

LED ILLUMINATORS

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Advanced lighting solutions.

Illumination is a critical part of every machine vision setup: **proper choice of lighting color and geometry can effectively suppress or reveal specific features of an object**, leading to simple and accurate image processing.

Opto Engineering® offers a wide range of illumination solutions including ringlights, dome illuminators and a unique space-saving lighting system complemented by specific high power/strobe controllers. The Opto Engineering® illuminators family provides innovative and robust lighting units, **designed to deal with fast-moving objects of various sizes and surface finishes**, such as highly reflective or curved samples.



Refer to specific datasheets available at www.opto-e.com for product compliancy with regulations, certifications and safety labels.





LTCLHP series

High-performance telecentric illuminators



KEY ADVANTAGES

Complete light coupling

All the light emitted by a LTCLHP source is collected by a telecentric lens and transferred to the camera detector, ensuring very high signal-to-noise ratios.

Border effects removal

Diffused back-illuminators often make objects seem smaller than their actual size because of light reflections on the object sides, while collimated rays are typically much less reflected.

Field depth and telecentricity improvement




Collimated illumination geometry increases a telecentric lens natural field depth and telecentricity far beyond its nominal specs.

Homogeneity test report with measured values.

LTCLHP series are high-performance telecentric illuminators specifically designed to back illuminate objects imaged by telecentric lenses. This high performance series provides:

- Excellent **illumination stability** featuring no light flickering thanks to very high current stability over time even at low currents.
- Precise **light intensity tuning** thanks to the leadscrew multi-turn trimmer positioned in the back.
- **Easy LED source replacement** and alignment for all the LED colors offered by Opto Engineering®.

SEE ALSO

	TCBENCH series	p. 40
FULL RANGE OF COMPATIBLE ACCESSORIES		
	CMHO series	p. 228
	LTDV1CH-17V strobe controller	p. 256

NEW

LTCLHP series is now also available with new LTSCHP1W-GZ **green** light source, suitable for any kind of sample and specifically tailored for measuring reflective objects and objects with sharp edges.

KEY FEATURES

- **Reduction of edge diffraction effects**
- Enhanced **illumination uniformity**, especially on large FOVs
- Less sensitive to **alignment**



Ordering information

To order a telecentric light with a new green light source, use p/n **LTCLHPxxx-GZ** (i.e. LTCLHP064-GZ).

Part number (*)	Beam diameter (mm)	Available colours				Optical specs	Mechanical specs		Compatibility
		R	G	B	W	Working distance range (mm)	Length (mm)	Outer diameter (mm)	
		1				2			
LTCLHP 023-x	16	x	x	x	x	45 – 90	96.8	28	TC2300y, TC23012, TC4M00y-x
LTCLHP 016-x	20	x	x	x	x	35 – 70	99.9	38	TCxx016, TC12M016-F, TCxMHR016-x, TCLWD series
LTCLHP 024-x	30	x	x	x	x	45 – 90	124.7	44	TCxx024, TCxMHR024-x, TC12M024-F, TC16M009-x, TC16M012-x, TC16M018-x
LTCLHP 036-x	45	x	x	x	x	70 – 140	152.1	61	TCxx036, TC12M036-F, TCxMHR036-x, TC16M036-x
LTCLHP 048-x	60	x	x	x	x	90 – 180	187.2	75	TCxx048, TC12M048-F, TCCRxx048, TCxMHR048-x, TC16M048-x
LTCLHP 056-x	70	x	x	x	x	100 – 200	210.5	80	TCxx056, TC12M056-F, TCCRxx056, TCxMHR056-x, TC16M056-x
LTCLHP 064-x	80	x	x	x	x	120 – 240	231.6	100	TCxx064, TCCRxx064, TCxMHR064-x, TC16M064-x, TC12M064-F, TC12K064
LTCLHP 080-x	100	x	x	x	x	150 – 300	277.2	116	TCxx080, TCCRxx080, TCxMHR080-x, TC16M080-x, TC12M080-F, TC12K080
LTCLHP 096-x	120	x	x	x	x	200 – 350	322.2	143	TC23085, TCxx096, TCCRxx096, TCxMHR096-x, TC12M096-F, TC16M096-x
LTCLHP 120-x	150	x	x		x	220 – 440	408.2	180	TC23110, TCxx120, TCxMHR120-x, TC16M120-x, TC12M120-F, TC12K121
LTCLHP 144-x	180	x	x			270 – 540	467.2	200	TC23130, TCxx144, TCCP12144, TCCPxMHR144, TCxMHR144-x, TC16M144-x, TC12M120-F, TC12K144
LTCLHP 192-x	250	x	x		x	350 – 700	608.2	260	TC23172, TCxx192, TCCP12192, TCCPxMHR192, TCxMHR192-x, TC12K192
LTCLHP 240-x	300	x	x			350 – 700	769.2	322	TC23200, TC23240, TCxMHR240-x, TC12M240-F

(*) The last digit of the part number "-x" defines the source colour.

1 Opto Engineering® recommends green light for high precision measurement applications.

2 Nominal value, with no spacers in place.

LTCLHP telecentric illuminators offer higher edge contrast when compared to diffused back light illuminators and therefore higher measurement accuracy.

This type of illumination is especially recommended for high accuracy measurement of round or cylindrical parts where diffusive back lighting would offer poor performances because of the diffuse reflections coming from the edges of objects under inspection.

Precise light intensity tuning

Easily and precisely tune the light intensity level thanks to the leadscrew multi-turn trimmer positioned in the back.



Direct LED control

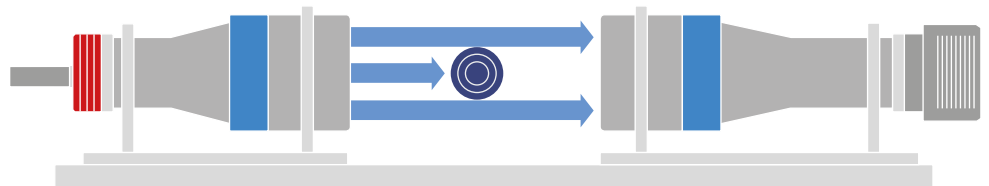
The built-in electronics can be bypassed in order to drive the LED directly for use in continuous or pulsed mode.

When bypassed, the built-in electronics behaves as an open circuit allowing for direct control of the LED source.



Easy and precise alignment with bi-telecentric lenses

Create the perfect optical bench for precision measurement applications by interfacing our bi-telecentric lenses and LTCLHP collimated illuminators using Opto Engineering® precision clamping mechanics CMHO series.



Wide selection of different colors

Part number	Light	Device power ratings			LED power ratings			
	Light color, wavelength peak	DC voltage		Power consumption	Max LED fwd current	Forward voltage		Max pulse current
		min (V)	max (V)	(W)	(mA)	typical (V)	max (V)	(mA)
		1			2	3		4
LTCLHP xxx-R	red, 630 nm	12	24	< 2.5	350	2.4	3.00	2000
LTCLHP xxx-G	green, 520 nm	12	24	< 2.5	350	3.3	4.00	2000
LTCLHP xxx-B	blue, 460 nm	12	24	< 2.5	350	3.3	4.00	2000
LTCLHP xxx-W	white	12	24	< 2.5	350	2.78	n.a.	2000

1 Tolerance ± 10%.

2 Used in continuous (not pulsed) mode.

3 At max forward current. Tolerance is ±0.06V on forward voltage measurements.

4 At pulse width ≤ 10 ms, duty cycle ≤ 10% condition.

Built-in electronics board must be bypassed (see tech info online).

LTCLHP CORE series

Ultra compact telecentric illuminators



KEY ADVANTAGES

Deliver excellent performance

LTCLHP CORE telecentric illuminators deliver exactly the same excellent optical performance as other Opto Engineering® telecentric illuminators.

Downsize your vision system

LTCLHP CORE telecentric illuminators are up to 60% smaller than other telecentric illuminators on the market.

Easily fit into existing systems

LTCLHP CORE illuminators can be mounted in different directions in your machine.

Improve your system performance

LTCLHP CORE illuminators may be used instead of flat backlights to improve your system.

Help to spare and sell

A smaller system means less expenses and less space and is preferred by the industry.

Homogeneity test report with measured values.

LTCLHP CORE Series are ultra compact telecentric illuminators. They are up to 60% more compact than other collimated illuminators on the market.

The ultra compact size allows you to greatly reduce the size of your machine and to easily integrate true collimated illumination instead of common flat backlights, thus improving your system's performance.

The smart design also makes them easy to retrofit into existing systems. They can easily be mounted in different directions using any of their 4 sides, with or without clamps.

A smaller system means lower manufacturing, shipping and storage costs, as well as less use of factory space and is the solution preferred by the industry.

LTCLHP CORE illuminators can be used both with classic telecentric lenses and with ultra compact telecentric lenses from CORE family like TC CORE, TC2MHR CORE and TC4MHR CORE series.

NEW

LTCLHP CORE series is now also available with new LTSCHP1W-GZ **green** light source, suitable for any kind of sample and specifically tailored for measuring reflective objects and objects with sharp edges.

KEY FEATURES

- Reduction of edge diffraction effects
- Enhanced illumination uniformity, especially on large FOVs
- Less sensitive to alignment



Ordering information

To order a telecentric light with a new green light source, use p/n **LTCLCRxxx-GZ** (i.e. LTCLCR064-GZ).






LTCLHP CORE telecentric illuminators are up to 60% shorter than other telecentric illuminators on the market.

Precise light intensity tuning

Easily and precisely tune the light intensity level thanks to the leadscrew multi-turn trimmer positioned in the back.



SEE ALSO		
	TC series	p. 18
FULL RANGE OF COMPATIBLE ACCESSORIES		
	Mounting mechanics CMHO CR and CMPT CR series	p. 228
	LTDV1CH-17V strobe controller	p. 256

Direct LED control

The built-in electronics can be bypassed in order to drive the LED directly for use in continuous or pulsed mode. When bypassed, the built-in electronics behaves as an open circuit allowing for direct control of the LED source.



Part number	Light	Device power ratings			LED power ratings			
		DC voltage		Power consumption	Max LED fwd current	Forward voltage		Max pulse current
	Light color, wavelength peak	min (V)	max (V)	(W)	(mA)	typical (V)	max (V)	(mA)
LTCLCR xxx-R	red, 630 nm	12	24	< 2.5	350	2.4	3.00	2000
LTCLCR xxx-G	green, 520 nm	12	24	< 2.5	350	3.3	4.00	2000
LTCLCR xxx-W	white	12	24	< 2.5	350	2.78	n.a.	2000

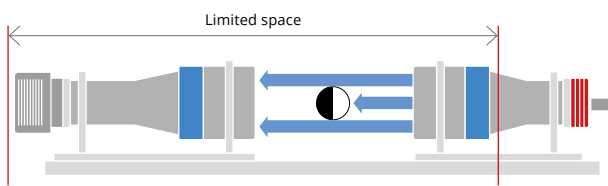
- 1 Tolerance ± 10%.
- 2 Used in continuous (not pulsed) mode.
- 3 At max forward current. Tolerance is ±0.06V on forward voltage measurements.

- 4 At pulse width ≤ 10 ms, duty cycle ≤ 10% condition. Built-in electronics board must be bypassed (see tech info online).

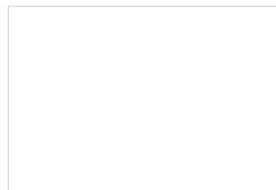
LTCLHP CORE series

Ultra compact telecentric illuminators

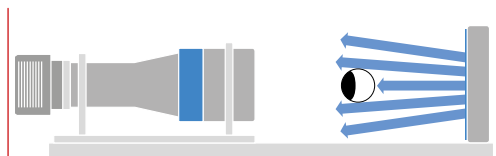
LTCLHP CORE - True collimated illumination in very limited space



Telecentric lens and collimated illuminator.



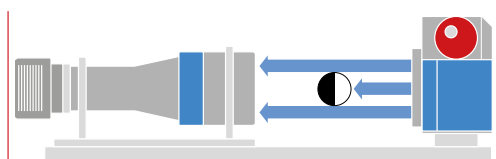
A standard collimated illuminator is impossible to use due to lack of space.



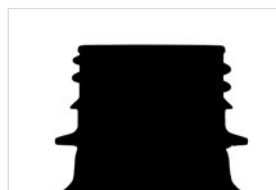
"Classic" telecentric lens and flat backlight.



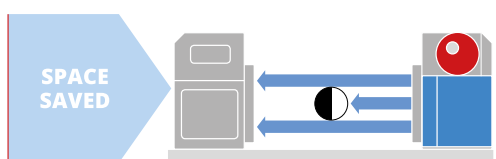
Classic solution with diffuse backlight: less precise measurements due to surface reflections and uncertain edge position.



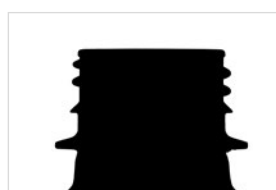
"Classic" telecentric lens and LTCLHP CORE collimated illuminator.



Smart solution with LTCLHP CORE telecentric illuminator: no edge uncertainty for excellent measurement results.



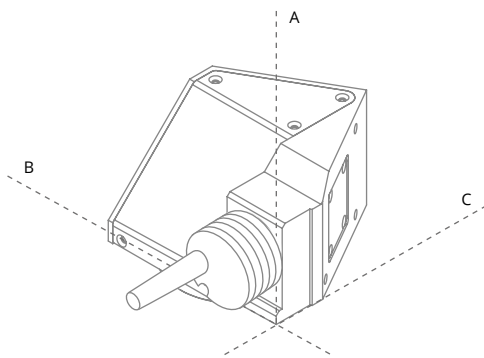
TC CORE telecentric lens and LTCLHP CORE collimated illuminator.



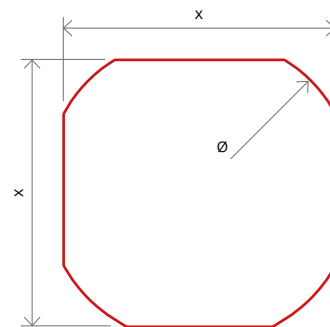
The smartest solution with TC CORE telecentric lens and LTCLHP CORE telecentric illuminator: excellent measurement results in a super compact space.



LTCLHP CORE illuminator dimensions (A, B, C):



Minimum beam shape dimensions:



Part number	Optical specifications			Dimensions			Compatibility
	Light color, wavelength peak	Minimum beam shape dimensions (mm)	Working distance range (mm)	(mm)			
	1			A	B	C 2	
LTCLCR 048-R	red, 630 nm	Ø = 56; x = 50	90 - 180	77	106	162	TCCRxx048, CMHOCR048, CMPTCR048, TCCRxM048-x, TCxx048, TCxMHR048-x, TC12M048-F, TC16M048, TC16M048-Q
LTCLCR 048-G	green, 520 nm	Ø = 56; x = 50	90 - 180	77	106	162	
LTCLCR 048-W	white	Ø = 56; x = 50	90 - 180	77	106	162	
LTCLCR 056-R	red, 630 nm	Ø = 74; x = 66	100 - 200	94	110	172	TCCRxx056, CMHOCR056, CMPTCR056, TCCRxM056-x, TCxx056, TCxMHR056-x, TC12M056-F, TC16M056, TC16M056-Q
LTCLCR 056-G	green, 520 nm	Ø = 74; x = 66	100 - 200	94	110	172	
LTCLCR 056-W	white	Ø = 74; x = 66	100 - 200	94	110	172	
LTCLCR 064-R	red, 630 nm	Ø = 86; x = 67	120 - 240	101	122	179	TCCRxx064, CMHOCR064, CMPTCR064, TCCRxM064-x, TCxx064, TCxMHR0564-x, TC12M064-F, TC16M064, TC16M064-Q, TC12K064
LTCLCR 064-G	green, 520 nm	Ø = 86; x = 67	120 - 240	101	122	179	
LTCLCR 064-W	white	Ø = 86; x = 67	120 - 240	101	122	179	
LTCLCR 080-R	red, 630 nm	Ø = 98; x = 90	150 - 300	119	145	198	TCCRxx080, CMHOCR080, CMPTCR080, TCCRxM080-x, TCxx080, TCxMHR080x, TC12M080-F, TC16M080, TC16M080-Q, TC12K080, TCZR0725
LTCLCR 080-G	green, 520 nm	Ø = 98; x = 90	150 - 300	119	145	198	
LTCLCR 080-W	white	Ø = 98; x = 90	150 - 300	119	145	198	
LTCLCR 096-R	red, 630 nm	Ø = 120; x = 99	200 - 350	139	172	223	TCCRxx096, CMHOCR096, CMPTCR096, TCCRxM096-x, TCxx096, TCxMHR096x, TC12M096-F, TC16M096, TC16M096-Q, TC12K096
LTCLCR 096-G	green, 520 nm	Ø = 120; x = 99	200 - 350	139	172	223	
LTCLCR 096-W	white	Ø = 120; x = 99	200 - 350	139	172	223	
LTCLCR 120-R	red, 630 nm	Ø = 156; x = 130	220 - 440	182	220	231	TCCRxx0120, TCCRxM0120-x, TCxx0120, TCxMHR0120x, TC12M120-F, TC16M0120, TC16M0120-Q, TC12K0120
LTCLCR 120-G	green, 520 nm	Ø = 156; x = 130	220 - 440	182	220	231	
LTCLCR 120-W	white	Ø = 156; x = 130	220 - 440	182	220	231	

1 Opto Engineering® recommends green light for high precision measurement applications.

2 Nominal value, with no spacers in place.

LTCLHP CORE PLUS series

Space-saving telecentric illuminators for large FOV systems

NEW



INTERNATIONAL
PATENT
PENDING

KEY ADVANTAGES

Large illumination area in a super compact form factor

LTCLHP CORE PLUS are up to 40% shorter than other telecentric lights on the market.

Reduce the size of your vision system

The working distance of LTCLHP CORE PLUS telecentric illuminators has been optimized to reduce the overall system's footprint.

Boost your measurement system's performance

LTCLHP CORE PLUS illuminators may be used in place of flat backlights to improve your system's performance.

Smart integration

LTCLHP CORE PLUS illuminators integrate a mounting flange for easy integration without additional clamps.

System compactness is a competitive advantage

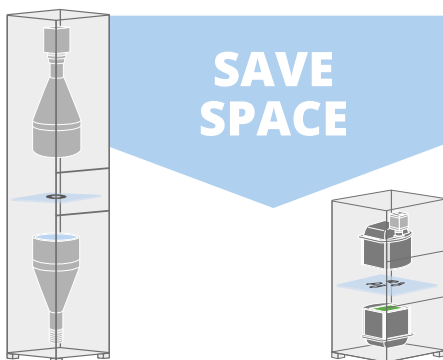
A smaller vision system or measurement machine is preferred by the industry.

LTCLHP CORE PLUS telecentric illuminators are designed to illuminate large areas in a reduced space. They are up to 40% shorter than other telecentric lights on the market.

The length and working distance of a telecentric lens strongly impact the size of a vision system. Their working distance range has been optimized to make a measurement system as compact as possible, allowing to reduce the overall system's dimensions by up to up to half. The super compact form factor allows you to easily integrate CORE PLUS collimated illumination where classic telecentric lights don't fit instead of common diffuse backlights, thus improving your system's performance.

LTCLHP CORE PLUS lights have been designed for smart integration. They feature a built-in mounting flange so no additional clamps are required.

System compactness is a competitive advantage




Comparison of precision measurement systems with "classic" telecentric lens and light vs. CORE PLUS telecentric lens and light.


SEE ALSO

	Flat backlights LT2BP, LTBC, LTBP series	p. 162-168
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SEE ALSO

	TC CORE PLUS series telecentric lenses	p. 24
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COMPATIBLE ACCESSORIES

	LTDV1 CH-17V strobe controller	p. 256
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ADVANTAGES

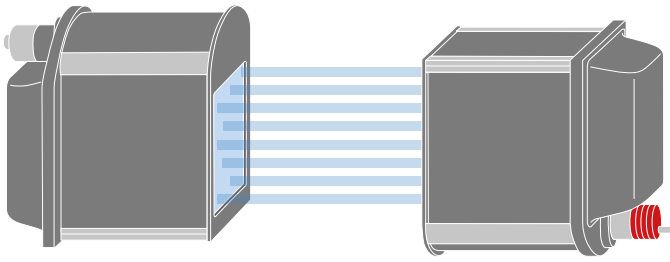


Save more

- Lower manufacturing cost due to less material employed
- Cost of mounting is reduced as no additional clamps are needed
- Less space required for storage and use
- Lower shipment expenses due to smaller size
- Lower transportation risks

Sell more

- A smaller system leads to more sales

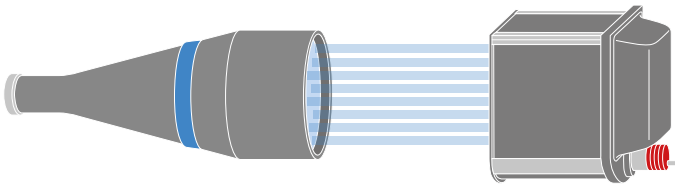


TC CORE PLUS telecentric lens.

LTCLHP CORE PLUS telecentric illuminator.

Setup instructions 1:

To build a telecentric measurement setup it's necessary to position a LTCLHP CORE telecentric illuminator upside down with respect to the TC CORE PLUS telecentric lens.

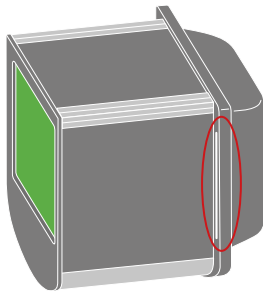


TC telecentric lens.

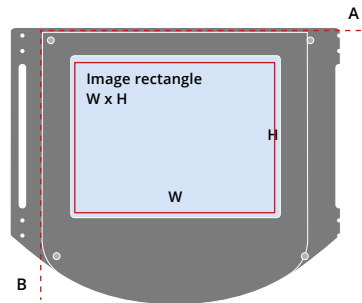
LTCLHP CORE PLUS telecentric illuminator.

Setup instructions 2:

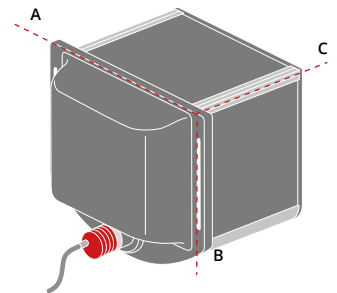
LTCLHP CORE PLUS telecentric illuminator is also a perfect solution when coupled with classic telecentric lenses (e.g. TC series).



