin out of control and state signals cable

7. Mechanical specifications

This section reports all the mechanical information on LTLNE high-power LED line lights.

Part Number	Length	Width	Height	Cooling method	Clamping system
	(mm)	(mm)	(mm)		
LTLNE-300-N-PC-W	340	110	40	Active with fans	8 threaded holes for M4 screw
LTLNE-300-N-FC-W	340	150	40	Passive	
LTLNE-300-N-D-PC-W	340	110	40	Active with fans	
LTLNE-300-N-D-FC-W	340	150	40	Passive	
LTLNE-300-F-PC-W	340	110	40	Active with fans	
LTLNE-300-F-FC-W	340	150	40	Passive	
LTLNE-300-F-D-PC-W	340	110	40	Active with fans	
LTLNE-300-F-D-FC-W	340	150	40	Passive	
LTLNE-300-C-PC-W	340	110	40	Active with fans	
LTLNE-300-C-FC-W	340	150	40	Passive	
LTLNE-300-C-D-PC-W	340	110	40	Active with fans	
LTLNE-300-C-D-FC-W	340	150	40	Passive	
LTLNE-300-CX-N-PC-W	340	150	54	Active with fans	8 threaded holes for M4 screw
LTLNE-300-CX-N-FC-W	340	190	54	Passive	
LTLNE-300-CX-N-D-PC-W	340	150	54	Active with fans	
LTLNE-300-CX-N-D-FC-W	340	190	54	Passive	
LTLNE-300-CX-F-PC-W	340	150	54	Active with fans	
LTLNE-300-CX-F-FC-W	340	190	54	Passive	
LTLNE-300-CX-F-D-PC-W	340	150	54	Active with fans	
LTLNE-300-CX-F-D-FC-W	340	190	54	Passive	
LTLNE-300-CX-C-PC-W	340	150	54	Active with fans	
LTLNE-300-CX-C-FC-W	340	190	54	Passive	
LTLNE-300-CX-C-D-PC-W	340	150	54	Active with fans	
LTLNE-300-CX-C-D-FC-W	340	190	54	Passive	
LTLNE-300-MR-N-PC-W	340	150	54	Active with fans	8 threaded holes for M4 screw
LTLNE-300-MR-N-FC-W	340	190	54	Passive	
LTLNE-300-MR-N-D-PC-W	340	150	54	Active with fans	
LTLNE-300-MR-N-D-FC-W	340	190	54	Passive	
LTLNE-300-MR-F-PC-W	340	150	54	Active with fans	
LTLNE-300-MR-F-FC-W	340	190	54	Passive	
LTLNE-300-MR-F-D-PC-W	340	150	54	Active with fans	
LTLNE-300-MR-F-D-FC-W	340	190	54	Passive	
LTLNE-300-MR-C-PC-W	340	150	54	Active with fans	
LTLNE-300-MR-C-FC-W	340	190	54	Passive	
LTLNE-300-MR-C-D-PC-W	340	150	54	Active with fans	
LTLNE-300-MR-C-D-FC-W	340	190	54	Passive	

Table 5: mechanical specifications

8. Environmental specifications

This section reports the environmental specifications on LTLNM modular high-power LED line lights.




Operating temperature (deg)	from 0 °C up to 40 °C
Storage temperature (deg)	from -20 °C up to 60 °C
Humidity	20-85%, non-condensing
Installation	indoor use only
Housing material	black and blue anodized aluminum
Standards	  

Table 6: environmental specifications

9. Compatibility

This section reports all the Opto Engineering® products compatible with the LTLNE high-power LED line lights.

Light intensity controllers	LTIC1CH-A1-4, LTIC1CH-D1-4
Lenses	TC4K060-x TC4K090-x TC4K120-x, TC4K180-x, TC12K064, TC12K080, TC12K120, TC12K144, TC12K144, TC12K192, TC12K240, MC4K series, MC12K200X-x, MC12K150X-x, MC12K100X-x, MC12K067X-x, MC12K050X-x, MC12K025X-x

Table 7: Opto Engineering® products compatibility

10. Ordering information

Our part numbers are coded as LTLNE-aaa-bb-c-d-ee-f where:

- **aaa** defines the illumination active area length (in mm)
- **bb** defines the presence of a beam splitter or a mirror. Leave empty for direct illumination (lens only)
- CX = coaxial illumination (50T-50R Beam splitter), -MR = 90° mirror
- **c** defines the focusing distance, N = near field focusing, F = far field focusing, C = collimated
- **d** defines the presence of a diffusing sheet. Leave empty if no diffuser is required or D = with diffuser mounted in front of the LEDs
- **ee** defines the cooling options PC = passive cooling, FC = fan cooling
- **f** defines the colour -W = White.



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