UL-LL

The UL Line Light is the latest design in the Metaphase family of LED lights for line scan. Its narrow, structured beam delivers high intensity and concentrated light for the narrow field of view of a traditional line scan camera. The high intensity and uniformity allows the UL Line Light to be used as front light to inspect for material defects, angled to obtain an off-axis effect to highlight surface defects, or it may be placed beneath the object for a backlight effect to inspect for holes, voids, or contaminants. The UL Line Light is available with a wide variety of LED colors such as white, red, green, blue, IR, UV and RGB with independent color control up to 120 inches (3.48m) in length for large web applications.

Utilizing a full rod focal lens, the UL-LL provides a tight structured beam of light up to 12 inches (30.48 cm). The optimal working distance is 5 inches (12.7 cm). For working distances beyond 12 inches (30.48 cm), please see our Collimated Line Light offerings. High uniformity (±5%) makes the UL Line Light ideal for front and back lighting line scan applications.

FEATURES

- Built-in Constant Current Driver with 0-10VDC Intensity Control
- Passive cooling (no fans needed)
- Compliance: ETL listed (UL compliant), CE and RoHS.
- Compatible with DDC-3 and ILD-35-24-L

APPLICATIONS

- Web inspection (foil, plastic film, PCBs, glass, paper, web converting, etc.)
- Geometry measurements of long targets
- Direct position measurement
- Tube or bottle inspection
- Printed circuit board inspection

WAVELENGTHS

Order ID	Description / nanometers
W	White 6000K, Nominal
R	Red 630nm
G	Green 530nm
B	Blue 470nm
IR850 (or IRN)	Infrared / 850nm
IR880 (or IRL)	Infrared / 880nm
IR940	Infrared / 940nm
UV365 (or UVS)	Ultraviolet Short / 365nm
UV395 (or UVL)	Ultraviolet Long / 395nm
RGB	Red-Green-Blue 630/530/470nm

GENERAL SPECIFICATIONS

Power Source:	24VDC ±5%
Cable (Standard):	10-foot cable with flying leads
Housing:	Black Anodized Aluminum
Ambient Temp:	-20°C to 40°C
Lifetime Expectancy:	75,000 hours (except UV)