Built-in mounting flange: no additional clamps required.



The width of the beam rectangle is aligned along the A axis. The height of the beam rectangle is aligned along the B axis.



A, B and C indicate the mechanical dimensions of the illuminator.

Part number	Optical specifications			Electrical specifications							Mechanical specifications		
	Light color, wavelength peak	Minimum beam shape dimensions (mm x mm)	Working distance range (mm)	Device power rating			LED power ratings				Dimensions		
				DC voltage		Power cons. (W)	Max LED fwd current (mA)	Forward voltage		Max pulse current (mA)	A	B	C
				min (V)	max (V)			typical (V)	max (V)				
1	2	3	4	5	6	7	8	9	10				
LTCLCP 144-G	green, 520 nm	190 x 150	170 - 350	12	24	< 2.5	350	3.3	4	2000	332.0	302.5	310.5
LTCLCP 192-G	green, 520 nm	245 x 190	230 - 450	12	24	< 2.5	350	3.3	4	2000	410.4	344.1	359.3

- 1 Opto Engineering® recommends green light for high precision measurement applications.
- 2 Beam shape is not circular.
- 3 Working distance: distance between the front end of the mechanics and the object. Set this distance within +/- 5% of the nominal value for maximum resolution and minimum distortion.
- 4 Tolerance ± 10%.
- 5 Used in continuous (not pulsed) mode.

- 6 At max forward current.
- 7 Tolerance is ±0.06V on forward voltage measurements.
- 8 At pulse width ≤ 10 ms, duty cycle ≤ 10% condition. Built-in electronics board must be bypassed (see tech info).
- 9 Maximum dimension of the clamping flange.
- 10 Nominal value, with no spacers in place.

LTCL4K series

Flat telecentric illuminators for linescan cameras



KEY ADVANTAGES

Compact design

"Flat" shape for easy integration.

High optical throughput and enhanced field depth

When coupled with compatible TC4K telecentric lenses.

Dedicated CMMR4K mirrors

Right-angle deflection of the light path for usage in tight spaces.

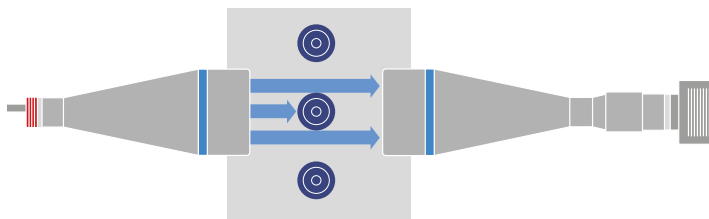
Homogeneity test report with measured values.

LTCL4K telecentric illuminators are specifically designed to be paired with TC4K telecentric lenses, in order to provide the high optical throughput needed for high-speed linescan measurement applications involving for instance steering components, gear and cam shafts, grinding and turning parts. These illuminators are equipped with state-of-the-art LED driving electronics, providing exceptional illumination stability, precise light

intensity tuning and easy replacement of the LED source. The unique "slim" form factor allows these units to be used in constrained spaces, often a critical factor in many industrial environments. Also, CMMR4K right angle mirror attachments can be integrated to quickly assemble different illumination geometries, compatible with most types of inspection configurations.

Application examples

A LTCL4K back-illuminating a mechanical component and interfaced to a TC4K telecentric lens.



NEW

LTCL4K series is now also available with new LTSCHP1W-GZ **green** light source, suitable for any kind of sample and specifically tailored for measuring reflective objects and objects with sharp edges.

KEY FEATURES

- Reduction of edge diffraction effects
- Enhanced illumination uniformity, especially on large FOVs
- Less sensitive to alignment

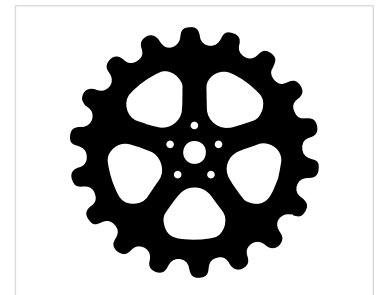
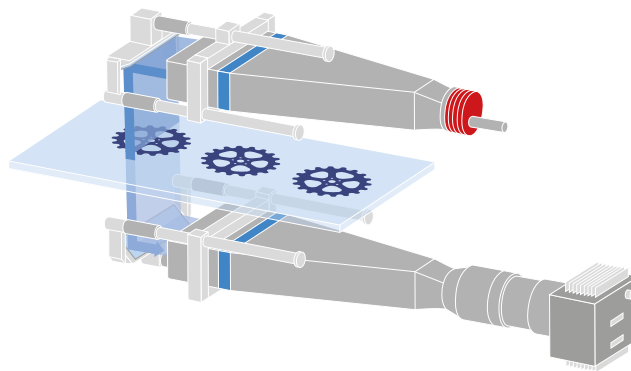


Ordering information

To order a telecentric light with a new green light source, use p/n **LTCL4Kxxx-GZ** (i.e. LTCL4K060-GZ).



A LTCL4K illuminator coupled with a TC4K lens using a CMMR4K deflecting mirrors to scan samples on a glass surface.



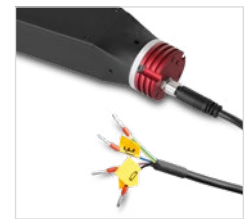
Precise light intensity tuning

Easily and precisely tune the light intensity level thanks to the leadscrew multi-turn trimmer positioned in the back.



Direct LED control

The built-in electronics can be bypassed in order to drive the LED directly for use in continuous or pulsed mode. When bypassed, the built-in electronics behaves as an open circuit allowing for direct control of the LED source.



Electrical specifications

Part number	Light	Device power ratings			LED power ratings				
		Light color, wavelength peak	DC voltage		Power consumption	Max LED fwd current	Forward voltage		Max pulse current
			min (V)	max (V)			typical (V)	max (V)	
		1			2	3		4	
LTCL4K xxx-G	green, 520 nm	12	24	< 2.5	350	3.3	4.00	2000	
LTCL4K xxx-W	white	12	24	< 2.5	350	2.78	n.a.	2000	

1 Tolerance ± 10%.

2 Used in continuous (not pulsed) mode.

3 At max forward current. Tolerance is ±0.06V on forward voltage measurements.

4 At pulse width ≤ 10 ms, duty cycle ≤ 10% condition.

Built-in electronics board must be bypassed (see tech info online).

Part number	Optical specifications				Mechanical specifications			Compatibility
	Light color, wavelength peak	Beam width (mm)	Beam height (mm)	Working distance range (mm)	Length (mm)	Width (mm)	Height (mm)	
LTCL4K 060-G	green, 520 nm	71	10	90 - 300	218.3	83	38.5	TC4K060-x
LTCL4K 060-W	white	71	10	90 - 300	218.3	83	38.5	TC4K060-x
LTCL4K 090-G	green, 520 nm	102	10	90 - 300	295.2	114	38.5	TC4K090-x
LTCL4K 090-W	white	102	10	90 - 300	295.2	114	38.5	TC4K090-x
LTCL4K 120-G	green, 520 nm	132	10	90 - 300	306.3	144	38.5	TC4K120-x
LTCL4K 120-W	white	132	10	90 - 300	306.3	144	38.5	TC4K120-x
LTCL4K 180-G	green, 520 nm	187	10	120 - 450	483.5	206	38.5	TC4K180-x
LTCL4K 180-W	white	187	10	120 - 450	483.5	206	38.5	TC4K180-x

LTDM series

High-power strobe LED domes



KEY ADVANTAGES

Ultra-high power light output and strobe mode only operation
For the inspection of fast moving objects and extended LED lifetime.

Rugged industrial design with built-in industrial connector
For easy integration into any machine vision system.

Wide selection
Available in three sizes, three colors and two power intensities.

Compatible LTDV strobe controllers available
For easy and appropriate power, control and synchronization of the illuminator.

LTDM series are high power diffuse LED strobe dome illuminators designed to provide non-directional diffused light and to effectively eliminate glare and shadows.

LTDM series provides ultra-high power light output and can be used to illuminate complex shapes with curved and shiny surfaces.

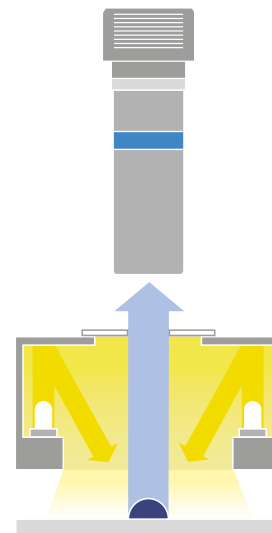
LTDM dome illuminators can be exclusively operated in strobe mode, making them the perfect choice to illuminate very fast moving objects while ensuring extended LED lifetime since no heat is generated.

LTDM series can be easily powered, controlled and synchronized by compatible LTDV strobe controllers and is available in:

- **three sizes:** small, medium and large, respectively with illumination area of 40 mm, 60 mm and 100 mm in diameter;
- **two power intensities:** medium power with driving current up to 7.5 A and high power with driving current up to 17 A;
- **three different colors:** white, red and green.

LTDM series feature industry standard connection (M8 or M12 four poles connector) and resizable aperture that can be drilled to increase the diameter and accommodate the optics field of view. Additionally they can be easily integrated into any machine vision system by means of M6 screws.

Lighting structure



FULL RANGE OF COMPATIBLE STROBE CONTROLLERS		
	LTDV series	p. 256
FULL RANGE OF FIXED FOCAL LENGTH LENSES		
	EN2MP series, EN5MP series, ENMP series, ENHR series	p. 108-111, 114
FULL RANGE OF INDUSTRIAL CAMERAS		
	Area scan cameras	p. 196-205

DESIGNED FOR OEM APPLICATIONS

Compatible LTDV strobe controllers available to easily power, control and synchronize LED illuminators.



Part number		LTDMA1-W	LTDMA1-G	LTDMA1-R	LTDMB2-W	LTDMB2-G	LTDMB2-R	LTDMC1-W	LTDMC2-W	LTDMC2-G	LTDMC2-R	
Optical specifications												
Number of LEDs		15	15	15	40	40	40	40	80	80	80	
Light colour		white, 6000 K	green, 525 nm	red, 625 nm	white, 6500K	green, 525 nm	red, 625 nm	white	white, 6500K	green, 528 nm	red, 625 nm	
Spectral FWHM	(nm)	n.a.	50	25	n.a.	35	20	n.a.	n.a.	35	20	
Illumination area diameter	(mm)	40	40	40	60	60	60	100	100	100	100	
Suggested working distance WD	(mm)	5 - 50	5 - 50	5 - 50	5 - 50	5 - 50	5 - 50	5 - 50	5 - 50	5 - 50	5 - 50	
Min estimated illumination ¹	At driving current = 3.5 A	(klux)	100	70	40	50	45	35	25	50	45	35
	At driving current = 7.5 A	(klux)	175	125	70	90	80	65	50	100	90	70
	At driving current = 17.0 A	(klux)	n.a.	n.a.	n.a.	160	145	115	n.a.	140	125	100
Aperture range	(mm)	38 (fixed)	38 (fixed)	38 (fixed)	10 - 50	10 - 50	10 - 50	10 - 60	10 - 60	10 - 60	10 - 60	
Electrical specifications												
Power supply mode		strobe only, constant current driving			strobe only, constant current driving			strobe only, constant current driving				
Driving current	Min	(A)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
	Max	(A)	7.5	7.5	7.5	17.0	17.0	17.0	7.5	17.0	17.0	
Pulse width ²	(ms)	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	
Connection Type ³		M8 industrial male connector			M12 industrial male connector			M12 industrial male connector				
Estimated MTBF ⁴	(hours)	> 50000	> 50000	> 50000	> 50000	> 50000	> 50000	> 50000	> 50000	> 50000	> 50000	
Mechanical specifications												
Dimensions	Length	(mm)	107	107	107	166.5	166.5	166.5	206	206	206	206
	Width	(mm)	84	84	84	133	133	133	206	206	206	206
	Height	(mm)	53	53	53	90	90	90	128	128	128	128
Materials		black anodized aluminum body			black anodized aluminum body			black anodized aluminum body / painted steel reflector				
Clamping system		4 threaded holes for M6 screw			4 holes for M6 screw			4 threaded holes for M6 screw				
Compatibility												
Strobe controllers		LTDV1CH-7, LTDV6CH, LTDV1CH-17V, LTDVExCH-20			LTDV1CH-17, LTDV6CH, LTDV1CH-17V, LTDVExCH-20			LTDV1CH-7, LTDV6CH, LTDV1CH-17V, LTDVExCH-20	LTDV1CH-17, LTDV6CH, LTDV1CH-17V, LTDVExCH-20			
Lenses		TC23007, TC23009, TCLWD series, MC050X, MC033X			TCLWD series, MC033X			TCLWD series, MC4K050X-x, MC4K075X-x				

- ¹ At max Working Distance WD.
- ² At 25°C. At max pulse width (1 ms), max pulse frequency = 15 Hz.
- ³ 5 m cable with straight female connector included. Optional cable with right angled connector is also available and must be ordered separately (refer to our website for further info and ordering codes).
- ⁴ At 25°C.

Ordering information

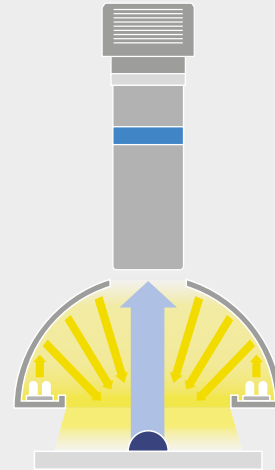
It's easy to select the right illuminator for your application: our part numbers are coded as **LTDm xy-z**, where **x** defines the illuminator size (A = small, B = medium, C = large), **y** refers to the power intensity (1 = medium, 2 = high) and **z** refers to color (W = white, R = red, G = green). For instance LTDm B2-R is a diffuse strobe dome illuminator - medium size high power red.

LTDMC series

Continuous LED domes



Lighting structure



LTDMC series consists of LED dome illuminators designed to provide uniform illumination of complex surfaces. Light comes from all angles effectively eliminating glares and shadows. Suggested usage is continuous mode.

COMPATIBLE STROBE CONTROLLER



LTDV1CH-17V strobe controller

p. 256

COMPATIBLE LIGHT INTENSITY CONTROLLER



LTICGR1000-D1-PS-xx light intensity controller

p. 260

Part number	Optical specifications		Electrical specifications					Dimensions		
	Light colour, wavelength peak	Illumination area diam. (mm)	Continuous mode			Pulsed mode		Outer diam. (mm)	Aperture (mm)	Height (mm)
			Supply voltage (V)	Current (mA)	Power cons. (W)	Supply voltage (V)	Max pulse current (mA)			
LT4WRG150-00-1-W-24V	white, 6300K	113	24	240	5.8	36	720	185	40	89.8
LT4WRG150-00-1-R-24V	red, 630nm	113	24	252	6.1	36	750	185	40	89.8
LT4WRG150-00-1-G-24V	green, 525nm	113	24	240	5.8	36	720	185	40	89.8
LT4WRG150-00-1-B-24V	blue, 470nm	113	24	240	5.8	36	720	185	40	89.8
LT4WRG200-00-1-W-24V	white, 6300K	160	24	360	8.7	36	1080	232	50	112.8
LT4WRG200-00-1-R-24V	red, 630nm	160	24	378	9.1	36	1134	232	50	112.8
LT4WRG200-00-1-G-24V	green, 525nm	160	24	360	8.7	36	1080	232	50	112.8
LT4WRG200-00-1-B-24V	blue, 470nm	160	24	360	8.7	36	1080	232	50	112.8
LT4WRG250-00-1-W-24V	white, 6300K	212	24	520	12.5	36	1560	284	50	139.4
LT4WRG250-00-1-R-24V	red, 630nm	212	24	476	11.5	36	1428	284	50	139.4
LT4WRG250-00-1-G-24V	green, 525nm	212	24	520	12.5	36	1560	284	50	139.4
LT4WRG250-00-1-B-24V	blue, 470nm	212	24	520	12.5	36	1560	284	50	139.4

1 With constant driving voltage (36V recommended, 48V max). Duty cycle = 0-10 %. Max pulse width = 10 ms.

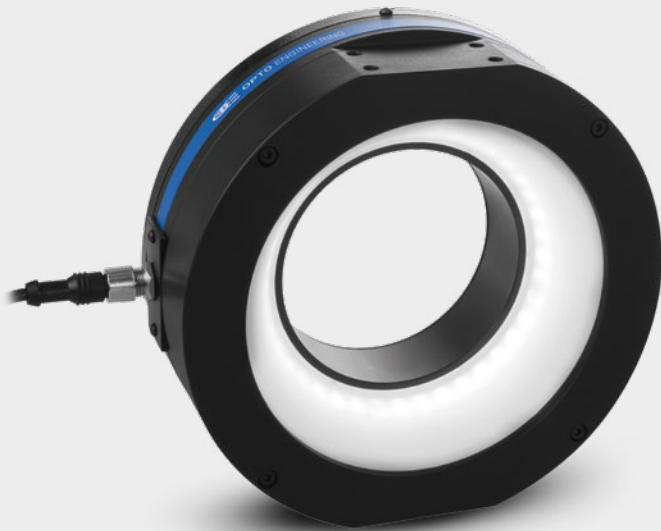
2 With constant driving current. Duty cycle = 0-10 %. Max pulse width = 10 ms.

**Did you know that
our lightings are
designed to match
our lenses both optically
and mechanically?**

**They guarantee
the smoothest
integration in your
vision system!**

LTLA series

High-power strobe LED low angle diffused ringlights



KEY ADVANTAGES

Ultra-high power light output and strobe mode only operation
For the inspection of fast moving object and extended LED lifetime.

Rugged industrial design with built-in industrial connector
For easy integration into any machine vision system.

Wide selection
Available in two sizes, three colors and two power intensities.

Compatible LTDV strobe controllers available
For easy and appropriate power, control and synchronization of the illuminator.

Low angle beam shaping diffuser
Highly diffusive material avoids hot spots and ensures uniform light intensity.

LTLA series are high power diffuse LED strobe low-angle ring light illuminators designed to provide darkfield lighting and to effectively enhance minute surface features or textures.

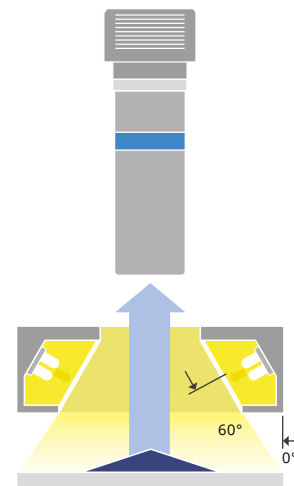
LTLA series features ultra-high power light output and can be used to cast shadows that emphasize surface irregularities, scratches or special characteristics (such as bar codes) from a close distance. LTLA low angle ring illuminators can be exclusively operated in strobe mode, making them the perfect choice to illuminate very fast moving objects while ensuring extended LED lifetime since no heat is generated.




LTLA series can be easily powered, controlled and synchronized by compatible LTDV strobe controllers and is available in:

- **two sizes:** medium and large, respectively with illumination area of 60 mm and 100 mm in diameter;
- **two power intensities:** medium power with driving current up to 7.5 A and high power with driving current up to 17 A;
- **three different colors:** white, red and green.

LTLA series feature industry standard connection (M12 four poles connector) and can be easily integrated into any machine vision system by means of M6 screws.

Lighting structure



FULL RANGE OF COMPATIBLE STROBE CONTROLLERS		
	LTDV series	p. 256
FULL RANGE OF FIXED FOCAL LENGTH LENSES		
	EN2MP series, EN5MP series, ENMP series, ENHR series	p. 108-111, 114
COMPATIBLE HOLE INSPECTION OPTICS		
	PCHI series	p. 80

DESIGNED FOR OEM APPLICATIONS

Compatible LTDV strobe controllers available to easily power, control and synchronize LED illuminators.



