

LTCLHP series

Telecentric high-performance 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 ratio.

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.

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 diffuse back lighting would offer poor performance due to reflections off the edges of the object under inspection.

FEATURES

- Excellent **illumination stability** with no light flickering 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®.

Part number (*)	Beam diameter (mm)	Available colours				Optical specs Working distance range (mm)	Mechanical specs		Compatibility
		R	G	B	W		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, TC4MHR016-x, TC2MHR016-x, TCLWD series
LTCLHP 024-x	30	x	x	x	x	45 ~ 90	124.7	44	TCxx024, TCxMHR024-x, TC16M009-x, TC16M012-x, TC16M018-x
LTCLHP 036-x	45	x	x	x	x	70 ~ 140	152.1	61	TCxx036, TCxMHR036-x, TC16M036-x
LTCLHP 048-x	60	x	x	x	x	90 ~ 180	187.2	75	TCxx048, TCxMHR048-x, TC16M048-x
LTCLHP 056-x	70	x	x	x	x	100 ~ 200	210.5	80	TCxx056, TCxMHR056-x, TC16M056-x
LTCLHP 064-x	80	x	x	x	x	120 ~ 240	231.6	100	TCxx064, TCxMHR064-x, TC16M064-x, TC12K064
LTCLHP 080-x	100	x	x	x	x	150 ~ 300	277.2	116	TC23072, TCxx080, TCxMHR080-x, TC16M080-x, TC12K080
LTCLHP 096-x	120	x	x	x	x	200 ~ 350	322.2	143	TC23085, TCxx096, TCxMHR096-x, TC16M096-x
LTCLHP 120-x	150	x	x	x	x	220 ~ 440	408.2	180	TC23110, TCxx120, TCxMHR120-x, TC16M120-x, TC12K120
LTCLHP 144-x	180	x	x	x	x	270 ~ 540	467.2	200	TC23130, TCxx144, TCxMHR144-x, TC16M144-x, TC12K144
LTCLHP 192-x	250	x	x	x	x	350 ~ 700	608.2	260	TC23172, TCxx192, TCxMHR192-x, TC12K192
LTCLHP 240-x	300	x	x	x	x	350 ~ 700	769.2	322	TC23200, TC23240, TCxMHR240-x

(*) 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.



Precise light intensity tuning

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



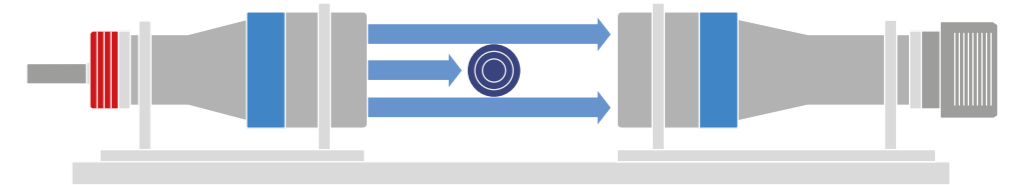
Direct LED control

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.

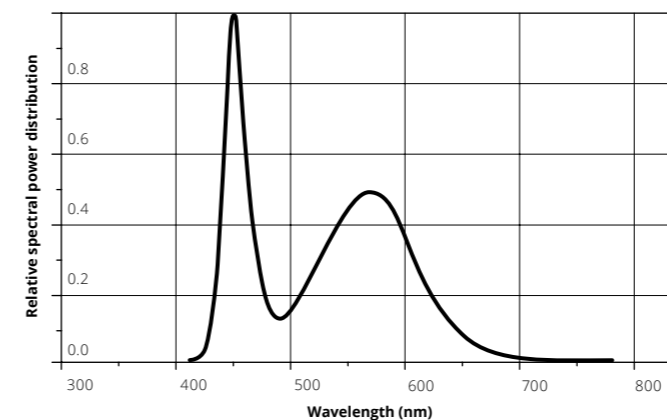


Easy and precise alignment with bi-telecentric lenses

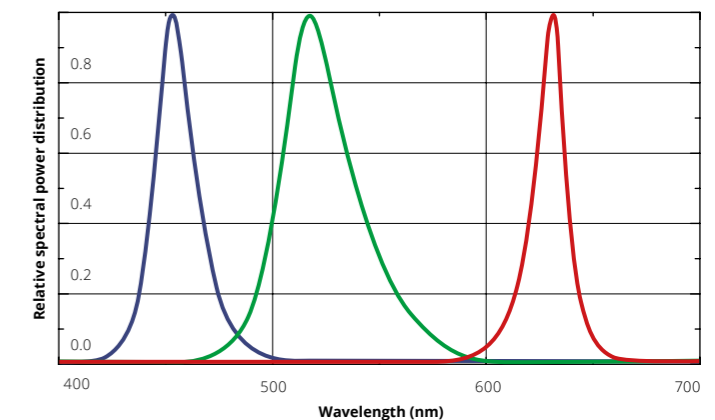
Create the perfect optical bench for precision measurement applications by interfacing our bi-telecentric lenses and LTCLHP collimated illuminators using Opto Engineering® precision clamping mechanics CMHO series.



Typical emission spectrum of white LEDs



Typical emission spectrum of R,G,B LEDs



Wide selection of different colors

Part number	Light color, wavelength peak	DC voltage		Device power ratings		LED power ratings		
		min (V)	max (V)	Power consumption (W)	Max LED fwd current (mA)	Forward voltage typical (V)	Forward voltage max (V)	Max pulse current (mA)
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 $\pm 10\%$.

2 Used in continuous (not pulsed) mode.

3 At max forward current. Tolerance is $\pm 0.06V$ on forward voltage measurements.

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