METAPHASE
215-639-8699

211 Sinclair Road, Suite 100
Bristol, PA 19007 USA
www.metaphase-tech.com

UL-LL

MODEL	Overall Length Inches / cm	Lens Length Inches / cm	Weight lbs/Kg	Cable(s)			Typical Current (Amps) @24VDC						
				Qty	Lgth	Desc.	WHITE	RED	GREEN	BLUE	IR	UVS	UVL
UL-LL209	7.0 / 17.8	6.25 / 15.9	3.2 / 1.45				0.5	0.4	0.6	0.5	0.6	0.7	0.8
UL-LL309	12.0 / 30.5	11.25 / 28.6	5.4 / 2.45				1.0	0.8	1.1	1.1	1.1	1.4	1.6
UL-LL409	17.0 / 43.2	16.25 / 41.3	7.7 / 3.49				1.6	1.2	1.7	1.7	2.0	2.1	2.4
UL-LL509	22.0 / 55.9	21.25 / 54.0	10.0 / 4.54				2.1	1.6	2.2	2.2	2.7	3.2	3.2
UL-LL609	27.0 / 68.6	26.25 / 66.7	12.2 / 5.53				2.7	2.0	2.9	2.8	3.4	4.0	3.4
UL-LL709	32.0 / 81.3	31.25 / 79.4	14.5 / 6.58				3.2	2.4	3.5	3.4	4.1	4.8	4.1
UL-LL809	37.0 / 94.0	36.25 / 92.1	16.7 / 7.57	1	10ft		3.8	2.9	4.2	4.0	4.7	5.6	4.8
UL-LL909	42.0 / 106.7	41.25 / 104.8	18.9 / 8.57				4.4	3.3	4.8	4.6	5.6	6.4	5.5
UL-LL1009	47.0 / 119.4	46.25 / 117.5	21.2 / 9.62				4.9	3.7	5.4	5.2	6.4	7.2	6.2
UL-LL1109	52.0 / 132.1	51.25 / 130.2	23.5 / 10.6			16 AWG 6 Wire	5.5	4.2	6.0	5.8	7.1	8.0	6.9
UL-LL1209	57.0 / 144.8	56.25 / 142.9	25.5 / 11.6				6.1	4.6	6.7	6.4	7.9	8.8	7.6
UL-LL1309	62.0 / 157.5	61.25 / 155.6	28.3 / 12.8				6.7	5.0	7.4	7.0	8.7	9.6	8.2
UL-LL1409	67.0 / 170.2	66.25 / 168.3	30.4 / 13.8				7.3	5.5	8.1	7.7	9.6	10.4	8.9
UL-LL1509	72.0 / 182.9	71.25 / 181.0	35.5 / 16.1				8.0	5.9	8.8	8.3	10.4	11.2	9.6
UL-LL1609	77.0 / 195.6	76.25 / 193.7	37.7 / 17.1				8.6	6.4	9.5	9.0	11.3	12.0	10.3
UL-LL1709	82.0 / 208.3	81.25 / 206.4	40.0 / 18.1				9.2	6.9	10.2	9.7	12.1	12.8	11.0
UL-LL1809	87.0 / 221.0	86.25 / 219.1	42.3 / 19.2				9.9	7.3	10.9	10.4	13.0	13.6	11.7
UL-LL1909	92.0 / 233.7	91.25 / 231.8	44.5 / 20.2				10.6	7.8	11.7	11.1	14.0	14.4	12.4
UL-LL2009	97.0 / 246.4	96.25 / 244.5	47.0 / 21.3	2	20ft		11.2	8.3	12.5	11.8	14.9	15.2	13.0
UL-LL2109	102 / 259.1	101.25 / 257.2	49.0 / 22.2				11.9	8.8	13.3	12.5	15.9	16.0	13.7
UL-LL2209	107 / 271.8	106.25 / 269.9	51.2 / 23.2				12.6	9.3	14.1	13.3	17.0	16.8	14.4
UL-LL2309	112 / 284.5	111.25 / 282.6	53.4 / 24.2				13.4	9.8	14.9	14.1	18.0	17.6	15.1
UL-LL2409	117 / 297.2	116.25 / 295.3	55.6 / 25.2				14.1	10.3	15.7	14.8	19.1	18.2	15.8
UL-LL2509	122 / 309.9	121.25 / 308.0	58.0 / 26.3				14.9	10.8	16.6	15.7	20.3	18.8	16.5

SINGLE COLOR UL LINE LIGHTS

Cable #1 (6 conductor, flying leads)	
Wire Color	Function
RED, BROWN	+24VDC
YELLOW	SIGNAL GROUND
BLACK, BLUE	GROUND (24V RTN)
ORANGE	0-10VDC INTENSITY CONTROL

When not using Intensity Control, connect the 0-10V control line to +24VDC and connect Signal Ground to Ground (24V RTN) for maximum intensity

Cable #2 (If Applicable)	
Wire Color	Function
RED	+24VDC
BROWN	+24VDC
ORANGE	+24VDC
BLACK	GROUND (24V RTN)
BLUE	GROUND (24V RTN)
YELLOW	GROUND (24V RTN)

Note: The 0-10VDC Intensity Control input can accept voltages from 0-24VDC where the light will operate at full intensity in the 10-24VDC range. The light is proportionally dimmer for any Intensity Control voltage less than 10VDC and the light is OFF at approximately 0V or not connected (floating).