Part number			LTLAB2-W	LTLAB2-G	LTLAB2-R	LTLAC1-W	LTLAC2-W	LTLAC2-G	LTLAC2-R	
Optical specifications										
Number of LEDs			40	40	40	40	80	80	80	
Light colour			white, 6000 K	green, 525 nm	red, 625 nm	white, 6500 K	white, 6500 K	green, 528 nm	red, 625 nm	
Spectral FWHM		(nm)	n.a.	35	20	n.a.	n.a.	35	20	
Diffusive ring			yes	yes	yes	yes	yes	yes	yes	
Illumination area diameter		(mm)	60	60	60	100	100	100	100	
Suggested working distance WD		(mm)	5 - 50	5 - 50	5 - 50	5 - 50	5 - 50	5 - 50	5 - 50	
Emission angle α		(deg)	60	60	60	60	60	60	60	
Min estimated illumination ¹	At driving current = 3.5 A	(klux)	55	50	40	35	70	60	45	
	At driving current = 7.5 A	(klux)	105	90	70	70	140	120	90	
	At driving current = 17.0 A	(klux)	210	180	150	125	250	220	170	
Aperture range		(mm)	64 (fixed)	64 (fixed)	64 (fixed)	102 (fixed)	102 (fixed)	102 (fixed)	102 (fixed)	
Electrical specifications										
Power supply mode			strobe only, constant current driving			strobe only, constant current driving				
Driving current	Min	(A)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
	Max	(A)	17.0	17.0	17.0	7.5	17.0	17.0	17.0	
Pulse width ²		(ms)	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	
Connection Type ³			M12 industrial male connector			M12 industrial male connector				
Estimated MTBF ⁴		(hours)	> 50000	> 50000	> 50000	> 50000	> 50000	> 50000	> 50000	
Mechanical specifications										
Dimensions	Length	(mm)	166.5	166.5	166.5	206	206	206	206	
	Width	(mm)	133	133	133	206	206	206	206	
	Height	(mm)	38	38	38	76	76	76	76	
Materials			black anodized aluminum body			black anodized aluminum body				
Clamping system			4 holes for M6 screw			8 threaded holes for M6 screw				
Compatibility										
Strobe controllers			LTDV1CH-17, LTDV6CH, LTDV1CH-17V, LTDVExCH-20			LTDV1CH-7, LTDV6CH, LTDV1CH-17V, LTDVExCH-20	LTDV1CH-17, LTDV6CH, LTDV1CH-17V, LTDVExCH-20			
Lenses			TC2300y, TC23012, TC12016, TC23016, TC12024, TC23024, TCxx036, TC1MHR016-C, TC1MHR024-C, TC1MHR036-C, TC2MHR016-x, TC2MHR024-x, TC2MHR036-x, TC3MHR016-C, TC3MHR024-C, TC3MHR036-C, TC4M004-x, TC4M007-x, TC4M009-x, TC4MHR016-x, TC4MHR024-x, TC4MHR036-x, TC12M016-F, TC12M024-F, TC12M036-F, TC16M009-x, TC16M012-x, TC16M018-x, TC16M036-x, TCLWD series, TCZR036S, MCZR033-008, MCZR025-006, MCZR018-004, MCZR014-003, MC150X, MC100X, MC075X, MC050X, MC033X, RT series, MC4K050X-x, MC4K075X-x, MC4K100X-x, MC4K125X-x, MC4K150X-x			TCxx036, TCxx048, TC12056, TC23056, TC13064, TCxx064, TC1MHR036-C, TC1MHR048-C, TC1MHR056-C, TC1MHR064-C, TC2MHR036-x, TC2MHR048-x, TC2MHR056-x, TC2MHR064-x, TC3MHR036-C, TC3MHR048-C, TC3MHR056-C, TC3MHR064-C, TC2MHR036-x, TC4MHR036-x, TC4MHR048-x, TC4MHR056-x, TC4MHR064-x, TC12M036-F, TC12M048-F, TC12M056-F, TC12M064-F, TC16M036-x, TC16M048-x, TC16M056-x, TC16M064-x, TC12K064, TCLWD series, TC4K060-x, TCZR072S, MCZR025-006, MCZR018-004, MCZR014-003, MC033X, MC12K200X-x, MC12K150X-x, MC12K100X-x, MC12K067X-x, RT series, MC4K050X-x, MC4K075X-x, MC4K100X-x, MC4K125X-x, MC4K150X-x				

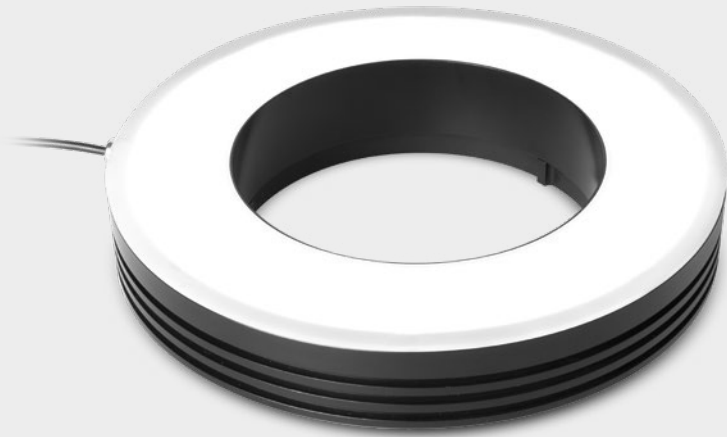
- 1 At max Working Distance WD.
- 2 At 25°C. At max pulse width (1 ms), max pulse frequency = 15 Hz.
- 3 5 m cable with straight female connector included. Optional cable with right angled connector is also available and must be ordered separately (refer to our website for further info and ordering codes).
- 4 At 25°C.

Ordering information

It's easy to select the right illuminator for your application: our part numbers are coded as **LTLA xy-z**, where **x** defines the illuminator size (B = medium, C = large), **y** refers to the power intensity (1 = medium, 2 = high) and **z** refers to color (W = white, R = red, G = green). For instance LTLA B2-R is a diffuse strobe low angle ring light illuminator - medium size high power red.

LTRNST series

LED ring illuminators - straight type



KEY ADVANTAGES

Mechanically fitting Opto Engineering® optics

Each lens integrates specific mechanical interfaces.

Specific illumination geometry

Illumination path matches Opto Engineering® lenses viewing angle and numerical aperture.

High performance to price ratio

Cost-effective, without quality compromises.

FULL RANGE OF COMPATIBLE PRODUCTS



Telecentric lenses

p. 16-71

COMPATIBLE STROBE CONTROLLER



LTDV1CH-17V strobe controller

p. 256

COMPATIBLE LIGHT INTENSITY CONTROLLER



LTICGR1000-D1-PS-xx light intensity controller

p. 260

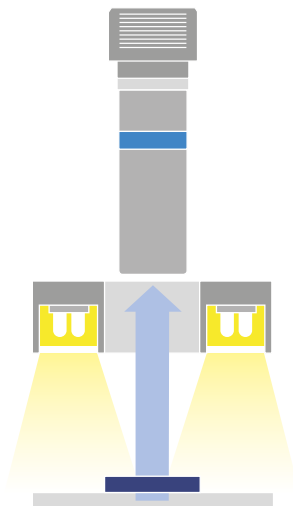
LTRNST series are LED ring illuminators specifically designed for a wide range of Opto Engineering® products. Especially the straight type models perfectly fit Opto Engineering® telecentric lenses.

Every illuminator is equipped with a mechanical interface which makes it very easy to mount it on different lens types. These products enable the optimal illumination geometry for the most common applications of their matching lens.



LTRN illuminator coupled with TC23064

Lighting structure



LTRNST - Ringlights / straight illumination

Product overview



LTRN 016 NW



LTRN 120 NW

Part number	Optical specifications				Electrical specifications					Dimensions			Compatibility
	Light colour, peak wavelength	Optimal WD (mm)	Lighting area diam.		Continuous mode 1			Pulsed mode		Outer diam. (mm)	Inner diam. (mm)	Height (mm)	Compatible OE products
			inner (mm)	outer (mm)	Supply voltage (V)	Current (mA)	Power cons. (W)	Supply voltage (V) 2	Max pulse current (mA) 3				
Straight illumination													
LTRN 023 RD	red, 630 nm	55-85	32	90	24	200	4.8	24 - 48	600	104	28	40	TC2300y, TC23012, TC4M00y-x
LTRN 023 GR	green, 525 nm	55-85	32	90	24	220	5.3	24 - 48	660	104	28	40	TC2300y, TC23012, TC4M00y-x
LTRN 023 BL	blue, 470 nm	55-85	32	90	24	220	5.3	24 - 48	660	104	28	40	TC2300y, TC23012, TC4M00y-x
LTRN 023 NW	white, 6300 K	55-85	32	90	24	480	11.6	24 - 48	1440	104	28	40	TC2300y, TC23012, TC4M00y-x
LTRN 016 RD	red, 630 nm	85-150	48	107	24	300	7.2	24 - 48	900	120.6	37.7	40	TCxx016, TCxMHR016-x, TC5M016, TCLWD series
LTRN 016 GR	green, 525 nm	85-150	48	107	24	275	6.6	24 - 48	825	120.6	37.7	40	TCxx016, TCxMHR016-x, TC5M016, TCLWD series
LTRN 016 BL	blue, 470 nm	85-150	48	107	24	315	7.6	24 - 48	945	120.6	37.7	40	TCxx016, TCxMHR016-x, TC5M016, TCLWD series
LTRN 016 NW	white, 6300 K	85-150	48	107	24	650	15.6	24 - 48	1950	120.6	37.7	40	TCxx016, TCxMHR016-x, TC5M016, TCLWD series
LTRN 024 RD	red, 630 nm	85-150	48	107	24	300	7.2	24 - 48	900	120.6	44	40	TCxx024, TCxMHR024-x, TC5M024
LTRN 024 GR	green, 525 nm	85-150	48	107	24	275	6.6	24 - 48	825	120.6	44	40	TCxx024, TCxMHR024-x, TC5M024
LTRN 024 BL	blue, 470 nm	85-150	48	107	24	315	7.6	24 - 48	945	120.6	44	40	TCxx024, TCxMHR024-x, TC5M024
LTRN 024 NW	white, 6300 K	85-150	48	107	24	650	15.6	24 - 48	1950	120.6	44	40	TCxx024, TCxMHR024-x, TC5M024
LTRN 032 RD	red, 630 nm	65-240	84	143	24	400	9.6	24 - 48	1200	157	56	40	TCZR036S
LTRN 032 GR	green, 525 nm	65-240	84	143	24	385	9.3	24 - 48	1155	157	56	40	TCZR036S
LTRN 032 BL	blue, 470 nm	65-240	84	143	24	434	10.5	24 - 48	1302	157	56	40	TCZR036S
LTRN 032 NW	white, 6300 K	65-240	84	143	24	840	20.2	24 - 48	2000	157	56	40	TCZR036S
LTRN 036 RD	red, 630 nm	65-240	84	143	24	400	9.6	24 - 48	1200	157	61	40	TCxx036, TCxMHR036-x, TC12M036-F, TC16M036-x, TC5M036, MCZRxxx-yyy
LTRN 036 GR	green, 525 nm	65-240	84	143	24	385	9.2	24 - 48	1155	157	61	40	TCxx036, TCxMHR036-x, TC12M036-F, TC16M036-x, TC5M036, MCZRxxx-yyy
LTRN 036 BL	blue, 470 nm	65-240	84	143	24	434	10.4	24 - 48	1302	157	61	40	TCxx036, TCxMHR036-x, TC12M036-F, TC16M036-x, TC5M036, MCZRxxx-yyy
LTRN 036 NW	white, 6300 K	65-240	84	143	24	840	20.2	24 - 48	2000	157	61	40	TCxx036, TCxMHR036-x, TC12M036-F, TC16M036-x, TC5M036, MCZRxxx-yyy
LTRN 048 RD	red, 630 nm	65-240	84	143	24	400	9.6	24 - 48	1200	157	75	40	TCxx048, TCxMHR048-x, TC12M048-F, TC16M048-x, TC5M048
LTRN 048 GR	green, 525 nm	65-240	84	143	24	385	9.3	24 - 48	1155	157	75	40	TCxx048, TCxMHR048-x, TC12M048-F, TC16M048-x, TC5M048
LTRN 048 BL	blue, 470 nm	65-240	84	143	24	434	10.5	24 - 48	1302	157	75	40	TCxx048, TCxMHR048-x, TC12M048-F, TC16M048-x, TC5M048
LTRN 048 NW	white, 6300 K	65-240	84	143	24	840	20.2	24 - 48	2000	157	75	40	TCxx048, TCxMHR048-x, TC12M048-F, TC16M048-x, TC5M048
LTRN 056 RD	red, 630 nm	65-240	84	143	24	400	9.6	24 - 48	1200	157	80	40	TCxx056, TCxMHR056-x, TC12M056-F, TC16M056-x, TC5M056
LTRN 056 GR	green, 525 nm	65-240	84	143	24	385	9.3	24 - 48	1155	157	80	40	TCxx056, TCxMHR056-x, TC12M056-F, TC16M056-x, TC5M056
LTRN 056 BL	blue, 470 nm	65-240	84	143	24	434	10.5	24 - 48	1302	157	80	40	TCxx056, TCxMHR056-x, TC12M056-F, TC16M056-x, TC5M056
LTRN 056 NW	white, 6300K	65-240	84	143	24	840	20.2	24 - 48	2000	157	80	40	TCxx056, TCxMHR056-x, TC12M056-F, TC16M056-x, TC5M056
LTRN 064 RD	red, 630 nm	280-365	120	178	24	500	12	24 - 48	1500	192	100	40	TCxx064, TCxMHR064-x, TC12M064-F, TC16M064-x, TC12K064, TC5M064, TCZR072S
LTRN 064 GR	green, 525 nm	280-365	120	178	24	522	12.6	24 - 48	1566	192	100	40	TCxx064, TCxMHR064-x, TC12M064-F, TC16M064-x, TC12K064, TC5M064, TCZR072S
LTRN 064 BL	blue, 470 nm	280-365	120	178	24	567	13.7	24 - 48	1701	192	100	40	TCxx064, TCxMHR064-x, TC12M064-F, TC16M064-x, TC12K064, TC5M064, TCZR072S
LTRN 064 NW	white, 6300 K	280-365	120	178	24	960	23.1	24 - 48	2000	192	100	40	TCxx064, TCxMHR064-x, TC12M064-F, TC16M064-x, TC12K064, TC5M064, TCZR072S
LTRN 080 RD	red, 630 nm	280-365	120	178	24	500	12	24 - 48	1500	192	116	40	TCxx080, TC23072, TCxMHR080-x, TC12M080-F, TC16M080-x, TC12K080, TC5M080
LTRN 080 GR	green, 525 nm	280-365	120	178	24	522	12.6	24 - 48	1566	192	116	40	TCxx080, TC23072, TCxMHR080-x, TC12M080-F, TC16M080-x, TC12K080, TC5M080
LTRN 080 BL	blue, 470 nm	280-365	120	178	24	567	13.7	24 - 48	1701	192	116	40	TCxx080, TC23072, TCxMHR080-x, TC12M080-F, TC16M080-x, TC12K080, TC5M080
LTRN 080 NW	white, 6300 K	280-365	120	178	24	1170	28.1	24 - 48	2000	192	116	40	TCxx080, TC23072, TCxMHR080-x, TC12M080-F, TC16M080-x, TC12K080, TC5M080
LTRN 096 RD	red, 630 nm	350-450	148	207	24	600	14.4	24 - 48	1800	221	143	40	TCxx096, TC23085, TCxMHR096-x, TC12M096-F, TC16M096-x, TC5M096
LTRN 096 GR	green, 525 nm	350-450	148	207	24	550	13.2	24 - 48	1650	221	143	40	TCxx096, TC23085, TCxMHR096-x, TC12M096-F, TC16M096-x, TC5M096
LTRN 096 BL	blue, 470 nm	350-450	148	207	24	650	15.6	24 - 48	1950	221	143	40	TCxx096, TC23085, TCxMHR096-x, TC12M096-F, TC16M096-x, TC5M096
LTRN 096 NW	white, 6300 K	350-450	148	207	24	1200	28.8	24 - 48	2000	221	143	40	TCxx096, TC23085, TCxMHR096-x, TC12M096-F, TC16M096-x, TC5M096
LTRN 120 RD	red, 630 nm	450-580	204	276	24	875	21	24 - 48	2000	290	180	40	TCxx120, TC23110, TCxMHR120-x, TC12M120-F, TC16M120-x, TC12K120
LTRN 120 GR	green, 525 nm	450-580	204	276	24	1118	26.9	24 - 48	2000	290	180	40	TCxx120, TC23110, TCxMHR120-x, TC12M120-F, TC16M120-x, TC12K120
LTRN 120 BL	blue, 470 nm	450-580	204	276	24	1118	26.9	24 - 48	2000	290	180	40	TCxx120, TC23110, TCxMHR120-x, TC12M120-F, TC16M120-x, TC12K120
LTRN 120 NW	white, 6300 K	450-580	204	276	24	1690	40.6	24 - 48	2000	290	180	40	TCxx120, TC23110, TCxMHR120-x, TC12M120-F, TC16M120-x, TC12K120
LTRN 144 RD	red, 630 nm	450-580	204	276	24	875	21	24 - 48	2000	290	200	40	TCxx144, TC23130, TCxMHR144-x, TC12M144-F, TC16M144-x, TC12K144
LTRN 144 GR	green, 525 nm	450-580	204	276	24	1118	26.9	24 - 48	2000	290	200	40	TCxx144, TC23130, TCxMHR144-x, TC12M144-F, TC16M144-x, TC12K144
LTRN 144 BL	blue, 470 nm	450-580	204	276	24	1118	26.9	24 - 48	2000	290	200	40	TCxx144, TC23130, TCxMHR144-x, TC12M144-F, TC16M144-x, TC12K144
LTRN 144 NW	white, 6300 K	450-580	204	276	24	1690	40.6	24 - 48	2000	290	200	40	TCxx144, TC23130, TCxMHR144-x, TC12M144-F, TC16M144-x, TC12K144

1 Lifespan: 20.000 hours (drop to 50% intensity) at 25 °C.

2 With constant driving voltage (36V recommended, 48V max). Duty cycle = 0-10 %. Max pulse width = 10 ms.

3 With constant driving current. Duty cycle = 0-10 %. Max pulse width = 10 ms.

LTRNOB series

LED ring illuminators - oblique type



KEY ADVANTAGES

Mechanically fitting Opto Engineering® optics
Each lens integrates specific mechanical interfaces.

Specific illumination geometry
Illumination path matches Opto Engineering® lenses viewing angle and numerical aperture.

High performance to price ratio
Cost-effective, without quality compromises.

LTRNOB series are LED ring illuminators specifically designed for a wide range of Opto Engineering® products. Especially the oblique type models perfectly fit Opto Engineering 360° view optics.

Every illuminator is equipped with a mechanical interface which makes it very easy to mount it on different lens types.

These products enable the optimal illumination geometry for the most common applications of their matching lens.

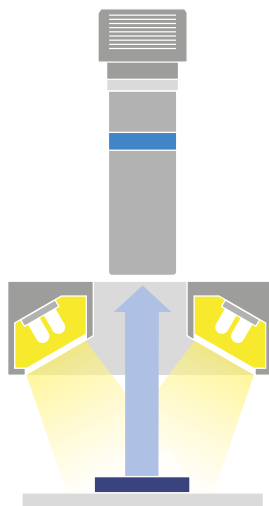


LTRN 245 W45



LTRN 050 W45

Lighting structure

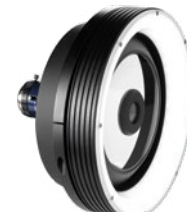


LTRNOB - Ringlights / oblique illumination

Combination examples of LTRNOB and 360° view optics



PC23030XS + compatible LTRN210x20 ringlight and CMHO080 clamping mechanics.






PCCD013 + compatible LTRN165x45 ringlight.



PCHI023 + compatible LTRN075x45 ringlight.



LTRN 050 W 45 mounted on PCPW series.

FULL RANGE OF COMPATIBLE PRODUCTS		
	360° view optics	p. 72-89
COMPATIBLE STROBE CONTROLLER		
	LTDV1CH-17V strobe controller	p. 256
COMPATIBLE LIGHT INTENSITY CONTROLLER		
	LTICGR1000-D1-PS-xx light intensity controller	p. 260



Part number	Optical specifications				Electrical specifications						Dimensions			Compatibility
	Light colour, peak wavelength	Optimal WD (mm)	Lighting area diam.		Continuous mode ¹			Pulsed mode		Outer diam. (mm)	Inner diam. (mm)	Height (mm)	Compatible OE products	
			inner (mm)	outer (mm)	Supply voltage (V)	Current (mA)	Power cons. (W)	Supply voltage (V) ²	Max pulse current (mA) ³					
Oblique illumination														
LTRN 050 R45	red, 630 nm	20-80	19	49	24	60	1.5	24-48	180	53.5	15.2	22	PCPW0xx, MCxxxX, TCCAGExx048	
LTRN 050 G45	green, 525 nm	20-80	19	49	24	70	1.7	24-48	210	53.5	15.2	22	PCPW0xx, MCxxxX, TCCAGExx048	
LTRN 050 B45	blue, 470 nm	20-80	19	49	24	105	2.6	24-48	315	53.5	15.2	22	PCPW0xx, MCxxxX, TCCAGExx048	
LTRN 050 W45	white, 6300 K	20-80	19	49	24	105	2.6	24-48	700	53.5	15.2	22	PCPW0xx, MCxxxX, TCCAGExx048	
LTRN 075 R45	red, 630 nm	20-50	43.8	65.4	24	75	1.8	24-48	225	75.4	28	32	TC2300y, TC23012, TC4M00y-x, PCH10xx, TCCAGExx096, MC3-03X	
LTRN 075 G45	green, 525 nm	20-50	43.8	65.4	24	60	1.5	24-48	180	75.4	28	32	TC2300y, TC23012, TC4M00y-x, PCH10xx, TCCAGExx096, MC3-03X	
LTRN 075 B45	blue, 470 nm	20-50	43.8	65.4	24	60	1.5	24-48	180	75.4	28	32	TC2300y, TC23012, TC4M00y-x, PCH10xx, TCCAGExx096, MC3-03X	
LTRN 075 W45	white, 6300 K	20-50	43.8	65.4	24	90	2.2	24-48	270	75.4	28	32	TC2300y, TC23012, TC4M00y-x, PCH10xx, TCCAGExx096, MC3-03X	
LTRN 165 R45	red, 630 nm	30-50	134.5	164.5	24	500	12	24-48	1500	175	132.5	36.5	PCCD0xx	
LTRN 165 G45	green, 525 nm	30-50	134.5	164.5	24	400	9.6	24-48	1200	175	132.5	36.5	PCCD0xx	
LTRN 165 B45	blue, 470 nm	30-50	134.5	164.5	24	480	11.6	24-48	1440	175	132.5	36.5	PCCD0xx	
LTRN 165 W45	white, 6300 K	30-50	134.5	164.5	24	800	19.2	24-48	2400	175	132.5	36.5	PCCD0xx	
LTRN 210 R20	red, 630 nm	55-95	116.5	195.6	24	600	14.4	24-48	1800	210	116.5	40	PCxx030XS	
LTRN 210 G20	green, 525 nm	55-95	116.5	195.6	24	560	13.5	24-48	1580	210	116.5	40	PCxx030XS	
LTRN 210 B20	blue, 470 nm	55-95	116.5	195.6	24	630	15.2	24-48	1890	210	116.5	40	PCxx030XS	
LTRN 210 W20	white, 6300 K	55-95	116.5	195.6	24	840	20.2	24-48	2000	210	116.5	40	PCxx030XS	
LTRN 245 R25	red, 630 nm	20-80	160	225	24	750	18	24-48	2000	245	157	48	PCxx030HP	
LTRN 245 G25	green, 525 nm	20-80	160	225	24	850	20.4	24-48	2000	245	157	48	PCxx030HP	
LTRN 245 B25	blue, 470 nm	20-80	160	225	24	650	15.6	24-48	1950	245	157	48	PCxx030HP	
LTRN 245 W25	white, 6300 K	20-80	160	225	24	1120	26.9	24-48	2000	245	157	48	PCxx030HP	
LTRN 245 R35	red, 630 nm	20-80	160	225	24	750	18	24-48	2000	245	143	48	PCCD0xx	
LTRN 245 G35	green, 525 nm	20-80	160	225	24	850	20.4	24-48	2000	245	143	48	PCCD0xx	
LTRN 245 B35	blue, 470 nm	20-80	160	225	24	650	15.6	24-48	1950	245	143	48	PCCD0xx	
LTRN 245 W35	white, 6300 K	20-80	160	225	24	1120	26.9	24-48	2000	245	143	48	PCCD0xx	
LTRN 245 R45	red, 630 nm	20-80	160	225	24	750	18	24-48	2000	245	117	48	PCPW0xx	
LTRN 245 G45	green, 525 nm	20-80	160	225	24	850	20.4	24-48	2000	245	117	48	PCPW0xx	
LTRN 245 B45	blue, 470 nm	20-80	160	225	24	650	15.6	24-48	1950	245	117	48	PCPW0xx	
LTRN 245 W45	white, 6300 K	20-80	160	225	24	1120	26.9	24-48	2000	245	117	48	PCPW0xx	

¹ Lifespan: 20.000 hours (drop to 50% intensity) at 25 °C.

² With constant driving voltage (36V recommended, 48V max). Duty cycle = 0-10 %. Max pulse width = 10 ms.

³ With constant driving current. Duty cycle = 0-10 %. Max pulse width = 10 ms.

LTRNOBHP series

High power LED ring illuminators, oblique type

NEW



KEY ADVANTAGES

High power working both in continuous and strobe mode.

Brighter than LTRNOB series also in continuous mode.

Mechanically fitting Opto Engineering® optics

Each lens integrates specific mechanical interfaces.

Specific illumination geometry

Illumination path matches Opto Engineering® lenses viewing angle and numerical aperture.

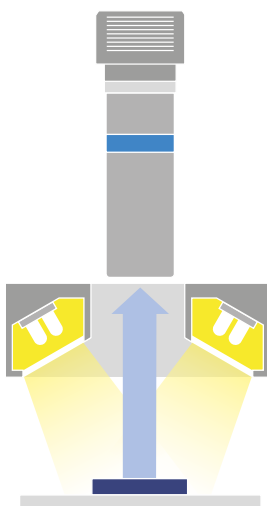
Integrated thermal sensor.

LTRNOBHP series are the high power version of LTRNOB series LED ring illuminators and are specifically designed to match Opto Engineering® 360° view Optics.

Every illuminator is equipped with a clamping system which makes it very easy to mount it on Opto Engineering® 360° view Optics.

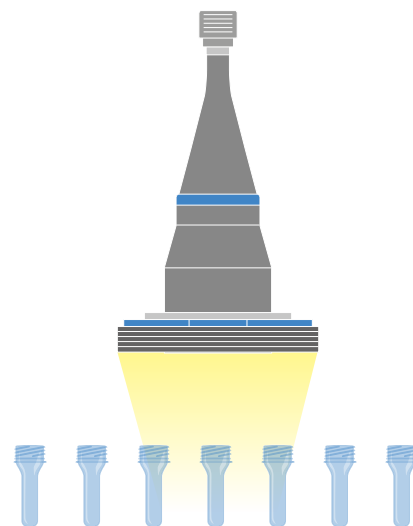
These LED ring lights are designed to work both in continuous and strobe mode for high speed inspection and provide the best illumination geometry for the most common applications of the matching lenses in the beverage, pharma and automotive industries.

Lighting structure






LTRNOBHP - Ringlights / oblique illumination

Application example



Check for defects in bottle preforms

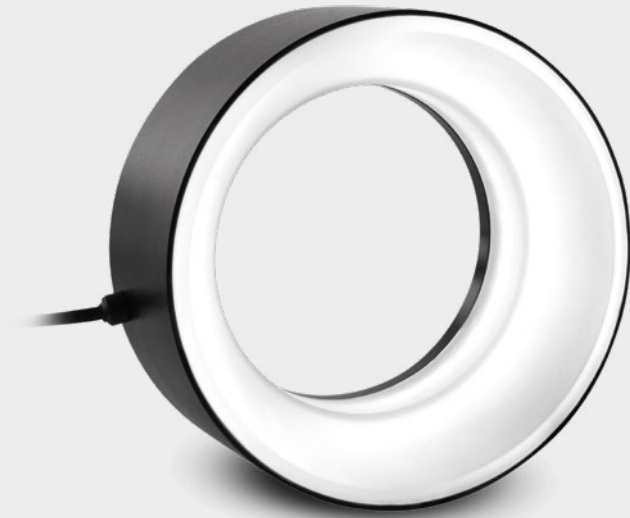
FULL RANGE OF COMPATIBLE PRODUCTS		
	360° view optics	p. 72-89
COMPATIBLE STROBE CONTROLLER		
	LTDV1CH-17V strobe controller	p. 256
COMPATIBLE LIGHT INTENSITY CONTROLLER		
	light intensity controller	p. 260

Part number	Optical specifications				Electrical specifications				Dimensions			Compatibility			
	Light colour, peak wavelength	Optimal WD (mm)	Lighting area diam. (mm)		Supply voltage (V)	Current (mA)	Max power cons. (W)	Max pulse current (mA)	Peak power (W)	Outer diam. (mm)	Inner diam. (mm)	Height (mm)	Lenses	Controllers	Cables
Oblique illumination															
LTRNHP 075 R45	red, 625 nm	20-50	43,5	65	24 ± 2%	420	10	2800	79	86	28	38	TC2300y, TC23012, TC4M00y-x, PCHI0xx, TCCAGExx096	LTDV1CH-17V, LTDVExCH-20, LTDV6CH	CBLT010
LTRNHP 075 G45	green, 525 nm	20-50	43,5	65	24 ± 2%	420	10	6000	163	86	28	38			
LTRNHP 075 B45	blue, 475 nm	20-50	43,5	65	24 ± 2%	420	10	6000	163	86	28	38			
LTRNHP 075 W45	white, 6200 K	20-50	43,5	65	24 ± 2%	420	10	7200	178	86	28	38			
LTRNHP 165 R45	red, 625 nm	30-50	133,5	162	24 ± 2%	1670	40	7000	169	190	132,5	42	PCCD0xx		
LTRNHP 165 G45	green, 525 nm	30-50	133,5	162	24 ± 2%	1670	40	9000	239	190	132,5	42			
LTRNHP 165 B45	blue, 475 nm	30-50	133,5	162	24 ± 2%	1670	40	9000	221	190	132,5	42			
LTRNHP 165 W45	white, 6200 K	30-50	133,5	162	24 ± 2%	1670	40	13500	293	190	132,5	42			
LTRNHP 210 R20	red, 625 nm	50-100	117,5	182	24 ± 2%	2090	50	9000	217	210	116,5	42	PCxx030XS		
LTRNHP 210 G20	green, 525 nm	50-100	117,5	182	24 ± 2%	2090	50	12000	319	210	116,5	42			
LTRNHP 210 B20	blue, 475 nm	50-100	117,5	182	24 ± 2%	2090	50	12000	294	210	116,5	42			
LTRNHP 210 W20	white, 6200 K	50-100	117,5	182	24 ± 2%	2090	50	18000	391	210	116,5	42			
LTRNHP 245 R25	red, 625 nm	20-80	160	215	24 ± 2%	2710	65	10000	241	245	157	50	PCxx030HP		
LTRNHP 245 G25	green, 525 nm	20-80	160	215	24 ± 2%	2710	65	14000	372	245	157	50			
LTRNHP 245 B25	blue, 475 nm	20-80	160	215	24 ± 2%	2710	65	14000	343	245	157	50			
LTRNHP 245 W25	white, 6200 K	20-80	160	215	24 ± 2%	2710	65	20000	434	245	157	50			

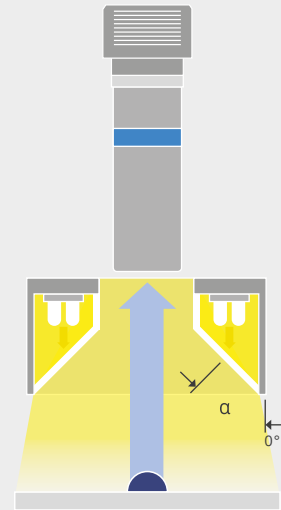
- 1 With constant driving voltage.
- 2 With constant driving current. At max pulse width (1 ms), max pulse frequency = 15Hz. Contact us to check other allowable combinations of duty cycle-frequency.

LTLAIC series



Continuous LED low angle diffused ringlights



Lighting structure



LTLAIC series consists of LED low angle diffused ringlights that provide diffused even illumination, effectively preventing glare when inspecting shiny surfaces. Suggested use is continuous mode.

COMPATIBLE STROBE CONTROLLER		
	LTDV1CH-17V strobe controller	p. 256
COMPATIBLE LIGHT INTENSITY CONTROLLER		
	LTICGR1000-D1-PS-xx light intensity controller	p. 260
FULL RANGE OF FIXED FOCAL LENGTH LENSES		
	EN2MP series, EN5MP series, ENMP series, ENHR series	p. 108-111, 114

Part number	Optical specifications					Electrical specifications					Dimensions		
	Light colour, wavelength peak	Optimal WD (mm)	Lighting area		Emission angle α (deg)	Continuous mode			Pulsed mode		Outer diam. (mm)	Inner diam. (mm)	Height (mm)
			inner diam. (mm)	outer diam. (mm)		Supply voltage (V)	Current (mA)	Power cons. (W)	Supply voltage (V)	Max pulse current (mA)			
LT3RZF050-60-1-W-24V	white	5	12	44	60	24	120	2.9	36	360	56.4	10	35
LT3RZF050-60-1-R-24V	red, 620 nm	5	12	44	60	24	120	2.9	36	360	56.4	10	35
LT3RZF050-60-1-G-24V	green, 525 nm	5	12	44	60	24	120	2.9	36	360	56.4	10	35
LT3RZF050-60-1-B-24V	blue, 450 nm	5	12	44	60	24	120	2.9	36	360	56.4	10	35
LT3RZF080-60-1-W-24V	white	5 - 15	38.2	69	60	24	180	4.3	36	540	81	36.2	35
LT3RZF080-60-1-R-24V	red, 620 nm	5 - 15	38.2	69	60	24	180	4.3	36	540	81	36.2	35
LT3RZF080-60-1-G-24V	green, 525 nm	5 - 15	38.2	69	60	24	180	4.3	36	540	81	36.2	35
LT3RZF080-60-1-B-24V	blue, 450 nm	5 - 15	38.2	69	60	24	180	4.3	36	540	81	36.2	35
LT3RZF100-60-1-W-24V	white	5 - 20	59	93.2	60	24	270	6.5	36	810	105.2	57	35
LT3RZF100-60-1-R-24V	red, 620 nm	5 - 20	59	93.2	60	24	270	6.5	36	810	105.2	57	35
LT3RZF100-60-1-G-24V	green, 525 nm	5 - 20	59	93.2	60	24	270	6.5	36	810	105.2	57	35
LT3RZF100-60-1-B-24V	blue, 450 nm	5 - 20	59	93.2	60	24	270	6.5	36	810	105.2	57	35
LT3RZF130-60-1-W-24V	white	7 - 26	86	119.5	60	24	360	8.6	36	1080	131.5	84	35
LT3RZF130-60-1-R-24V	red, 620 nm	7 - 26	86	119.5	60	24	360	8.6	36	1080	131.5	84	35
LT3RZF130-60-1-G-24V	green, 525 nm	7 - 26	86	119.5	60	24	360	8.6	36	1080	131.5	84	35
LT3RZF130-60-1-B-24V	blue, 450 nm	7 - 26	86	119.5	60	24	360	8.6	36	1080	131.5	84	35

1 With constant driving voltage (36V recommended, 48V max). Duty cycle = 0-10 %. Max pulse width = 10 ms.

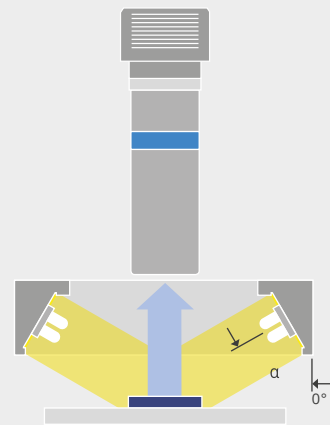
2 With constant driving current. Duty cycle = 0-10 %. Max pulse width = 10 ms.

LTLADC series

Continuous LED low angle direct ringlights



Lighting structure



LTLADC series consists of low angle direct ringlights that provide direct side illumination to emphasize the surface features of the workpiece, such as scratches or texture. Suggested use is continuous mode.

COMPATIBLE STROBE CONTROLLER		
	LTDV1CH-17V strobe controller	p. 256
COMPATIBLE LIGHT INTENSITY CONTROLLER		
	LTICGR1000-D1-PS-xx light intensity controller	p. 260
FULL RANGE OF FIXED FOCAL LENGTH LENSES		
	EN2MP series, EN5MP series, ENMP series, ENHR series	p. 108-111, 114

Part number	Optical specifications					Electrical specifications					Dimensions		
	Light colour, wavelength peak	Optimal WD (mm)	Lighting area		Emission angle α (deg)	Continuous mode			Pulsed mode		Outer diam. (mm)	Inner diam. (mm)	Height (mm)
			inner diam. (mm)	outer diam. (mm)		Supply voltage (V)	Current (mA)	Power cons. (W)	Supply voltage (V)	Max pulse current (mA)			
LTZZO130-75-3-W-24V	white, 6300 K	5 - 15	111	126	75	24	540	13	36	225	131	94	24.5
LTZZO130-75-3-R-24V	red, 630 nm	5 - 15	111	126	75	24	420	10.1	36	180	131	94	24.5
LTZZO130-75-3-G-24V	green, 525 nm	5 - 15	111	126	75	24	540	13	36	225	131	94	24.5
LTZZO130-75-3-B-24V	blue, 470 nm	5 - 15	111	126	75	24	540	13	36	225	131	94	24.5
LTZZO170-75-3-W24V	white, 6300 K	5 - 15	154	170	75	24	735	17.7	36	450	175	136	24.5
LTZZO170-75-3-R-24V	red, 630 nm	5 - 15	154	170	75	24	570	13.7	36	360	175	136	24.5
LTZZO170-75-3-G-24V	green, 525 nm	5 - 15	154	170	75	24	735	17.7	36	450	175	136	24.5
LTZZO170-75-3-B-24V	blue, 470 nm	5 - 15	154	170	75	24	735	17.7	36	450	175	136	24.5

1 With constant driving voltage (36V recommended, 48V max). Duty cycle = 0-10 %. Max pulse width = 10 ms.

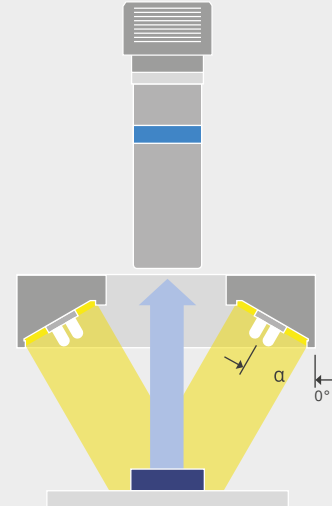
2 With constant driving current. Duty cycle = 0-10 %. Max pulse width = 10 ms.

LTRNDC series




Continuous LED direct ringlights



Lighting structure



LTRNDC series consists of LED direct ringlights that provide direct side illumination from different angles. These ringlights reduce shadows and can effectively illuminate non-reflective objects. Suggested use is continuous mode.

COMPATIBLE STROBE CONTROLLER		
	LTDV1CH-17V strobe controller	p. 256
COMPATIBLE LIGHT INTENSITY CONTROLLER		
	LTICGR1000-D1-PS-xx light intensity controller	p. 260
FULL RANGE OF FIXED FOCAL LENGTH LENSES		
	EN2MP series, EN5MP series, ENMP series, ENHR series	p. 108-111, 114

Part number	Optical specifications					Electrical specifications					Dimensions		
	Light colour, wavelength peak	Optimal WD (mm)	Lighting area		Emission angle α (deg)	Continuous mode			Pulsed mode		Outer diam. (mm)	Inner diam. (mm)	Height (mm)
			inner diam. (mm)	outer diam. (mm)		Supply voltage (V)	Current (mA)	Power cons. (W)	Supply voltage (V)	Max pulse current (mA)			
LTZGK050-15-2-W-24V	white, 6300 K	64	30	49.6	15	24	105	2.6	36	315	50	28	16
LTZGK050-15-2-R-24V	red, 630 nm	64	30	49.6	15	24	90	2.2	36	270	50	28	16
LTZGK050-15-2-G-24V	green, 525 nm	64	30	49.6	15	24	105	2.6	36	315	50	28	16
LTZGK050-15-2-B-24V	blue, 470 nm	64	30	49.6	15	24	105	2.6	36	315	50	28	16
LTZGK070-15-3-W-24V	white, 6300 K	85	37	67	15	24	240	5.8	36	720	70	32	20.5
LTZGK070-15-3-R-24V	red, 630 nm	85	37	67	15	24	180	4.4	36	540	70	32	20.5
LTZGK070-15-3-G-24V	green, 525 nm	85	37	67	15	24	240	5.8	36	720	70	32	20.5
LTZGK070-15-3-B-24V	blue, 470 nm	85	37	67	15	24	240	5.8	36	720	70	32	20.5
LTZGK100-15-5-W-24V	white, 6300 K	128	53	99	15	24	570	13.7	36	1710	103	48	24
LTZGK100-15-5-R-24V	red, 630 nm	128	53	99	15	24	450	10.8	36	1350	103	48	24
LTZGK100-15-5-G-24V	green, 525 nm	128	53	99	15	24	570	13.7	36	1710	103	48	24
LTZGK100-15-5-B-24V	blue, 470 nm	128	53	99	15	24	570	13.7	36	1710	103	48	24
LTZGK100-45-3-W-24V	white, 6300 K	18	40.5	62.5	45	24	240	5.8	36	720	70	35	21
LTZGK070-45-3-R-24V	red, 630 nm	18	40.5	62.5	45	24	195	4.7	36	585	70	35	21
LTZGK070-45-3-G-24V	green, 525 nm	18	40.5	62.5	45	24	240	5.8	36	720	70	35	21
LTZGK070-45-3-B-24V	blue, 470 nm	18	40.5	62.5	45	24	240	5.8	36	720	70	35	21
LTZGK100-45-5-W-24V	white, 6300 K	24	58	95	45	24	600	14.4	36	1800	100	48	30
LTZGK100-45-5-R-24V	red, 630 nm	24	58	95	45	24	465	11.2	36	1395	100	48	30
LTZGK100-45-5-G-24V	green, 525 nm	24	58	95	45	24	600	14.4	36	1800	100	48	30
LTZGK100-45-5-B-24V	blue, 470 nm	24	58	95	45	24	600	14.4	36	1800	100	48	30

1 With constant driving voltage (36V recommended, 48V max). Duty cycle = 0-10 %. Max pulse width = 10 ms.

2 With constant driving current. Duty cycle = 0-10 %. Max pulse width = 10 ms.

Did you know that we ensure a perfect match between our cameras and our optics?

No more issues related to incorrect flange distances or image circles.

Did you know that with FabImage you can choose from more than 1000 features for image processing?

Moreover our machine vision software does not require any programming skills!

LTDMLA series

High power strobe dome + low angle illumination systems



KEY ADVANTAGES

Two independent illumination units in one solution

Dome unit for homogeneous illuminations and low angle unit for dark field lightning can be independently operated.

Ultra-high power light output and strobe mode only operation

For the inspection of fast moving object and extended LED lifetime.

Rugged industrial design with built-in industrial connector

For easy integration into any machine vision system.

Multiple configurations

Available in two sizes and two power intensities.

Compatible LTDV strobe controllers available

For easy and appropriate power, control and synchronization of the illuminator.

LTDMLA series are ultra-high power diffuse LED strobe illuminators combining a dome light and a low angle ring light.

This solution provides two different illumination types in a single, compact, easy-to-integrate system: the dome unit provides non-directional diffused light that can be used to homogeneously illuminate complex shapes with curved and shiny surfaces, effectively eliminating glare and shadows. The low angle ring light unit provides darkfield lightning that can be used to cast shadows, greatly emphasizing surface irregularities, scratches and other details.

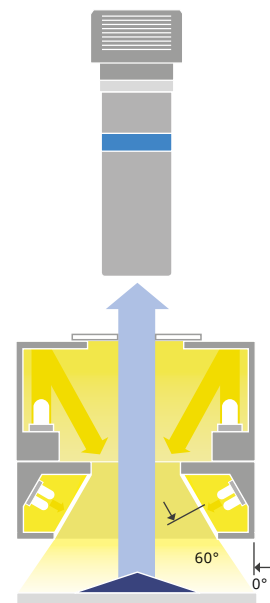
LTDMLA illuminators operate exclusively in strobe mode: the reduced heat generation guarantees extended LED lifetime and makes LTDMLA the perfect choice to illuminate very fast moving objects.

The two illumination units can be operated independently and easily powered, controlled and synchronized by compatible LTDV strobe controllers. LTDMLA series is available in:

- **two sizes:** medium and large, respectively with illumination area of 60 mm and 100 mm in diameter;
- **two power intensities:** medium power with driving current up to 7.5 A and high power with driving current up to 17 A.

LTDMLA series features industry standard connection (M12 four poles connector), resizable aperture for the dome unit that can be drilled to increase the diameter and accommodate the optics field of view and effective diffuser for the ring light unit to avoid hot spots formation. Additionally LTDMLA series can be easily mounted and integrated into any machine vision system by means of M6 screws.

Lighting structure



DESIGNED FOR OEM APPLICATIONS

Compatible LTDV strobe controllers available to easily power, control and synchronize LED illuminators.