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UL-LL

MODEL	Overall Length Inches / cm	Lens Length Inches / cm	Weight lbs/Kg	CableQTY	Cable Length	Cable Description	Typical Current (Amps)
			RGB LIGHTS				
UL-LL209	7.0 / 17.8	6.25 / 15.9	3.2 / 1.45				0.5
UL-LL309	12.0 / 30.5	11.25 / 28.6	5.4 / 2.45				1.1
UL-LL409	17.0 / 43.2	16.25 / 41.3	7.7 / 3.49				1.6
UL-LL509	22.0 / 55.9	21.25 / 54.0	10.0 / 4.54				2.2
UL-LL609	27.0 / 68.6	26.25 / 66.7	12.2 / 5.53				2.8
UL-LL709	32.0 / 81.3	31.25 / 79.4	14.5 / 6.58				3.4
UL-LL809	37.0 / 94.0	36.25 / 92.1	16.7 / 7.57	1	10ft		4.0
UL-LL909	42.0 / 106.7	41.25 / 104.8	18.9 / 8.57				4.5
UL-LL1009	47.0 / 119.4	46.25 / 117.5	21.2 / 9.62				5.2
UL-LL1109	52.0 / 132.1	51.25 / 130.2	23.5 / 10.6				5.8
UL-LL1209	57.0 / 144.8	56.25 / 142.9	25.5 / 11.6				6.4
UL-LL1309	62.0 / 157.5	61.25 / 155.6	28.3 / 12.8			16 AWG, 6 Conductor	7.0
UL-LL1409	67.0 / 170.2	66.25 / 168.3	30.4 / 13.8				7.6
UL-LL1509	72.0 / 182.9	71.25 / 181.0	35.5 / 16.1				8.3
UL-LL1609	77.0 / 195.6	76.25 / 193.7	37.7 / 17.1				9.0
UL-LL1709	82.0 / 208.3	81.25 / 206.4	40.0 / 18.1				9.7
UL-LL1809	87.0 / 221.0	86.25 / 219.1	42.3 / 19.2				10.3
UL-LL1909	92.0 / 233.7	91.25 / 231.8	44.5 / 20.2				11.0
UL-LL2009	97.0 / 246.4	96.25 / 244.5	47.0 / 21.3	2	20ft		11.6
UL-LL2109	102 / 259.1	101.25 / 257.2	49.0 / 22.2				12.2
UL-LL2209	107 / 271.8	106.25 / 269.9	51.2 / 23.2				12.9
UL-LL2309	112 / 284.5	111.25 / 282.6	53.4 / 24.2				13.5
UL-LL2409	117 / 297.2	116.25 / 295.3	55.6 / 25.2				14.2
UL-LL2509	122 / 309.9	121.25 / 308.0	58.0 / 26.3				14.9

RGB Cable #1
(6 Conductor)

WIRE COLOR	FUNCTION
BROWN	+24VDC
BLACK	GND (24V RTN)
YELLOW	SIG GND
RED	0-10V RED Intensity Control
ORANGE	0-10V GREEN Intensity Control
BLUE	0-10V BLUE Intensity Control

When not using the Intensity Control, connect the 0-10V control line(s) to +24VDC and connect SIG GND to GND (24V RTN)

RGB Cable #2
(If Applicable)

WIRE COLOR	FUNCTION
RED	+24VDC
BROWN	+24VDC
ORANGE	+24VDC
BLACK	GND (24V RTN)
BLUE	GND (24V RTN)
YELLOW	GND (24V RTN)

POWER CABLE

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UL-LL

MODEL NUMBER KEY								
MODEL	-	LENS LENGTH	-	COLOR/WAVELENGTH	-	OPTION 1	-	OPTION 2
UL	-	LLXXXX	-	XXXXX	-	XXX	-	XXX
UL		**LL** (See above charts and enter model number from 209 to 2509)		**W** (White 6000K, Nominal) **R** (Red 630nm) **G** (Green 530nm) **B** (Blue 470nm) **IR850 (or IRN)** (Infrared 850nm) **IR880 (or IRL)** (Infrared 880nm) **IR940** (Infrared 940nm) **UV365 (or UVS)** (UV Short 365nm) **UV395 (or UVL)** (UV Long 395nm) **RGB** (Red-Green-Blue)		**24** (+24VDC)		Customer code by request

Contact Metaphase Technologies or your local representative for options such as custom diffusers, lenses, polarizers, IP-rated enclosures for harsh environments, higher intensity, custom wavelengths, higher uniformity, etc. Not all options are available for all lights.