FULL RANGE OF COMPATIBLE STROBE CONTROLLERS		
	LTDV series	p. 256
FULL RANGE OF FIXED FOCAL LENGTH LENSES		
	EN2MP series, EN5MP series, ENMP series, ENHR series	p. 108-111, 114

Part number			LTDMLAB2-WW	LTDMLAC1-WW	LTDMLAC2-WW
Optical specifications					
Dome unit					
Number of LEDs			40	40	80
Light colour			white, 6500 K	white	white, 6500 K
Spectral FWHM		(nm)	n.a.	n.a.	n.a.
Illumination area diameter		(mm)	60	100	100
Suggested working distance WD		(mm)	5 - 50	5 - 50	5 - 50
Min estimated illumination ¹	At driving current = 3.5 A	(klux)	50	15	35
	At driving current = 7.5 A	(klux)	90	30	65
	At driving current = 17.0 A	(klux)	160	50	100
Aperture range		(mm)	10 - 50	10 - 60	10 - 60
Low angle ringlight unit					
Number of LEDs			40	40	80
Light colour			white, 6000 K	white, 6500 K	white, 6500 K
Spectral FWHM		(nm)	n.a.	n.a.	n.a.
Diffuse ring			yes	yes	yes
Illumination area diameter		(mm)	60	100	100
Suggested working distance WD		(mm)	5 - 50	5 - 50	5 - 50
Min estimated illumination ¹	At driving current = 3.5 A	(klux)	55	35	70
	At driving current = 7.5 A	(klux)	105	70	140
	At driving current = 17.0 A	(klux)	210	125	250
Electrical specifications					
Power supply mode			strobe only, constant current driving	strobe only, constant current driving	strobe only, constant current driving
Driving current	Min	(A)	3.5	3.5	3.5
	Max	(A)	17.0	7.5	17.0
Pulse width ²		(ms)	≤ 1	≤ 1	≤ 1
Connection Type ³			M12 industrial male connector	M12 industrial male connector	M12 industrial male connector
Estimated MTBF ⁴		(hours)	> 50000	> 50000	> 50000
Mechanical specifications					
Dimensions	Length	(mm)	166.5	206	206
	Width	(mm)	133	206	206
	Height	(mm)	104	147	147
Materials			black anodized aluminum body	black anodized aluminum body / Painted steel reflector	black anodized aluminum body / Painted steel reflector
Clamping system			4 holes for M6 screw	8 threaded holes for M6 screw	8 threaded holes for M6 screw
Compatibility					
Strobe controllers			LTDV1CH-17V (2 units), LTDVExCH-20, LTDV6CH	LTDV1CH-17V (2 units), LTDVExCH-20, LTDV6CH	LTDV1CH-17V (2 units), LTDVExCH-20, LTDV6CH
Lenses			TCLWD series		MC4K050X

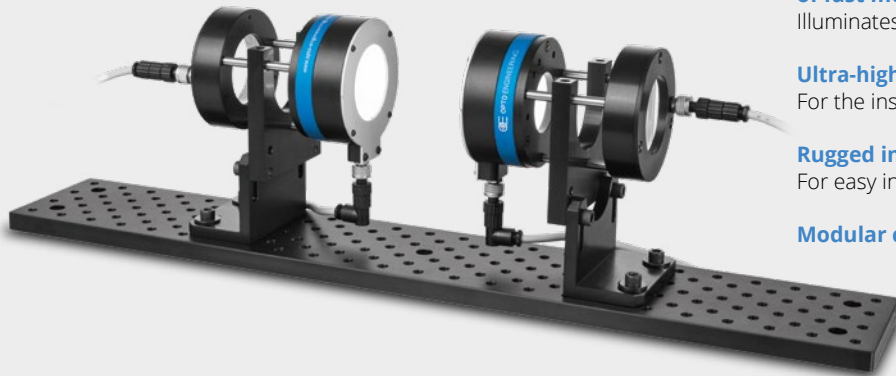
- ¹ At max Working Distance WD.
- ² At 25°C. At max pulse width (1 ms), max pulse frequency = 15 Hz.
- ³ PIN 1 and PIN 2 for the dome unit, PIN 3 and PIN 4 for the ringlight unit.
5 m cable with straight female connector included. Optional cable with right angled connector is also available and must be ordered separately (refer to our website for further info and ordering codes).
- ⁴ At 25 °C.

Ordering information

It's easy to select the right illuminator for your application: our part numbers are coded as **LTDMLA xy-WW** where **x** defines the illuminator size (B = medium, C = large), **y** refers to the power intensity (1 = medium, 2 = high). For instance LTDMLA B2-WW is a diffuse strobe dome + low angle illumination system - medium size, high power, dome white, ringlight white.

View-through system

Space saving illumination system for double-side object inspection



KEY ADVANTAGES

Compact space-saving solution for inspection of fast moving object

Illuminates two sides of an object almost simultaneously.

Ultra-high power light output and strobe mode only operation

For the inspection of fast moving object and extended LED lifetime.

Rugged industrial design with built-in industrial connector

For easy integration with any machine vision system.

Modular configuration.

The **View-through system** is a unique space-saving illumination solution designed to illuminate two sides of an object. It consists of two symmetrical modules, each one made of two illumination units:

- A diffuse strobe dome illuminator (white color)
- A special active "view-through" backlight unit (white color)

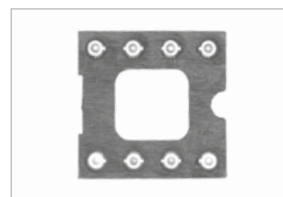
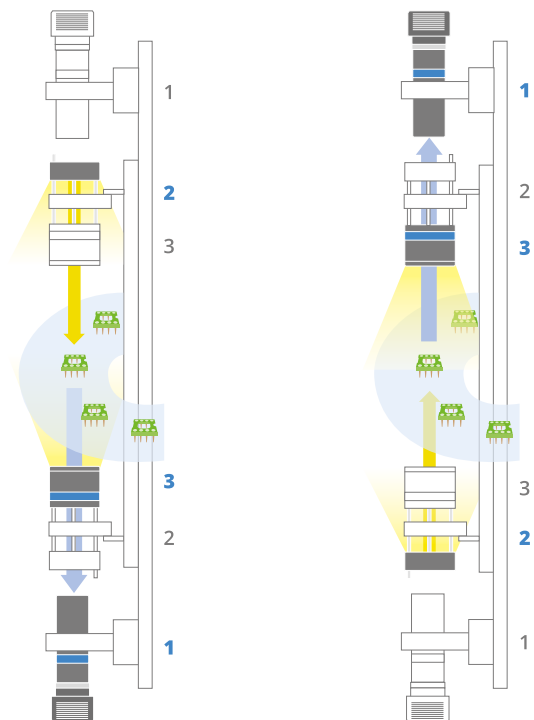
View-through system is designed to create very compact inline inspection solutions that illuminate and image both sides of fast-moving objects. While one camera acquires the image of one side of an object, the corresponding dome and special backlight units emit light simultaneously so that one side of the object can be inspected. Subsequently, the dome and the backlight units are turned off so that the second camera can acquire the image of the other side of the object while its corresponding dome and special backlight units are now switched on.

Such innovative approach can be achieved thanks to the special backlight units which act either as transparent windows (when turned off) or as backlights (when turned on), enabling to quickly and accurately inspect fast-moving objects almost simultaneously, in a very compact solution.

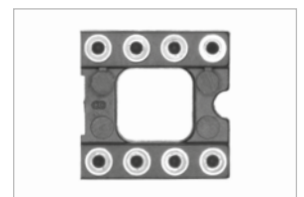
The View-through system can be used for many different inspections, especially for identification of surface defects/features in applications spanning from automotive to pharmaceutical.

The View-through system is available as LTVTA1-W, which consists of two dome units and two active backlight "view-through" units (white color) or as LTVTENCH, a complete bench solution which additionally includes a base plate with two right-angle brackets, the LTDV6CH compatible strobe controller (programmable) and the ADPT001 RS485-USB adapter.

Lighting structure



DIL socket, bottom side.



DIL socket, top side.

DESIGNED FOR OEM APPLICATIONS

Compatible LTDV6CH strobe controllers available to easily power, control and synchronize the View-through system.



FULL RANGE OF COMPATIBLE TELECENTRIC LENSES

	TCLWD series	p. 32
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FULL RANGE OF FIXED FOCAL LENGTH LENSES

	EN2MP series, EN5MP series, ENMP series, ENHR series	p. 108-111, 114
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COMPATIBLE STROBE CONTROLLER AVAILABLE

	LTDV6CH	p. 258
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Part number			LTVTA1-W	LTVTBENCH
Optical specifications				
Dome unit				
Number of LEDs				15
Light colour				white, 6000 K
Spectral FWHM		(nm)		n.a.
Illumination area diameter		(mm)		40
Suggested working distance WD		(mm)		5 - 25
Min estimated illumination 1	At driving current = 3.5 A	(klux)		290
	At driving current = 7.5 A	(klux)		490
Aperture range		(mm)		48 (fixed)
Active backlight view-through unit				
Number of LEDs				18
Light colour				white, 6000 K
Spectral FWHM		(nm)		n.a.
Diffusive material				yes
Illumination area diameter		(mm)		40
Suggested working distance WD		(mm)		n.a.
Min estimated illumination 1	At driving current = 17.0 A	(klux)		5
Electrical specifications				
Power supply mode				strobe only, constant current driving
Pulse width 2		(ms)		≤ 1
Connection Type 3				M8 industrial male connector
Dome unit				
Driving current	Min - Max	(A)		3.5 - 7.5
Active backlight view-through unit				
Driving current	Min - Max	(A)		3.5 - 17.0
Estimated MTBF 4		(hours)		> 50000
Mechanical specifications				
Dimensions	Length	(mm)	107	600
	Width	(mm)	84	100
	Height	(mm)	125	155.5
Materials			black anodized aluminum body	
Clamping system			4 threaded holes for M6 screw	
Compatibility				
Lenses			TCLWD series	

Items included	LTVTA1-W		LTVTBENCH	
	Description	Qty	Description	Qty
	Dome unit 5	2	Dome unit 5	2
	Active backlight view-through unit 5	2	Active backlight view-through unit 5	2
			Base plate with two right-angle brackets	1
			LTDV6CH strobe controller	1
			ADPT001 adapter RS485-USB	1

1 At max Working Distance WD.

2 At 25°C. At max pulse width (1 ms), max pulse frequency = 15 Hz.

3 PIN 1 and PIN 2 for the dome unit, PIN 3 and PIN 4 for the ringlight unit.

4 At 25 °C.

5 Cables included.

LT2BC series

High uniformity continuous LED backlights

NEW



KEY ADVANTAGES

Excellent uniformity.

Test report with measured uniformity.

Suitable for frequent cleaning

Thanks to the optical grade and scratch resistant protective cover.

Wide selection and modular design.

Size options with an active area ranging from 48 x 36 to 288 x 216 mm.

Available in red, white, green and blue.

Compact design with reduced thickness (26 mm).

LT2BC series are high intensity LED backlights designed to provide exceptional illumination performances and excellent uniformity. Their special design provides both homogeneous lighting that perfectly fits confined spaces thanks to a special beam shaping diffuser, new high efficiency LEDs and reduced thickness.

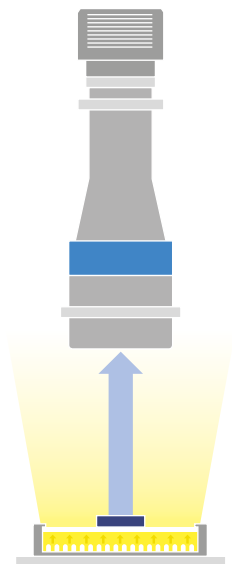
LT2BC series innovative optical layout has been designed to emit a directional light beams and achieve accurate results even when used in combination with telecentric lenses for measurement applications.

When positioned behind the objects to be inspected, LT2BC series highlight the silhouette of the objects providing excellent image contrast.

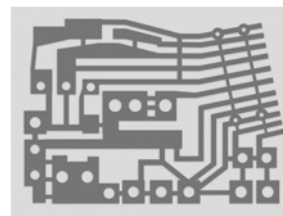
These backlights work in continuous mode but they can also be overdriven.

Their robust and modular design featuring M8 connector and scratch resistant protective cover is conceived for demanding industrial automation environments and to provide you a great choice of sizes, colors and aspect ratios for many diverse applications (from 4:3 to 16:9 and bar lights). Furthermore, LT2BC series can be easily installed into any machine vision system thanks to the lateral M6 threads and their slick design, suitable for environments with space constrains.

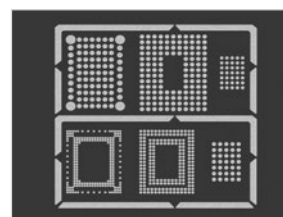
Lighting structure



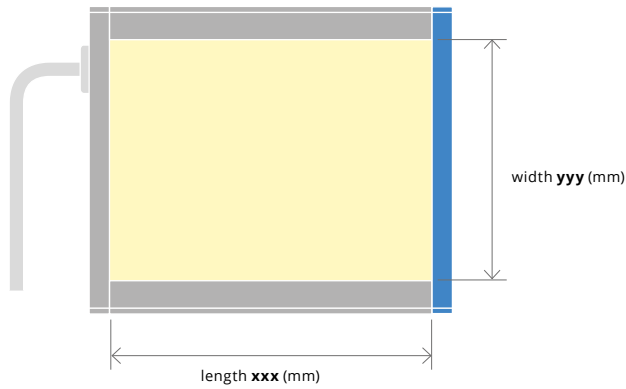
Application examples







Shape inspection.



Detection of patterns/holes.



COMPATIBLE LIGHT INTENSITY CONTROLLER		
	Light intensity controller	p. 260
FULL RANGE OF COMPATIBLE STROBE CONTROLLERS		
	LTDV series	p. 256
FULL RANGE OF COMPATIBLE TELECENTRIC LENSES		
	Telecentric lenses	p. 16-71
FULL RANGE OF FIXED FOCAL LENGTH LENSES		
	EN2MP series, EN5MP series, ENMP series, ENHR series	p. 108-111, 114

Light colour		-R (red)	-G (green)	-B (blue)	-W (white)
Wavelength	(nm)	620	525	470	cool white, > 4500 K
Spectral FWHM	(nm)	20	33	25	cool white, > 4500 K

Part number 1	Modules	Optical specifications				Electrical specifications							Mechanical specifications				
		Number of LEDs	Lighting area dim.		Illuminance				Continuous mode			Pulsed mode		Dimensions			Clamping system
			Width xxx (mm)	Height yyy (mm)	-R (red)	-G (green)	-B (blue)	-W (white)	Supply voltage (V)	Current (mA)	Power cons (W)	Max pulse current 3 (mA)	Connection type 4	Width (mm)	Height (mm)	Thickness (mm)	
LT2BC 048 036-z	1x1	48	48	36	28	50	12	46	24	210	5.1	500	M8	60	56	26	4x M6 threaded holes
LT2BC 096 036-z	2x1	96	96	36	21	39	8	31	24	310	7.5	700	M8	108	56	26	4x M6 threaded holes
LT2BC 144 036-z	3x1	144	144	36	21	39	8	31	24	310	7.5	700	M8	156	56	26	4x M6 threaded holes
LT2BC 192 036-z	4x1	192	192	36	17	30	7	25	24	370	8.9	850	M8	204	56	26	8x M6 threaded holes
LT2BC 240 036-z	5x1	240	240	36	17	30	7	25	24	370	8.9	850	M8	252	56	26	8x M6 threaded holes
LT2BC 288 036-z	6x1	288	288	36	15	29	6	24	24	460	11.1	1000	M8	300	56	26	8x M6 threaded holes
LT2BC 048 072-z	1x2	96	48	72	15	29	6	24	24	460	11.1	1000	M8	60	92	26	4x M6 threaded holes
LT2BC 096 072-z	2x2	192	96	72	15	29	6	24	24	460	11.1	1000	M8	108	92	26	4x M6 threaded holes
LT2BC 144 072-z	3x2	288	144	72	14	26	6	22	24	530	12.8	1200	M8	156	92	26	4x M6 threaded holes
LT2BC 192 072-z	4x2	384	192	72	14	26	6	22	24	530	12.8	1200	M8	204	92	26	8x M6 threaded holes
LT2BC 240 072-z	5x2	480	240	72	14	26	6	22	24	640	15.4	1400	M8	252	92	26	8x M6 threaded holes
LT2BC 288 072-z	6x2	576	288	72	14	26	6	22	24	640	15.4	1400	M8	300	92	26	8x M6 threaded holes
LT2BC 048 108-z	1x3	144	48	108	14	26	6	22	24	640	15.4	1400	M8	60	128	26	4x M6 threaded holes
LT2BC 096 108-z	2x3	288	96	108	14	26	6	22	24	640	15.4	1400	M8	108	128	26	4x M6 threaded holes
LT2BC 144 108-z	3x3	432	144	108	13	23	5	20	24	760	18.3	1700	M8	156	128	26	4x M6 threaded holes
LT2BC 192 108-z	4x3	576	192	108	13	24	5	20	24	770	18.5	1700	M8	204	128	26	8x M6 threaded holes
LT2BC 240 108-z	5x3	720	240	108	13	22	5	18	24	840	20.2	1800	M8	252	128	26	8x M6 threaded holes
LT2BC 288 108-z	6x3	864	288	108	12	24	5	18	24	900	21.6	1900	M8	300	128	26	8x M6 threaded holes
LT2BC 048 144-z	1x4	192	48	144	12	22	5	18	24	890	21.4	1900	M8	60	164	26	4x M6 threaded holes
LT2BC 096 144-z	2x4	384	96	144	12	21	5	18	24	1050	25.2	2250	M8	108	164	26	4x M6 threaded holes
LT2BC 144 144-z	3x4	576	144	144	12	21	5	18	24	1050	25.2	2250	M8	156	164	26	4x M6 threaded holes
LT2BC 192 144-z	4x4	768	192	144	12	21	5	18	24	1050	25.2	2250	M8	204	164	26	8x M6 threaded holes
LT2BC 240 144-z	5x4	960	240	144	12	21	5	18	24	1050	25.2	2250	M8	252	164	26	8x M6 threaded holes
LT2BC 288 144-z	6x4	1152	288	144	11	19	4	16	24	1160	27.9	2500	M8	300	164	26	8x M6 threaded holes
LT2BC 048 180-z	1x5	240	48	180	11	19	4	16	24	1160	27.9	2500	M8	60	200	26	4x M6 threaded holes
LT2BC 096 180-z	2x5	480	96	180	10	19	4	16	24	1210	29.1	2550	M8	108	200	26	4x M6 threaded holes
LT2BC 144 180-z	3x5	720	144	180	9	17	4	15	24	1260	30.3	2650	M8	156	200	26	4x M6 threaded holes
LT2BC 192 180-z	4x5	960	192	180	9	17	4	15	24	1260	30.3	2650	M8	204	200	26	8x M6 threaded holes
LT2BC 240 180-z 3	5x5	1200	240	180	9	17	4	15	24	1390	33.4	2900	M8	252	200	26	8x M6 threaded holes
LT2BC 288 180-z 3	6x5	1440	288	180	9	17	4	15	24	1390	33.4	2900	M8	300	200	26	8x M6 threaded holes
LT2BC 048 216-z	1x6	288	48	216	11	19	4	16	24	1860	44.7	4000	M8	60	236	26	4x M6 threaded holes
LT2BC 096 216-z	2x6	576	96	216	11	19	4	16	24	1860	44.7	4000	M8	108	236	26	4x M6 threaded holes
LT2BC 144 216-z	3x6	864	144	216	11	19	4	16	24	1940	46.6	4100	M8	156	236	26	4x M6 threaded holes
LT2BC 192 216-z	4x6	1152	192	216	9	16	3	13	24	1970	47.3	4100	M8	204	236	26	8x M6 threaded holes
LT2BC 240 216-z 3	5x6	1440	240	216	9	16	3	13	24	1970	47.3	4100	M8	252	236	26	8x M6 threaded holes
LT2BC 288 216-z 3	6x6	1728	288	216	8	14	3	12	24	2160	51.9	4500	M8	300	236	26	8x M6 threaded holes

1 The last digit of the part number (-z) refers to the color (R = red, G = green, B = blue, W = white).

2 At emitting surface.

3 At 25°C. At max pulse width (1 ms), max pulse frequency = 15 Hz.

4 5 m cable with straight female connector included. Optional cable with right angled connector is also available and must be ordered separately (refer to our website for further info and ordering codes).

Ordering information

Our part numbers are coded as **LT2BC xxx yyy - z**, where **xxx** defines the illumination area length (in mm), **yyy** defines the illumination area width (in mm) and **z** refers to the color.

LTBP series

High-power strobe LED backlights



KEY ADVANTAGES

Excellent uniformity (down to $\pm 10\%$).

Test report with measured uniformity.

Ultra high-power light output and strobe mode operation

For inspection and measurement of fast moving objects and an extended LED lifetime.

Suitable for frequent cleaning

Thanks to the optical grade and scratch resistant protective cover.

Wide selection and modular design

Size options range from 48 x 36 to 288 x 216 mm available in red, white, green and blue.

Compact design with reduced thickness (26 mm).

Special continuous alignment mode.

Compatible LTDV1CH-17V strobe controller.

LTBP series are high power LED backlights designed to provide exceptional illumination performance and excellent uniformity. Their special design provides both powerful and homogeneous lighting that perfectly fits confined spaces thanks to a special beam shaping diffuser, new high efficiency LEDs and reduced thickness.

LTBP series innovative optical layout has been designed to emit directional light beams and achieve accurate results even when used in combination with telecentric lenses for measurement applications.

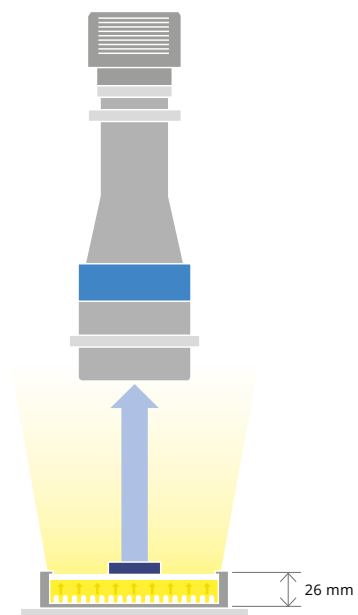
When positioned behind the objects to be inspected, LTBP series highlight the silhouette of the objects providing excellent image contrast and high illuminance for the most demanding high speed applications (down to exposure times of tens of μs).

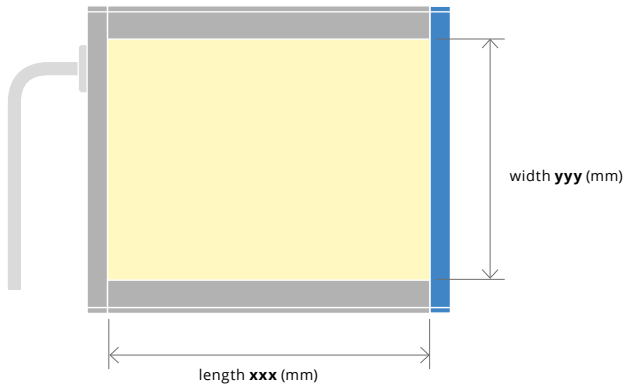
These backlights work in strobe mode only but they also feature a special continuous mode to be used for alignment/setting purpose (when used with LTDV1CH-17V controller).

Their robust and modular design featuring M8/M12 connectors and scratch resistant protective cover is conceived for demanding industrial automation environments and to provide you with a great choice of sizes, colors and aspect ratios for many diverse applications (from 4:3 to 16:9 and bar lights).

Furthermore, LTBP series can be easily installed into any machine vision system thanks to the lateral M6 threads and their slick design, suitable for environments with space constrains.

Lighting structure





Optical specifications

Available light colours	red, green, blue, white
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Electrical specifications

Power supply mode	strobe only, constant current driving	
Pulse width 1	(ms)	≤ 1
Estimated MTBF 2	(h)	> 50000

Mechanical specification

Materials	Black&Blue anodized Aluminum
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- 1 At 25°C. At max pulse width (1 ms), max pulse frequency = 15 Hz.
- 2 At 25°C.

Part number 1	Modules	Optical specifications			Electrical specifications				Connection type 2	Mechanical specifications			Clamping system
		Number of LEDs	Lighting area dim.		Driving Current / Peak power consumption					Dimensions			
			Length xxx (mm)	Width yyy (mm)	-R (red)	-G (green)	-B (blue)	-W (white)		Width (mm)	Height (mm)	Thickness (mm)	
LTBP 048 036-z	1 x 1	48	48	36	1.8 / 43.2	1.8 / 48.6	1.8 / 54.8	1.8 / 50.4	M8	60	56	26	4x M6 threaded holes
LTBP 096 036-z	2 x 1	96	96	36	3.6 / 86.4	3.6 / 97.2	3.6 / 109.4	3.6 / 100.8	M8	108	56	26	4x M6 threaded holes
LTBP 144 036-z	3 x 1	144	144	36	5.4 / 129.6	5.4 / 145.8	5.4 / 164.2	5.4 / 151.2	M8	156	56	26	4x M6 threaded holes
LTBP 192 036-z	4 x 1	192	192	36	7.2 / 172.8	7.2 / 194.4	7.2 / 218.9	7.2 / 201.6	M8	204	56	26	8x M6 threaded holes
LTBP 240 036-z	5 x 1	240	240	36	9 / 216.0	9 / 243.0	9 / 273.6	9 / 252.0	M8	252	56	26	8x M6 threaded holes
LTBP 288 036-z	6 x 1	288	288	36	10.8 / 259.2	10.8 / 291.6	10.8 / 328.3	10.8 / 302.4	M8	300	56	26	8x M6 threaded holes
LTBP 048 072-z	1 x 2	96	48	72	3.6 / 86.4	3.6 / 97.2	3.6 / 109.4	3.6 / 100.8	M8	60	92	26	4x M6 threaded holes
LTBP 096 072-z	2 x 2	192	96	72	7.2 / 172.8	7.2 / 194.4	7.2 / 218.8	7.2 / 201.6	M8	108	92	26	4x M6 threaded holes
LTBP 144 072-z	3 x 2	288	144	72	10.8 / 259.2	10.8 / 291.6	10.8 / 328.3	10.8 / 302.4	M8	156	92	26	4x M6 threaded holes
LTBP 192 072-z	4 x 2	384	192	72	14.4 / 345.6	14.4 / 388.8	14.4 / 437.8	14.4 / 403.2	M8	204	92	26	8x M6 threaded holes
LTBP 240 072-z	5 x 2	480	240	72	8.4 / 201.6	8.4 / 226.8	4.9 / 149.0	4.8 / 134.4	M8	252	92	26	8x M6 threaded holes
LTBP 288 072-z	6 x 2	576	288	72	10.1 / 242.2	10.1 / 272.7	5.8 / 176.3	5.8 / 162.4	M8	300	92	26	8x M6 threaded holes
LTBP 048 108-z	1 x 3	144	48	108	5.4 / 129.6	5.4 / 145.8	5.4 / 164.2	5.4 / 151.2	M8	60	128	26	4x M6 threaded holes
LTBP 096 108-z	2 x 3	288	96	108	10.8 / 259.2	10.8 / 291.6	10.8 / 328.3	10.8 / 302.4	M8	108	128	26	4x M6 threaded holes
LTBP 144 108-z	3 x 3	432	144	108	16.2 / 388.8	16.2 / 437.4	16.2 / 492.5	16.2 / 453.6	M8	156	128	26	4x M6 threaded holes
LTBP 192 108-z	4 x 3	576	192	108	10.1 / 242.2	10.1 / 272.7	5.8 / 176.3	5.8 / 162.4	M8	204	128	26	8x M6 threaded holes
LTBP 240 108-z	5 x 3	720	240	108	12.6 / 302.4	12.6 / 340.2	7.3 / 221.9	7.2 / 201.6	M8	252	128	26	8x M6 threaded holes
LTBP 288 108-z	6 x 3	864	288	108	15.1 / 362.4	15.1 / 407.7	8.7 / 264.5	8.6 / 240.8	M8	300	128	26	8x M6 threaded holes
LTBP 048 144-z	1 x 4	192	48	144	7.2 / 172.8	7.2 / 194.4	7.2 / 218.9	7.2 / 201.6	M8	60	164	26	4x M6 threaded holes
LTBP 096 144-z	2 x 4	384	96	144	14.4 / 345.6	14.4 / 388.8	14.4 / 437.8	14.4 / 403.2	M8	108	164	26	4x M6 threaded holes
LTBP 144 144-z	3 x 4	576	144	144	10.1 / 242.4	10.1 / 272.7	5.8 / 176.3	5.8 / 162.4	M8	156	164	26	4x M6 threaded holes
LTBP 192 144-z	4 x 4	768	192	144	13.4 / 321.6	13.4 / 361.8	7.8 / 237.1	7.7 / 215.6	M8	204	164	26	8x M6 threaded holes
LTBP 240 144-z	5 x 4	960	240	144	16.8 / 403.2	16.8 / 453.6	9.7 / 294.9	9.6 / 268.8	M8	252	164	26	8x M6 threaded holes
LTBP 288 144-z	6 x 4	1152	288	144	20.2 / 484.8	20.2 / 545.4	11.7 / 355.7	11.5 / 322.0	M8	300	164	26	8x M6 threaded holes
LTBP 048 180-z	1 x 5	240	48	180	9 / 216.0	9 / 243.0	9 / 273.6	9 / 252.0	M8	60	200	26	4x M6 threaded holes
LTBP 096 180-z	2 x 5	480	96	180	8.4 / 201.6	8.4 / 226.8	4.9 / 149.0	4.8 / 134.4	M8	108	200	26	4x M6 threaded holes
LTBP 144 180-z	3 x 5	720	144	180	12.6 / 302.4	12.6 / 340.2	7.3 / 221.9	7.2 / 201.6	M8	156	200	26	4x M6 threaded holes
LTBP 192 180-z	4 x 5	960	192	180	16.8 / 403.2	16.8 / 453.6	9.7 / 294.9	9.6 / 268.8	M8	204	200	26	8x M6 threaded holes
LTBP 240 180-z 3	5 x 5	1200	240	180	10.5 + 10.5 / 264.0	10.5 + 10.5 / 567.0	12.2 / 370.9	12 / 336.0	M12	252	200	26	8x M6 threaded holes
LTBP 288 180-z 3	6 x 5	1440	288	180	12.6 + 12.6 / 604.8	12.6 + 12.6 / 680.4	14.6 / 443.8	14.4 / 403.2	M12	300	200	26	8x M6 threaded holes
LTBP 048 216-z	1 x 6	288	48	216	10.8 / 259.2	10.8 / 291.6	10.8 / 328.3	10.8 / 302.4	M8	60	236	26	4x M6 threaded holes
LTBP 096 216-z	2 x 6	576	96	216	10.1 / 242.4	10.1 / 272.7	5.8 / 176.3	5.8 / 162.4	M8	108	236	26	4x M6 threaded holes
LTBP 144 216-z	3 x 6	864	144	216	15.1 / 362.4	15.1 / 407.7	8.7 / 264.5	8.6 / 240.8	M8	156	236	26	4x M6 threaded holes
LTBP 192 216-z	4 x 6	1152	192	216	20.2 / 484.8	20.2 / 545.4	11.7 / 355.7	11.5 / 322.0	M8	204	236	26	8x M6 threaded holes
LTBP 240 216-z 3	5 x 6	1440	240	216	12.6 + 12.6 / 604.8	12.6 + 12.6 / 680.4	14.6 / 443.8	14.4 / 403.2	M12	252	236	26	8x M6 threaded holes
LTBP 288 216-z 3	6 x 6	1728	288	216	15.1 + 15.1 / 724.8	15.1 + 15.1 / 812.7	17.5 / 532.0	17.3 / 484.4	M12	300	236	26	8x M6 threaded holes

- 1 The last digit of the part number (-z) refers to the color (R = red, G = green, B = blue, W = white).
- 2 5 m cable with straight female connector included. Optional cable with right angled connector is also available and must be ordered separately (refer to our website for further info and ordering codes).
- 3 Red and Green versions of these models feature 2 separate channels.

Ordering information

Our part numbers are coded as **LTBP xxx yyy - z**, where **xxx** defines the illumination area length (in mm), **yyy** defines the illumination area width (in mm) and **z** refers to the color (W = white, R = red, G = green, B = blue). For instance LTBP096-R is a diffusive strobed dome illuminator - medium size high power red.

LTBP series




High-power strobe LED backlights



LTBP096072-W



LTBP048036-G

FULL RANGE OF COMPATIBLE STROBE CONTROLLERS		
	LTDV series	p. 256
FULL RANGE OF COMPATIBLE TELECENTRIC LENSES		
	Telecentric lenses	p. 16-71
FULL RANGE OF FIXED FOCAL LENGTH LENSES		
	EN2MP series, EN5MP series, ENMP series, ENHR series	P. 108-111, 114

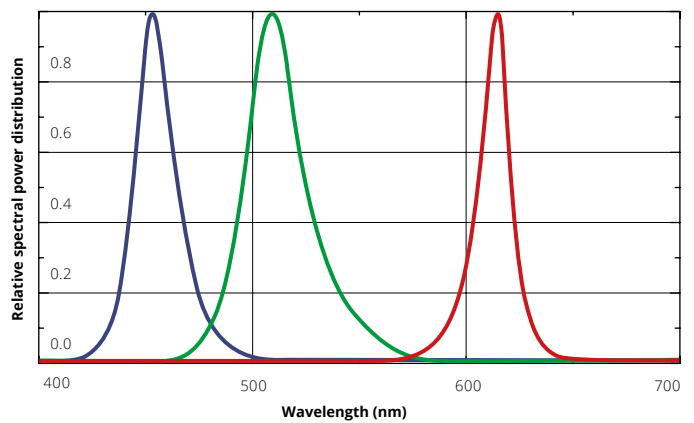
Light colour			-R (red)	-G (green)	-B (blue)	-W (white)
		LED Type				
Wavelength	(nm)	A	620	522	465	cool white, > 4500 K
		B	625	525	470	cool white, > 4500 K
Spectral FWHM	(nm)	A	20	30	20	cool white, > 4500 K
		B	20	30	25	cool white, > 4500 K
Min estimated illumination	(klux)	A ¹	70	150	30	200
		B ²	n.a.	n.a.	n.a.	n.a.

¹ At max driving current, on emitting surface.

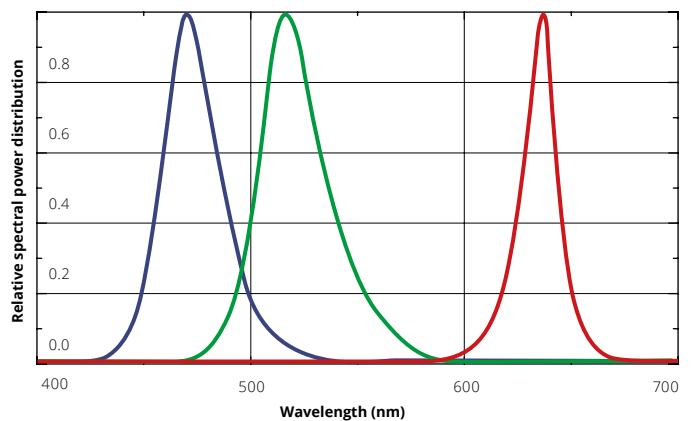
² Available upon request.

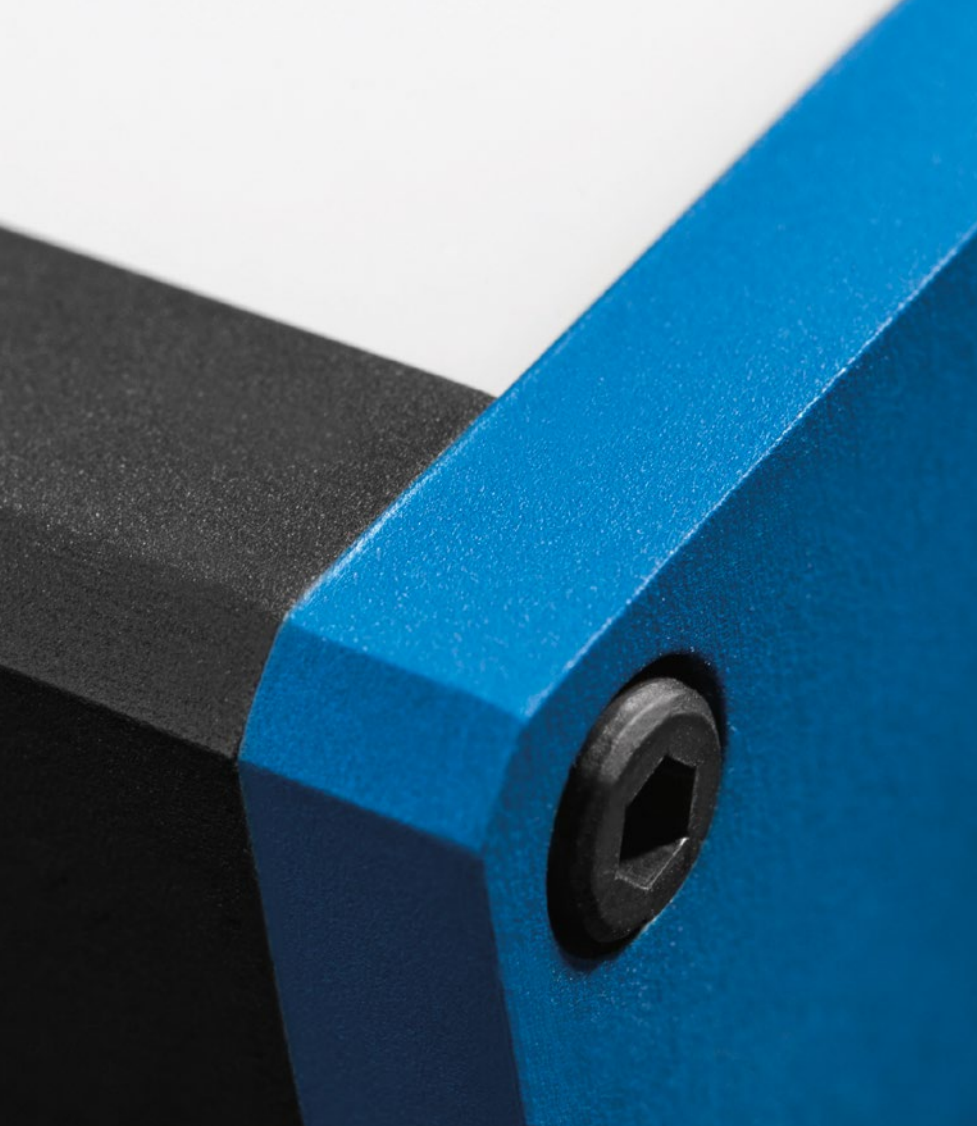
Part number	Module	LED type
LTBP 048036-z	1 x 1	A
LTBP 096036-z	2 x 1	A
LTBP 144036-z	3 x 1	A
LTBP 192036-z	4 x 1	A
LTBP 240036-z	5 x 1	A
LTBP 288036-z	6 x 1	A
LTBP 048072-z	1 x 2	A
LTBP 096072-z	2 x 2	A
LTBP 144072-z	3 x 2	A
LTBP 192072-z	4 x 2	A
LTBP 240072-z	5 x 2	B
LTBP 288072-z	6 x 2	B
LTBP 048108-z	1 x 3	A
LTBP 096108-z	2 x 3	A
LTBP 144108-z	3 x 3	A
LTBP192108-z	4 x 3	B
LTBP 240108-z	5 x 3	B
LTBP 288108-z	6 x 3	B
LTBP 048144-z	1 x 4	A
LTBP 096144-z	2 x 4	A
LTBP 144144-z	3 x 4	B
LTBP 192144-z	4 x 4	B
LTBP 240144-z	5 x 4	B
LTBP 288144-z	6 x 4	B
LTBP 048180-z	1 x 5	A
LTBP 096180-z	2 x 5	B
LTBP 144180-z	3 x 5	B
LTBP 192180-z	4 x 5	B
LTBP 240180-z	5 x 5	B
LTBP 288180-z	6 x 5	B
LTBP 048216-z	1 x 6	A
LTBP 096216-z	2 x 6	B
LTBP 144216-z	3 x 6	B
LTBP 192216-z	4 x 6	B
LTBP 240216-z	5 x 6	B
LTBP 288216-z	6 x 6	B

Typical emission spectrum of type A LEDs (R, G, B)

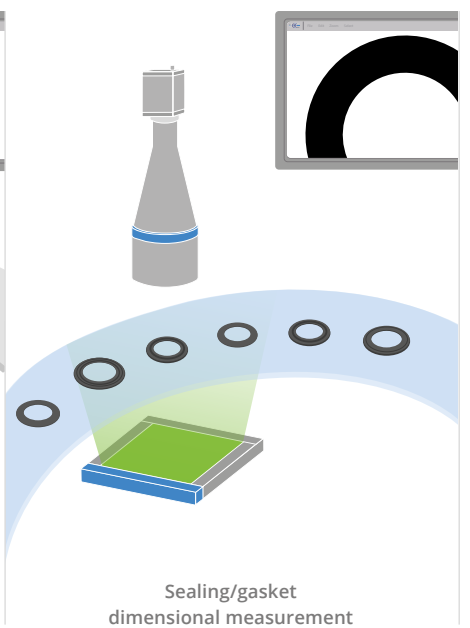
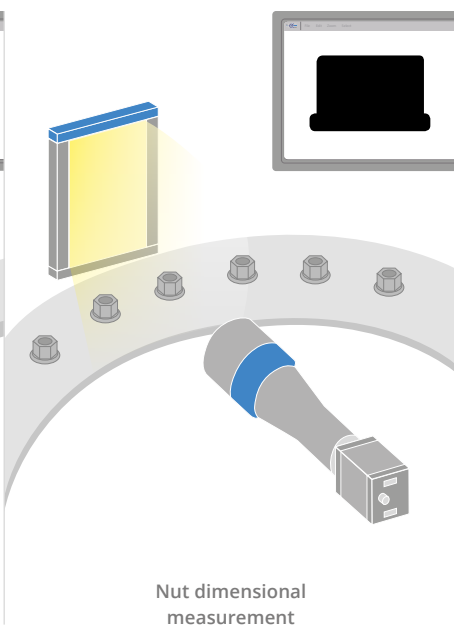
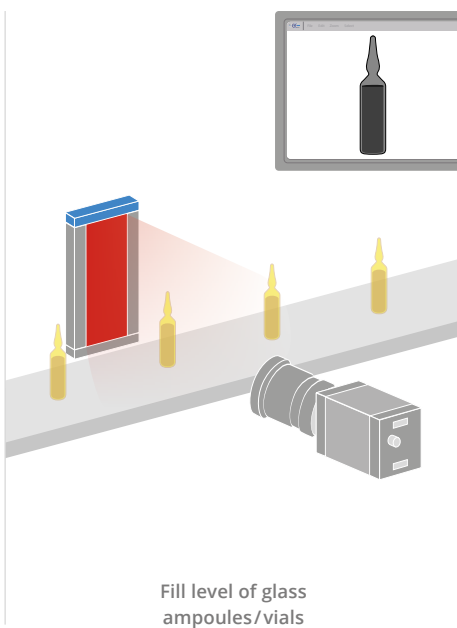


Typical emission spectrum of type B LEDs (R, G, B)





Application examples



LTBC series

Continuous LED backlights



KEY ADVANTAGES

Cost-effective homogeneous illumination

Densely packed LED arrays with matte diffuser eliminating hot spots and glare.

Robust industrial Design

M8 connector for easy connection to power supplies.

Easy integration

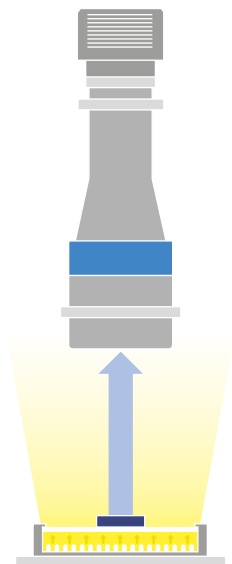
M6 nut channels for easy mounting.



LTBC series are LED backlights designed to be employed in a wide variety of applications such as shape and size inspection of workpieces.

These backlights are a cost-effective solution with no compromise on quality: they feature a robust design and provide diffuse even illumination without hotspots.

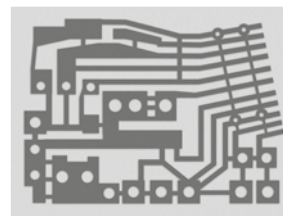
LTBC series backlights effectively emphasize the silhouette of a workpiece, providing excellent optical contrast in combination with many different lenses.

Lighting structure

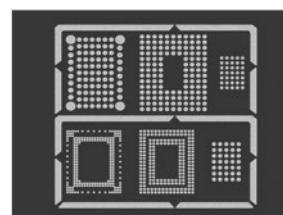


COMPATIBLE STROBE CONTROLLER	
	LTDV1CH-17V strobe controller p. 256
COMPATIBLE LIGHT INTENSITY CONTROLLER	
	LTICGR1000-D1-PS-xx light intensity controller p. 260

Application examples



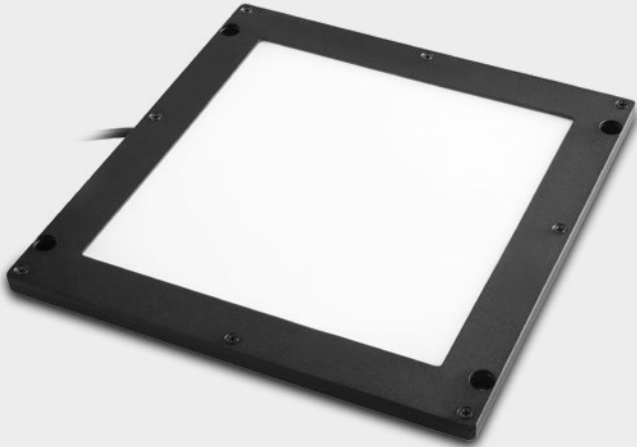
Shape inspection.