Any options that are selected for any UL-LL configuration shall result in the model number changing to the UX Line Light (UX-LL).

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UL-LL

Sample Model Number: UL-LL709-W-24

COMPLIANCE

RoHS compliant

CE

ETL LISTED
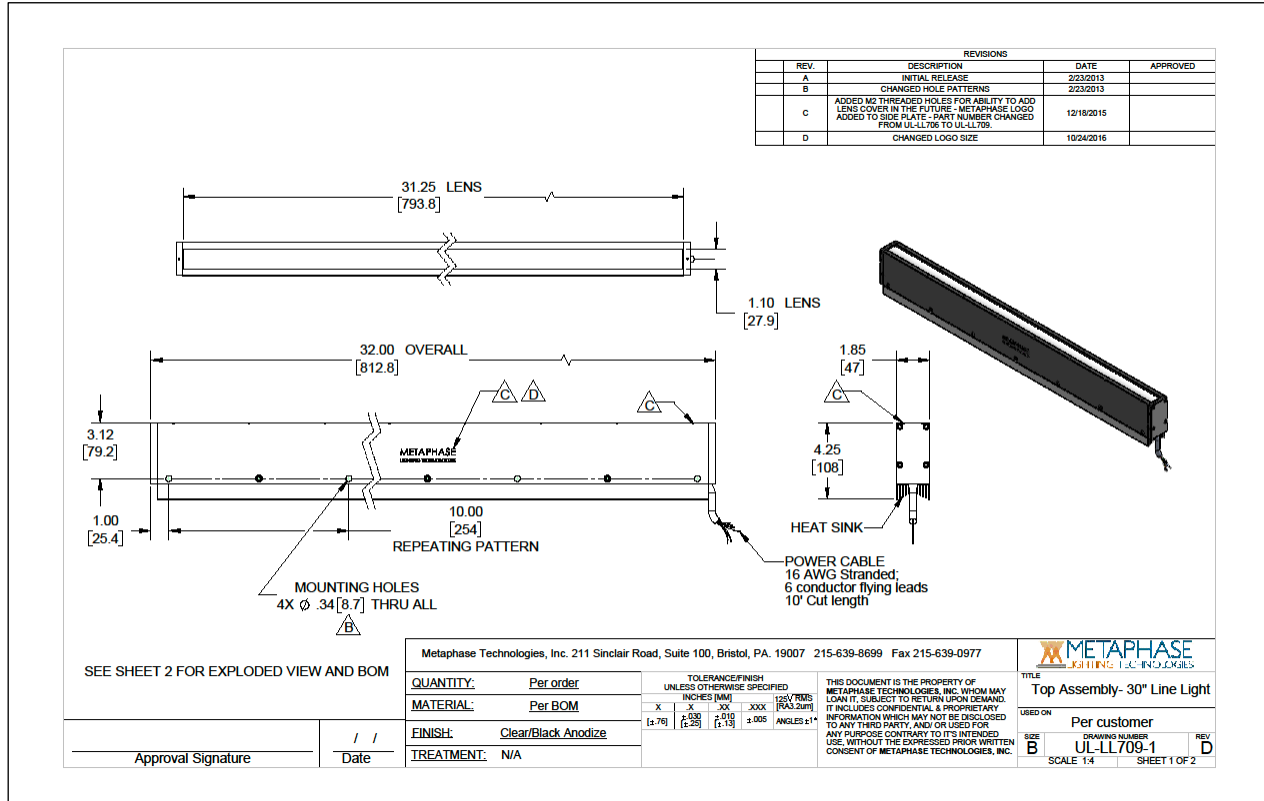
CONTACT US

Contact Metaphase Technologies at **215-639-8699** or your local representative for additional details, options and customizations.

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