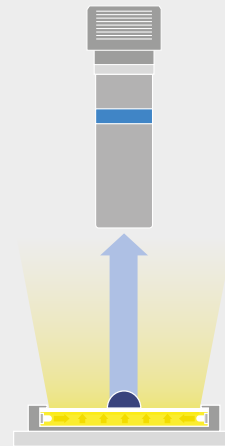
Detection of patterns/holes.

LTBFC series

Continuous flat side-emitting LED backlights



Lighting structure



LTBFC series consists of flat side-emitting LED backlights: two types are available either with four borders or with three borders and one side flush. Suggested use is continuous mode.

COMPATIBLE STROBE CONTROLLER



LTDV1CH-17V strobe controller

p. 256

COMPATIBLE LIGHT INTENSITY CONTROLLER



LTCIGR1000-D1-PS-xx light intensity controller

p. 260

Part number	Optical specifications				Electrical specifications					Dimensions		
	Light colour, wavelength peak	Lighting area		Sides type	Continuous mode			Pulsed mode		Length (mm)	Width (mm)	Height (mm)
		Width (mm)	Length (mm)		Supply voltage (V)	Current (mA)	Power cons. (W)	Supply voltage (V)	Max pulse current (mA)			
LTPVR070-00-1-W-24V	white, 6300 K	70	70	4 borders	24	120	2.9	36	360	98.5	98.5	5.30
LTPVR070-00-1-R-24V	red, 630 nm	70	70	4 borders	24	120	2.9	36	360	98.5	98.5	5.30
LTPVR070-00-1-G-24V	green, 525 nm	70	70	4 borders	24	120	2.9	36	360	98.5	98.5	5.30
LTPVR070-00-1-B-24V	blue, 470 nm	70	70	4 borders	24	120	2.9	36	360	98.5	98.5	5.30
LTPVR100-00-1-W-24V	white, 6300 K	100	100	4 borders	24	160	3.9	36	480	128.5	128.5	5.30
LTPVR100-00-1-R-24V	red, 630 nm	100	100	4 borders	24	180	4.4	36	540	128.5	128.5	5.30
LTPVR100-00-1-G-24V	green, 525 nm	100	100	4 borders	24	160	3.9	36	480	128.5	128.5	5.30
LTPVR100-00-1-B-24V	blue, 470 nm	100	100	4 borders	24	160	3.9	36	480	128.5	128.5	5.30
LTPVRG25X36-00-1-W-24V	white, 6300 K	25	36	3 borders and 1 edge to edge	24	20	0.5	36	60	38.5	43.5	5.30
LTPVRG25X36-00-1-R-24V	red, 630 nm	25	36	3 borders and 1 edge to edge	24	15	0.4	36	45	38.5	43.5	5.30
LTPVRG25X36-00-1-G-24V	green, 525 nm	25	36	3 borders and 1 edge to edge	24	20	0.5	36	60	38.5	43.5	5.30
LTPVRG25X36-00-1-B-24V	blue, 470 nm	25	36	3 borders and 1 edge to edge	24	20	0.5	36	60	38.5	43.5	5.30
LTPVRG31X58-00-1-W-24V	white, 6300 K	31	58	3 borders and 1 edge to edge	24	30	0.8	36	90	60	43.5	5.30
LTPVRG31X58-00-1-R-24V	red, 630 nm	31	58	3 borders and 1 edge to edge	24	30	0.8	36	90	60	43.5	5.30
LTPVRG31X58-00-1-G-24V	green, 525 nm	31	58	3 borders and 1 edge to edge	24	30	0.8	36	90	60	43.5	5.30
LTPVRG31X58-00-1-B-24V	blue, 470 nm	31	58	3 borders and 1 edge to edge	24	30	0.8	36	90	60	43.5	5.30
LTPVRG070-00-1-W-24V	white, 6300 K	70	70	3 borders and 1 edge to edge	24	90	2.2	36	270	98.5	84.5	4.30
LTPVRG070-00-1-R-24V	red, 630 nm	70	70	3 borders and 1 edge to edge	24	90	2.2	36	270	98.5	84.5	4.30
LTPVRG070-00-1-G-24V	green, 525 nm	70	70	3 borders and 1 edge to edge	24	90	2.2	36	270	98.5	84.5	4.30
LTPVRG070-00-1-B-24V	blue, 470 nm	70	70	3 borders and 1 edge to edge	24	90	2.2	36	270	98.5	84.5	4.30

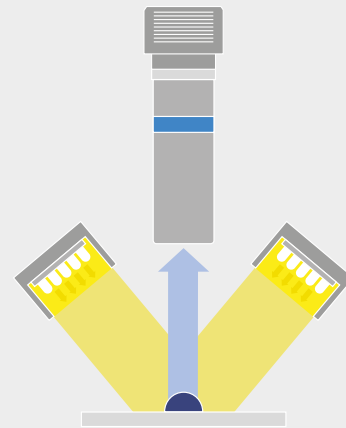
1 With constant driving voltage (36V recommended, 48V max). Duty cycle = 0-10 %. Max pulse width = 10 ms.

2 With constant driving current. Duty cycle = 0-10 %. Max pulse width = 10 ms.

LTBRDC series

Continuous LED bar lights

Lighting structure



LTBRDC series consists of LED bar lights that can be used in a wide variety of applications such as text reading on flat surfaces. They provide rectangular illumination on the workpiece and the installation angle can be set freely. Suggested use is continuous mode.

COMPATIBLE STROBE CONTROLLER



LTDV1CH-17V strobe controller

p. 256

COMPATIBLE LIGHT INTENSITY CONTROLLER



LTCGR1000-D1-PS-xx light intensity controller

p. 260

Part number	Optical specifications			Electrical specifications					Dimensions		
	Light colour, wavelength peak	Lighting area		Continuous mode			Pulsed mode		Length (mm)	Width (mm)	Height (mm)
		Width (mm)	Length (mm)	Supply voltage (V)	Current (mA)	Power cons. (W)	Supply voltage (V)	Max pulse current (mA)			
LTZPFL040-00-6-W-24V	white, 6300 K	26.3	40	24	72	1.8	36	216	52	31.5	22
LTZPFL040-00-6-R-24V	red, 630 nm	26.3	40	24	78	1.9	36	234	52	31.5	22
LTZPFL040-00-6-G-24V	green, 525 nm	26.3	40	24	72	1.8	36	216	52	31.5	22
LTZPFL040-00-6-B-24V	blue, 470 nm	26.3	40	24	72	1.8	36	216	52	31.5	22
LTZPFL080-00-6-W-24V	white, 6300 K	26.3	80	24	144	3.5	36	432	92	31.5	22
LTZPFL080-00-6-R-24V	red, 630 nm	26.3	80	24	156	3.8	36	468	92	31.5	22
LTZPFL080-00-6-G-24V	green, 525 nm	26.3	80	24	144	3.5	36	432	92	31.5	22
LTZPFL080-00-6-B-24V	blue, 470 nm	26.3	80	24	144	3.5	36	432	92	31.5	22
LTZPFL120-00-6-W-24V	white, 6300 K	26.3	120	24	216	5.2	36	648	132	31.5	22
LTZPFL120-00-6-R-24V	red, 630 nm	26.3	120	24	234	5.7	36	702	132	31.5	22
LTZPFL120-00-6-G-24V	green, 525 nm	26.3	120	24	216	5.2	36	648	132	31.5	22
LTZPFL120-00-6-B-24V	blue, 470 nm	26.3	120	24	216	5.2	36	648	132	31.5	22
LTZPFL160-00-6-W-24V	white, 6300 K	26.3	160	24	288	7	36	864	172	31.5	22
LTZPFL160-00-6-R-24V	red, 630 nm	26.3	160	24	312	7.5	36	936	172	31.5	22
LTZPFL160-00-6-G-24V	green, 525 nm	26.3	160	24	288	7	36	864	172	31.5	22
LTZPFL160-00-6-B-24V	blue, 470 nm	26.3	160	24	288	7	36	864	172	31.5	22
LTZPFL200-00-6-W-24V	white, 6300 K	26.3	200	24	360	8.7	36	1080	212	31.5	22
LTZPFL200-00-6-R-24V	red, 630 nm	26.3	200	24	390	9.4	36	1170	212	31.5	22
LTZPFL200-00-6-G-24V	green, 525 nm	26.3	200	24	360	8.7	36	1080	212	31.5	22
LTZPFL200-00-6-B-24V	blue, 470 nm	26.3	200	24	360	8.7	36	1080	212	31.5	22

1 With constant driving voltage (36V recommended, 48V max). Duty cycle = 0-10 %. Max pulse width = 10 ms.

2 With constant driving current. Duty cycle = 0-10 %. Max pulse width = 10 ms.

LTLNC series

Continuous LED line lights



KEY ADVANTAGES

Ultra high power.

Color matched white models.

Condenser lens for a perfectly focused beam of light.

Rugged industrial design with built in industrial connector for easy integration into any machine vision system.

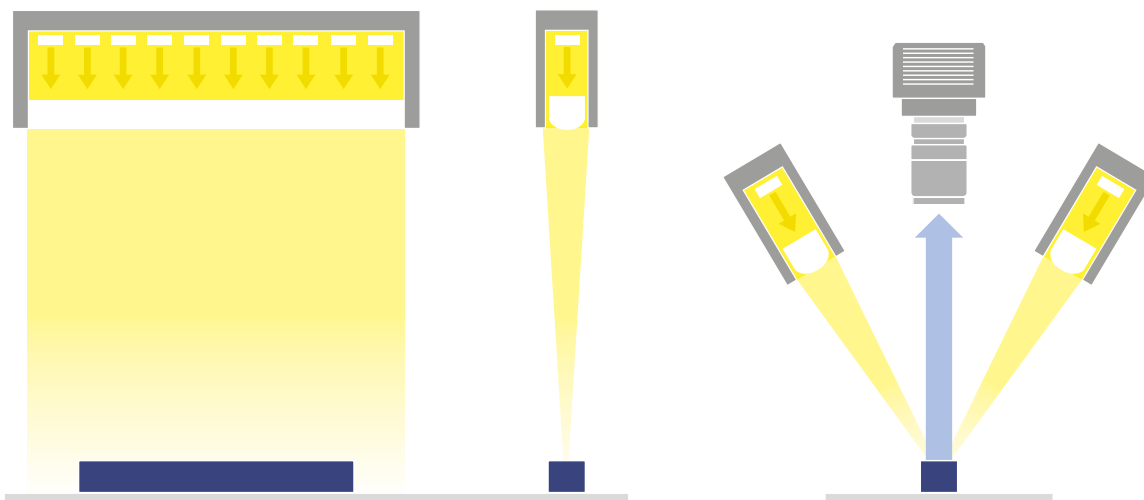
Forced air cooling option.

LTLNC series are ultra-high power LED line illuminators designed for linescan applications. Their special design provides both a powerful and homogeneous beam of light that is sharply focused onto the object that must be inspected, by means of a condenser lens.



LTLNC series can efficiently dissipate the generated heat thanks to the fins machined in the aluminum housing and the air cooling ports designed to inject compressed air into the illuminator.

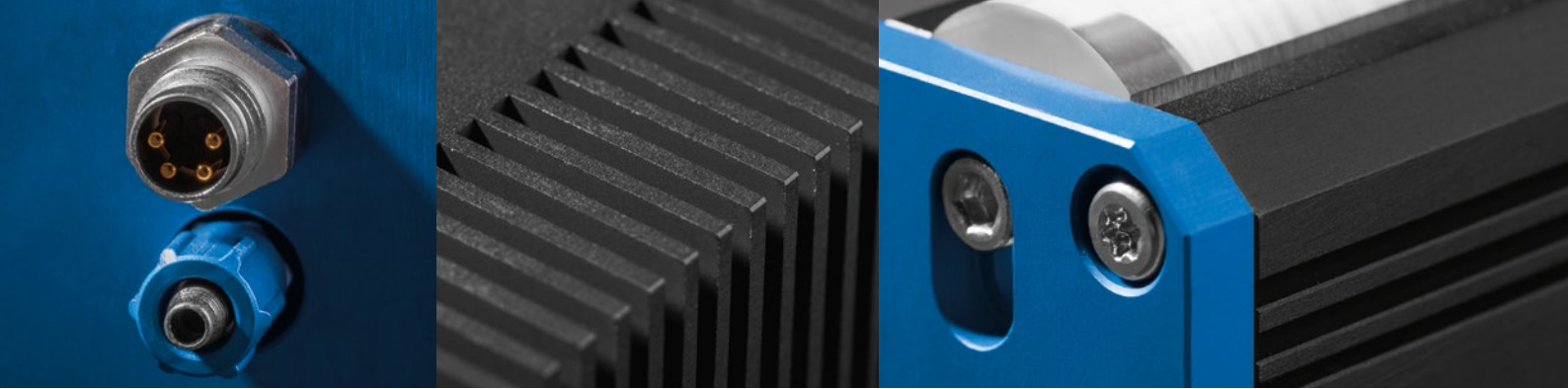
Furthermore LTLNC series features industrial M8 connectors and can be easily installed into any machine vision system thanks to the four M3 threads in the rear part of the aluminum housing.

Lighting structure

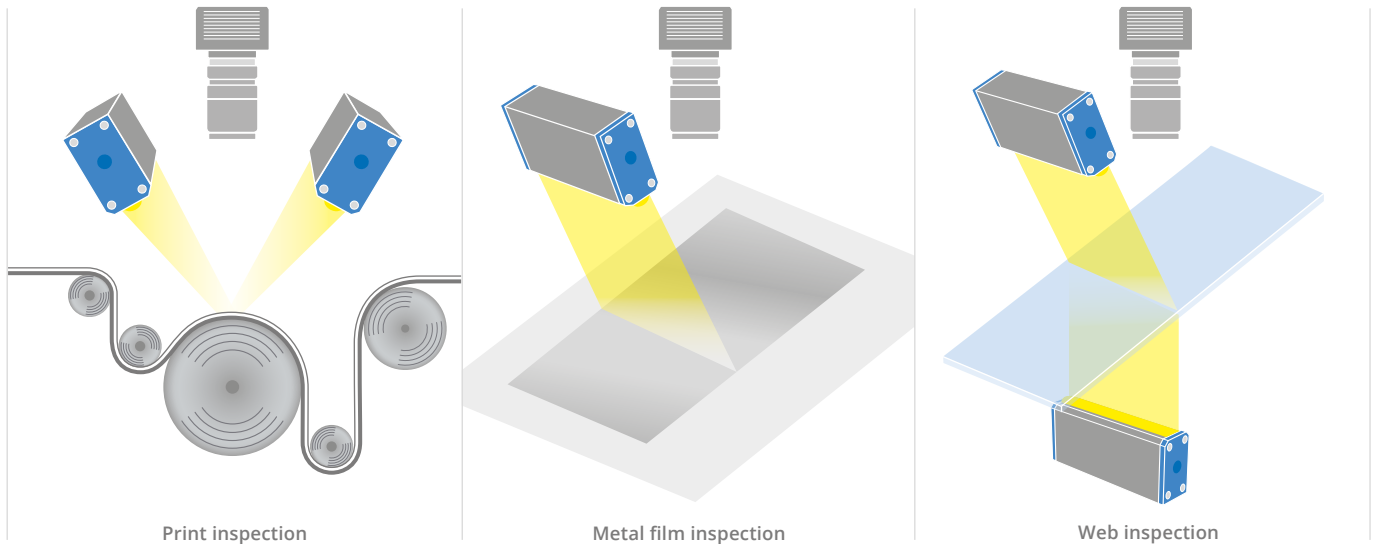


SEE ALSO FULL RANGE OF LINESCAN LENSES

	MC4K, MC12K series	p. 102-105
	TC4K, TC12K series	p. 68-71



Application examples



Part number		LTLNC100-W	LTLNC150-W	LTLNC200-W	LTLNC300-W
Optical specifications					
Number of LEDs		21	28	28	42
Light color		white, 6500 K	white, 6500 K	white, 6500 K	white, 6500 K
Spectral FWHM	(nm)	n.a.	n.a.	n.a.	n.a.
Illumination area	(mm)	100 x 15	150 x 15	200 x 15	300 x 15
Suggested working distance WD	(mm)	20 - 100	20 - 100	20 - 100	20 - 100
Electrical specifications					
Continuous mode					
Supply voltage	(V)	24 ± 2%	24 ± 2%	24 ± 2%	24 ± 2%
Continuous driving current, max	(mA)	1050	1400	1800	2700
Power consumption	(W)	25	32	43	65
Pulsed mode ¹					
Max pulse current	(mA)	4350	5800	8400	8750
Voltage	(V)	39.6	39.6	43.3	36.6
Peak power	(W)	172.3	229.7	366.8	320.3
Connection type ²		M8 industrial male connector			
Estimated MTBF ³	(hours)	>20000	>20000	>20000	>20000
Mechanical specifications					
Length	(mm)	150	200	250	350
Width	(mm)	32	32	32	32
Height	(mm)	60	60	60	60
Material		black anodized aluminum body			
Cooling method		compressed air cooling or passive (attached to machine frame for better heat dissipation)			
Clamping system		4 threaded holes for M3 screw			
Compatibility					
Lenses		TC4K060-x TC4K090-x TC4K120-x, TC4K180-x TC12K064, TC12K080, TC12K120, TC12K144, TC12K192, TC12K240, MC4K series, MC12K200X-x, MC12K150X-x, MC12K100X-x, MC12K067X-x, MC12K050X-x, MC12K025X-x			
Cable		CBLT003, CBLT004			

¹ T_{on} max = 100 ms, Duty cycle ≤ 10%.

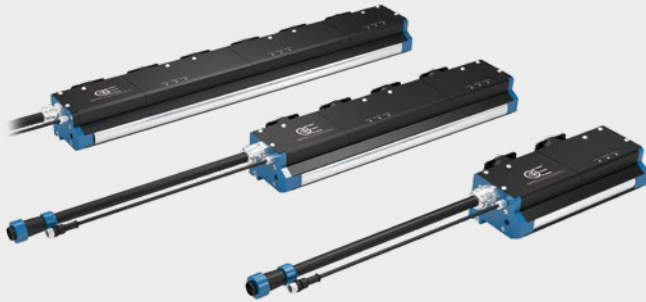
² 5 m cable with straight female connector included. Optional cable with right angled connector is also available and must be ordered separately (refer to our website for further info and ordering codes).

³ Drop to 50% intensity @ 25°C.

LTLNM series

Flicker free high power focused modular LED line lights

NEW



KEY ADVANTAGES

Emitting surface up 2 meters in 200 mm increments.

Flicker free for linescan applications.

3 types of projection lenses

Near field focusing (N), far field focusing (F), collimated (C).

Homogeneous beam for uniform illumination.

**Built-in controller / 24Vdc power supply.
Dimmable (external 0-10V analogue signal).
Enable signal.**

**Fault output (for overtemperature detection).
Auto shutdown in case of overheating.**

Optional diffusive sheet (D) for superior illumination uniformity.

**White color (other colors upon request)
3 Amps / 72 W per module.**

LTLNM series are high power LED line illuminators designed for linescan applications. These lights are flicker-free and meet the needs of demanding applications with reduced exposure times (tens of μs) ensuring very constant illumination and repeatable acquisition. Their modular design provides size flexibility without any compromise in terms of light uniformity.

LTLNM are available with an emitting surface up 2 meters in 200 mm increments (custom sizes and colors can be requested).

LTLNM 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) working at a distance between 10 and 200 mm.

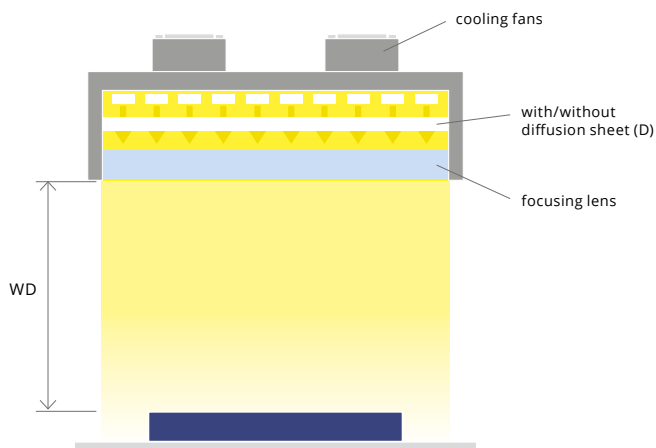
An optional diffusive sheet (D) can be integrated in any model to obtain the best illumination uniformity.

These lights feature 24V supply voltage and can be easily dimmed through an analogue signal.

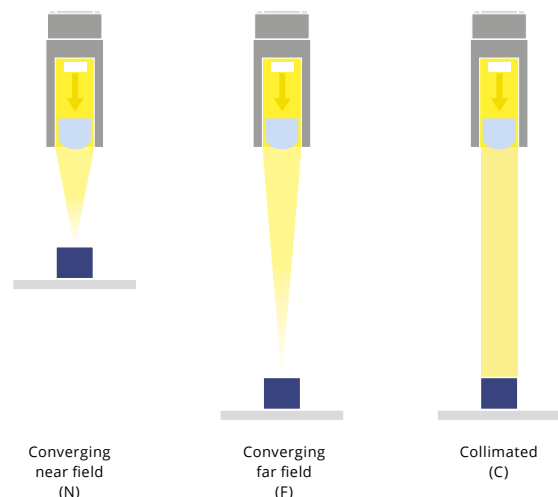
LTLNM series can efficiently dissipate the generated heat thanks an efficient forced-air cooling system (fans). The on-board electronics constantly monitor the LED temperature and drives the fans only if needed, in order to minimize noise and increase fan life.

These line lights are perfect for applications that require high speed image processing such as fabrics and web inspection.

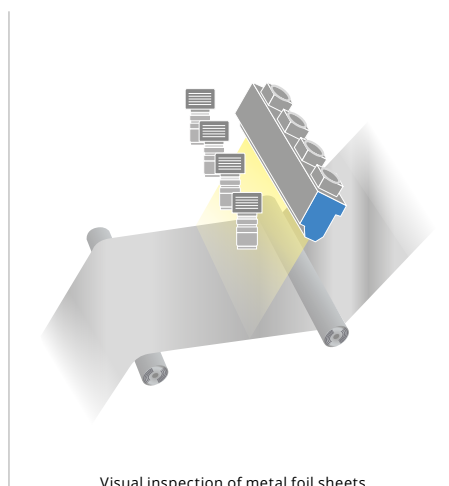
Lighting structure



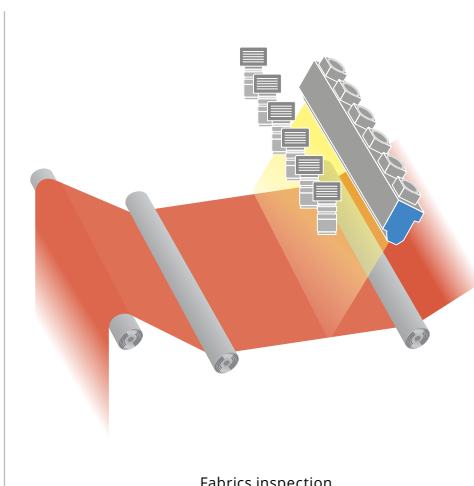
Projection lenses and focusing distances



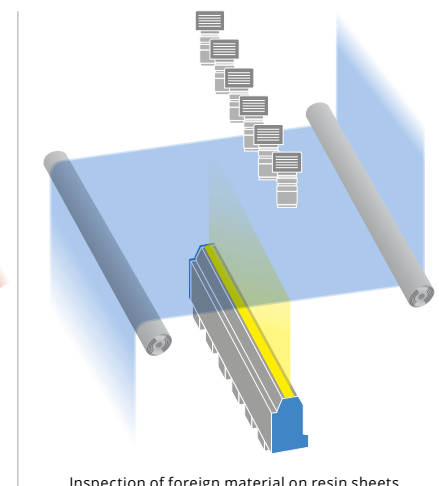
Application examples



Visual inspection of metal foil sheets.



Fabrics inspection.



Inspection of foreign material on resin sheets.

Part number	Modules	Optical specifications				Electrical specifications				Mechanical specifications				Compatibility		
		Emitting length aaaa (mm)	Projection lens and suggested WD b (mm)	Diffuser c	Light color d	Supply voltage (V)	Current consumption (A)	Power consumption (W)	Connection type 1	Length (mm)	Width (mm)	Height (mm)	Cooling method	Clamping system	Light intensity controllers	Lenses
LTLNM-0200-b-c-FC-W	1	200			White	24V ± 2%	3	72	2 pigtaills terminated with industrial connectors 1	250	80	130	fan (FC)			
LTLNM-0400-b-c-FC-W	2	400			White	24V ± 2%	6	144	2 pigtaills terminated with industrial connectors 1	450	80	130	fan (FC)			
LTLNM-0600-b-c-FC-W	3	600			White	24V ± 2%	9	216	2 pigtaills terminated with industrial connectors 1	650	80	130	fan (FC)			
LTLNM-800-b-c-FC-W	4	800			White	24V ± 2%	12	288	2 pigtaills terminated with industrial connectors 1	850	80	130	fan (FC)			
LTLNM-1000-b-c-FC-W	5	1000	N = near field focusing (10- 100 mm), F = far field focusing (100- 200 mm), C = collimated (10 - 200 mm)	c = D, with diffuser, c = empty, no diffuser	White	24V ± 2%	15	360	2 pigtaills terminated with industrial connectors 1	1050	80	130	fan (FC)	4 threaded holes for M10 screw	embedded	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
LTLNM-1200-b-c-FC-W	6	1200			White	24V ± 2%	18	432	2 pigtaills terminated with industrial connectors 1	1250	80	130	fan (FC)			
LTLNM-1400-b-c-FC-W	7	1400			White	24V ± 2%	21	504	3 pigtaills terminated with industrial connectors 2	1450	80	130	fan (FC)			
LTLNM-1600-b-c-FC-W	8	1600			White	24V ± 2%	24	576	3 pigtaills terminated with industrial connectors 2	1650	80	130	fan (FC)			
LTLNM-1800-b-c-FC-W	9	1800			White	24V ± 2%	27	648	3 pigtaills terminated with industrial connectors 2	1850	80	130	fan (FC)			
LTLNM-2000-b-c-FC-W	10	2000			White	24V ± 2%	30	720	3 pigtaills terminated with industrial connectors 2	2050	80	130	fan (FC)			

1 1 pigtail terminated with industrial circular male connector for power supply,
1 pigtail terminated with industrial circular male connector for i/o signals.

2 2 pigtaills terminated with industrial circular male connector for power supply,
1 pigtail terminated with industrial circular male connector for i/o signals.

Ordering information

Our part numbers are coded as **LTLNM-aaaa-b-c-FC-d** where:

- **aaaa** defines the illumination active area length (in mm)

- **b** defines the focusing distance, N = near field focusing, F = far field focusing, C = collimated

- **c** defines the presence of a diffusing sheet. Leave empty if no diffuser is required or D = with diffuser mounted in front of the LEDs

- **d** defines the color -W = White.

LTLNE series

High power enhanced LED line lights

NEW



KEY ADVANTAGES

High density LEDs.

3 types of projection lenses

Near field focusing (N), far field focusing (F), collimated (C).

3 opto-mechanical configurations

Lens only, coaxial illumination (CX) or with 45° mirror (MR).

2 cooling methods and power intensities

Passive or active with fans.

Optional diffusive sheet (D) for illumination uniformity

Hot spots reduction when inspecting highly reflective surfaces.

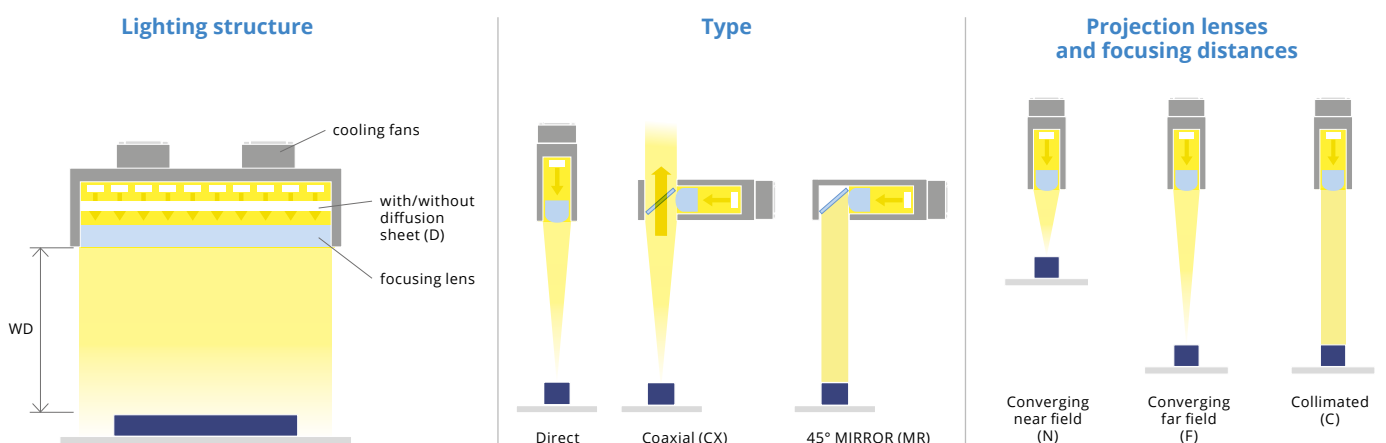
LTLNE series are high power LED line illuminators designed for linescan applications. LTLNE series are available in three opto-mechanical versions: basic configuration with condensing lens, as coaxial line lights (CX) or integrating a 45° mirror (MR).

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.

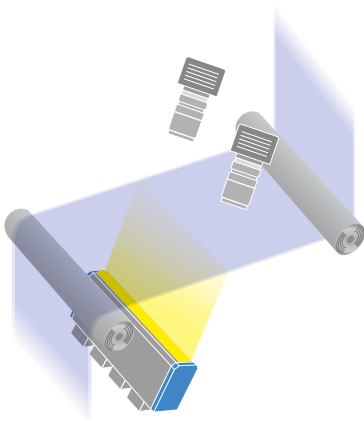
These LED line lights are available with an emitting surface of 300mm (custom sizes and colors can be requested) and feature 24V supply voltage.

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

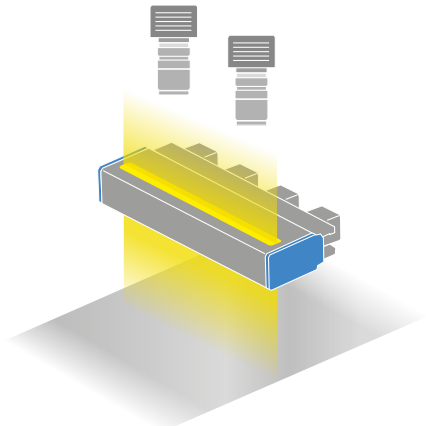
Furthermore LTLNE series features industrial threaded connectors and can be easily installed into any machine vision system thanks to the threaded holes conveniently located on the aluminum housing. These line lights are perfect for applications that require high speed image processing such as transparent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



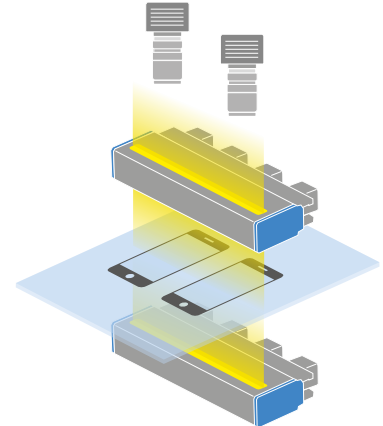
Application examples



Detection of scratches on transparent films.



Detection of dents on metal sheets.



Mobile phone screen inspection with coaxial line light and line light with 45° mirror used as a backlight.

	Optical specifications					Electrical specifications				Mechanical specifications					Compatibility	
	Type	Emitting length	Light color	Projection lens and suggested WD	Diffuser	Supply voltage	Nominal driving current	Power consumption at nominal driving current ¹	Connection type	Length	Width	Height	Cooling method	Clamping system	Light intensity controllers	Lenses
	bb	aaa (mm)	f	c (mm)	d	(V)	(mA)	(W)		(mm)	(mm)	(mm)	ee			
LTLNE-300-N-PC-W					no		2000	50			110		passive			
LTLNE-300-N-FC-W							4000	100		340	150	40	fan		LTIC1CH-A1-4	
LTLNE-300-N-D-PC-W	direct	300	White	10 - 100 near field focusing		24V ± 2%	2000	50			110		passive			
LTLNE-300-N-D-FC-W					yes		4000	100			150		fan			
LTLNE-300-F-PC-W					no		2000	50			110		passive			
LTLNE-300-F-FC-W							4000	100		340	150	40	fan		LTIC1CH-A1-4	
LTLNE-300-F-D-PC-W	direct	300	White	100 - 200 far field focusing		24V ± 2%	2000	50	20 cm pigtail terminated with industrial circular male connector		110		passive	8 threaded holes for M4 screw		
LTLNE-300-F-D-FC-W					yes		4000	100			150		fan			
LTLNE-300-C-PC-W					no		2000	50			110		passive			
LTLNE-300-C-FC-W							4000	100		340	150	40	fan		LTIC1CH-A1-4	
LTLNE-300-C-D-PC-W	direct	300	White	10 - 200 collimated		24V ± 2%	2000	50			110		passive			
LTLNE-300-C-D-FC-W					yes		4000	100			150		fan			
LTLNE-300-CX-N-PC-W					no		2000	50			150		passive			
LTLNE-300-CX-N-FC-W							4000	100		340	190	54	fan		LTIC1CH-A1-4	TC4K060-x TC4K090-x TC4K120-x TC4K180-x TC12K054- TC12K080- TC12K120- TC12K144- TC12K144- TC12K192- TC12K240- MC4K series, MC12K200X-x, MC12K150X-x, MC12K100X-x, MC12K067X-x, MC12K050X-x, MC12K025X-x
LTLNE-300-CX-N-D-PC-W	coaxial	300	White	10 - 100 near field focusing		24V ± 2%	2000	50			150		passive			
LTLNE-300-CX-N-D-FC-W					yes		4000	100			190		fan			
LTLNE-300-CX-F-PC-W					no		2000	50			150		passive			
LTLNE-300-CX-F-FC-W							4000	100		340	190	54	fan		LTIC1CH-A1-4	
LTLNE-300-CX-F-D-PC-W	coaxial	300	White	100 - 200 far field focusing		24V ± 2%	2000	50	20 cm pigtail terminated with industrial circular male connector		150		passive	8 threaded holes for M4 screw		
LTLNE-300-CX-F-D-FC-W					yes		4000	100			190		fan			
LTLNE-300-CX-C-PC-W					no		2000	50			150		passive			
LTLNE-300-CX-C-FC-W							4000	100		340	190	54	fan		LTIC1CH-A1-4	
LTLNE-300-CX-C-D-PC-W	coaxial	300	White	10 - 200 collimated		24V ± 2%	2000	50			150		passive			
LTLNE-300-CX-C-D-FC-W					yes		4000	100			190		fan			
LTLNE-300-MR-N-PC-W					no		2000	50			150		passive			
LTLNE-300-MR-N-FC-W							4000	100		340	190	54	fan		LTIC1CH-A1-4	
LTLNE-300-MR-N-D-PC-W	with 45° mirror	300	White	10 - 100 near field focusing		24V ± 2%	2000	50			150		passive			
LTLNE-300-MR-N-D-FC-W					yes		4000	100			190		fan			
LTLNE-300-MR-F-PC-W					no		2000	50			150		passive			
LTLNE-300-MR-F-FC-W							4000	100		340	190	54	fan		LTIC1CH-A1-4	
LTLNE-300-MR-F-D-PC-W	with 45° mirror	300	White	100 - 200 far field focusing		24V ± 2%	2000	50	20 cm pigtail terminated with industrial circular male connector		150		passive	8 threaded holes for M4 screw		
LTLNE-300-MR-F-D-FC-W					yes		4000	100			190		fan			
LTLNE-300-MR-C-PC-W					no		2000	50			150		passive			
LTLNE-300-MR-C-FC-W							4000	100		340	190	54	fan		LTIC1CH-A1-4	
LTLNE-300-MR-C-D-PC-W	with 45° mirror	300	White	10 - 200 collimated		24V ± 2%	2000	50			150		passive			
LTLNE-300-MR-C-D-FC-W					yes		4000	100			190		fan			

1 Models with fan cooling are capable of more power. Ask technical support for details.
Other colours are available on request.

Ordering information

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

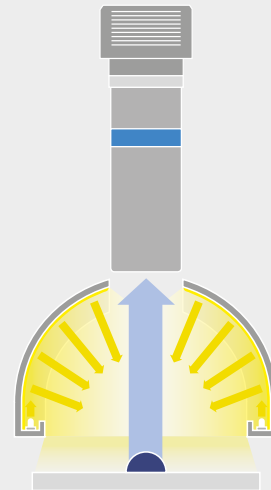
- **aaa** defines the illumination active area length (in mm)
- **bb** defines the presence of a beam splitter or a mirror. Leave empty for direct illumination (lens only) - CX = coaxial illumination (50T-50R Beam splitter), -MR = 90° mirror
- **c** defines the focusing distance, N = near field focusing, 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 color -W = White.

LTTNC series




Continuous LED tunnel lights



Lighting structure



LTTNC series consists of LED tunnel lights designed to provide even illumination on long cylindrical surfaces or shafts. Suggested use is continuous mode.

COMPATIBLE STROBE CONTROLLER		
	LTDV1CH-17V strobe controller	p. 256
COMPATIBLE LIGHT INTENSITY CONTROLLER		
	LTCGR1000-D1-PS-xx light intensity controller	p. 260
FULL RANGE OF FIXED FOCAL LENGTH LENSES		
	EN2MP series, EN5MP series, ENMP series, ENHR series	p. 108-111, 114

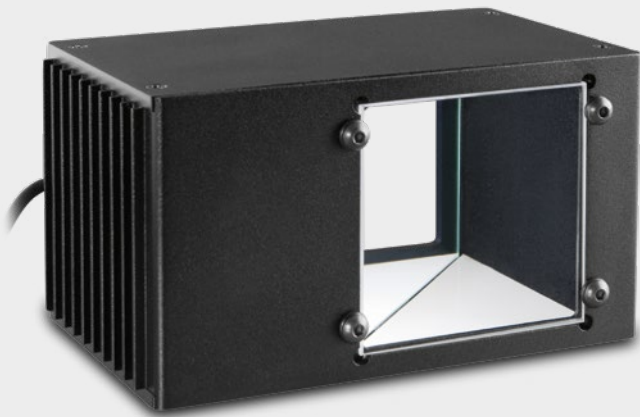
Part number	Optical specifications				Electrical specifications					Dimensions		
	Light colour, wavelength peak	Optimal WD (mm)	Lighting area		Continuous mode			Pulsed mode		Width x length (mm)	Aperture (mm)	Height (mm)
			inner diam. (mm)	Width (mm)	Supply voltage (V)	Current (mA)	Power cons. (W)	Supply voltage (V)	Max pulse current (mA)			
LT3WRH150-00-1-W-24V	white, 6300 K	40 - 60	74	147	24	400	9.6	36	1200	177.6 x 163	25	106.5
LT3WRH150-00-1-R-24V	red, 630 nm	40 - 60	74	147	24	450	10.8	36	1350	177.6 x 163	25	106.5
LT3WRH150-00-1-G-24V	green, 525 nm	40 - 60	74	147	24	400	9.6	36	1200	177.6 x 163	25	106.5
LT3WRH150-00-1-B-24V	blue, 470 nm	40 - 60	74	147	24	400	9.6	36	1200	177.6 x 163	25	106.5
LT3WRH200-00-1-W-24V	white, 6300 K	40 - 60	124	147	24	400	9.6	36	1200	227 x 163	25	131.5
LT3WRH200-00-1-R-24V	red, 630 nm	40 - 60	124	147	24	450	10.8	36	1350	227 x 163	25	131.5
LT3WRH200-00-1-G-24V	green, 525 nm	40 - 60	124	147	24	400	9.6	36	1200	227 x 163	25	131.5
LT3WRH200-00-1-B-24V	blue, 470 nm	40 - 60	124	147	24	400	9.6	36	1200	227 x 163	25	131.5

1 With constant driving voltage (36V recommended, 48V max). Duty cycle = 0-10 %. Max pulse width = 10 ms.

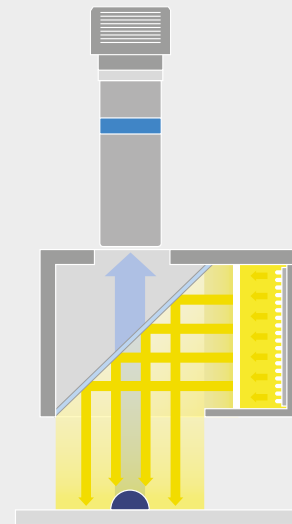
2 With constant driving current. Duty cycle = 0-10 %. Max pulse width = 10 ms.

LTCXC series

Continuous LED coaxial lights



Lighting structure



LTCXC series consists of LED coaxial lights that provide coaxial illumination ideal for inspection of scratches/dents on glossy surfaces or pattern inspection on PCB to be used in combination with telecentric lenses.

Light is reflected by a 45° beam splitter so that it is projected on the same axis as the camera. Suggested use is continuous mode.

COMPATIBLE STROBE CONTROLLER



LTDV1CH-17V strobe controller

p. 256

COMPATIBLE LIGHT INTENSITY CONTROLLER



LTICGR1000-D1-PS-xx light intensity controller

p. 260

Part number	Optical specifications			Electrical specifications					Dimensions		
	Light colour, wavelength peak	Lighting area		Supply voltage (V)	Current (mA)	Power cons. (W)	Pulsed mode		Length (mm)	Width (mm)	Height (mm)
		Width (mm)	Length (mm)				Supply voltage (V)	Max pulse current (mA)			
LT2QOG025-00-X-W-24V	white, 6300 K	27	27	24	160	3.9	36	480	54	33	33
LT2QOG025-00-X-R-24V	red, 630 nm	27	27	24	150	3.6	36	450	54	33	33
LT2QOG025-00-X-G-24V	green, 525 nm	27	27	24	160	3.9	36	480	54	33	33
LT2QOG025-00-X-B-24V	blue, 470 nm	27	27	24	160	3.9	36	480	54	33	33
LT2QOG040-00-X-W-24V	white, 6300 K	48	48	24	350	8.4	36	1050	107.5	60	66
LT2QOG040-00-X-R-24V	red, 630 nm	48	48	24	146	3.5	36	438	107.5	60	66
LT2QOG040-00-X-G-24V	green, 525 nm	48	48	24	350	8.4	36	1050	107.5	60	66
LT2QOG040-00-X-B-24V	blue, 470 nm	48	48	24	350	8.4	36	1050	107.5	60	66
LT2QOG070-00-X-W-24V	white, 6300 K	70	70	24	560	13.5	36	1680	139.6	89	95
LT2QOG070-00-X-R-24V	red, 630 nm	70	70	24	525	12.6	36	1575	139.6	89	95
LT2QOG070-00-X-G-24V	green, 525 nm	70	70	24	560	13.5	36	1680	139.6	89	95
LT2QOG070-00-X-B-24V	blue, 470 nm	70	70	24	560	13.5	36	1680	139.6	89	95
LT2QOG100-00-X-W-24V	white, 6300 K	100	100	24	781	18.8	36	2000	166.5	120	123.8
LT2QOG100-00-X-R-24V	red, 630 nm	100	100	24	450	10.8	36	1350	166.5	120	123.8
LT2QOG100-00-X-G-24V	green, 525 nm	100	100	24	781	18.8	36	2000	166.5	120	123.8
LT2QOG100-00-X-B-24V	blue, 470 nm	100	100	24	781	18.8	36	2000	166.5	120	123.8

1 With constant driving voltage (36V recommended, 48V max). Duty cycle = 0-10 %. Max pulse width = 10 ms.

2 With constant driving current. Duty cycle = 0-10 %. Max pulse width = 10 ms.