



CONTRASTECH

Machine Vision LED Illumination

Machine Vision
LED illumination

ABOUT US

Contrasttech as leading manufacturer of machine vision products in China, have almost 20 years in this industry, and the major products cover machine vision lighting / illumination, camera, lens, machine vision algorithms and storage software.

With abundant experience in industry application and scientific research, Contrasttech Machine Vision Led Illumination offer a wide range of selections, and we provide OEM / ODM customization for various lighting solutions, including but not limited to Line Scan Lights, Telecentric Lights, Ultraviolet and Infrared Lights , Waterproof and Anti-corrosion Lighs, and Multi-spectral Lights.

Contrasttech products have been exported to almost 100 countries and regions, and in thousands of projects we have received countless affirmations and reputations. Contrasttech machine vision products are well-known as innovative, flexible, stable and easy to use, enabling reliable inspection in many applications.

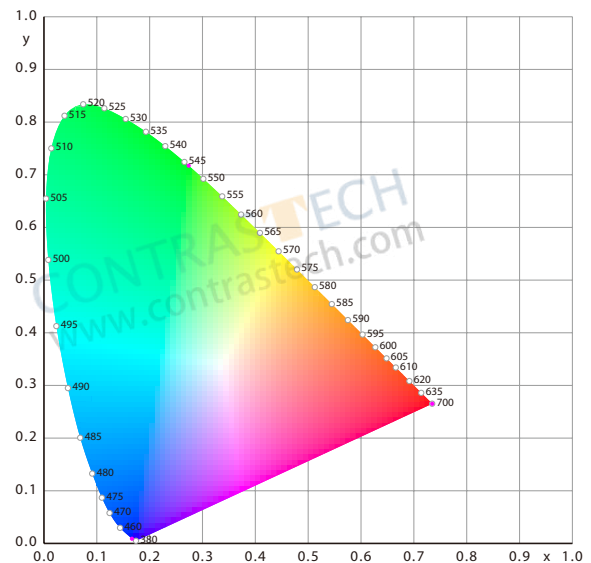



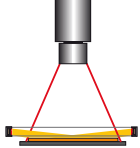
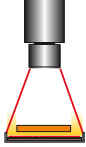
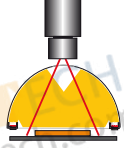
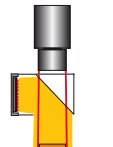
USEFUL INFORMATION

Color Wavelength

The durability of LEDs is on the upper area of the durability spectrum. The duration in which LED remains fully functional depends on the operating temperature and ambient temperature.

Vision Datum gives an extended guarantee on its LEDs. All housings, except some bar lights, are manufactured by high quality aluminum. Besides, the light intensity of all the lights can be regulated as well as flashed.



Illumination	Structure
Bright field illumination Light is aimed directly at an object, often creating distinct shadows. This type of light is effective when used on objects which requires high degrees of contrast, but will create specular reflections when used with shiny or reflective materials.	
Dark field illumination Light is projected at an angle to the surface, causing any variations to deflect light up into the camera, creating bright spots on a dark background or field. Nothing is seen by the vision system if there are no aberrations on the surface.	
Back illumination An even field of illumination is projected from behind an object, which is seen as a silhouette by the camera. Backlight is the most commonly used in taking measurements or determining part orientation.	
Diffuse illumination: (Dome/Tunnel) Reflected light, providing a non-directional, soft illumination free of harsh shadows, which is well suited for highly specular objects. This illumination effect is similar to the type of light found on an overcast day.	
Coaxial illumination: A variation of diffuse light in which light is aimed at an angled beam splitter that reflects the light down. The object is viewed from above through the beam splitter. This light type is particularly helpful on highly reflective objects or in situations where the area of inspection is obscured by shadows from its surroundings.	
Each light type has a specific purpose, but is also adaptable for a range of applications not immediately related to its function. For example, a spotlight, which provides bright field illumination, can be placed at an angle to create a dark field effect. For some applications, the best results are achieved by combining multiple light types.	

Line Scan Illumination

Li Series

Features

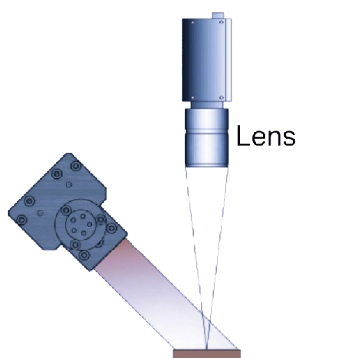
- Converging lights with optics cylindrical lens to reduce diffusion
- The width of emitting surface is variable as the distance between LED board and lens is adjustable.
- Light color, cooling method and emitting surface length can be customized according to request. The emitting surface length is specified in 100mm increments, up to 3000mm.

Applications

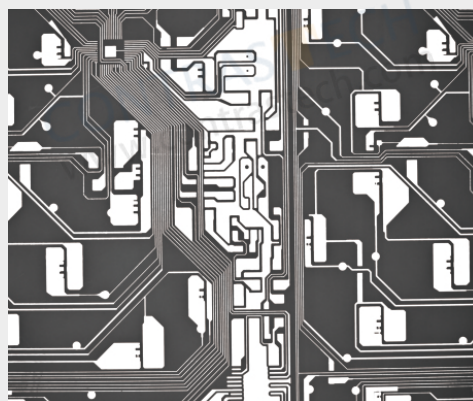
- Inspection of LCD, TP screen, LTO circuit, PCB circuit, medicine and food packaging, defects of printing surface on the assembly line, etc..
- Appearance inspection of food or medicine



Illumination Structure



Examples of Li Light Images



Common Specifications

Input voltage	24 VDC
Connector	20M-4J \ 20J4TQ \ AOPULO
Polarity	1: (-), 2: (-) ,3: (+), 4:(+)
Cable length	500 mm
Auxiliary module	VT-LT3-PiC Kit
Operating environment (indoor)	Temperature: 0~40℃ Humidity:20% to 85% RH (with no condensation)
Life time	White:30,000hrs, Red: 60,000hrs (Depends on the operating environment, not a gurantee)
Case material	Aluminum alloy, Resin

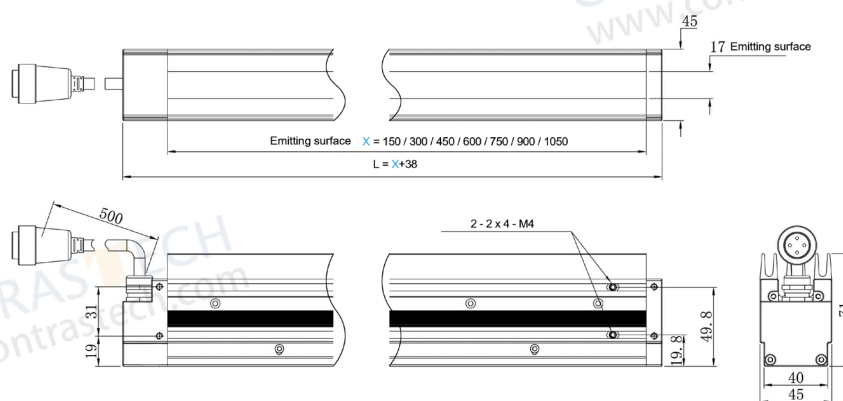
Explanation of Model Code

VT-LT3-Li	100	(W/B/G/R)
Series	Emitting Length	Color

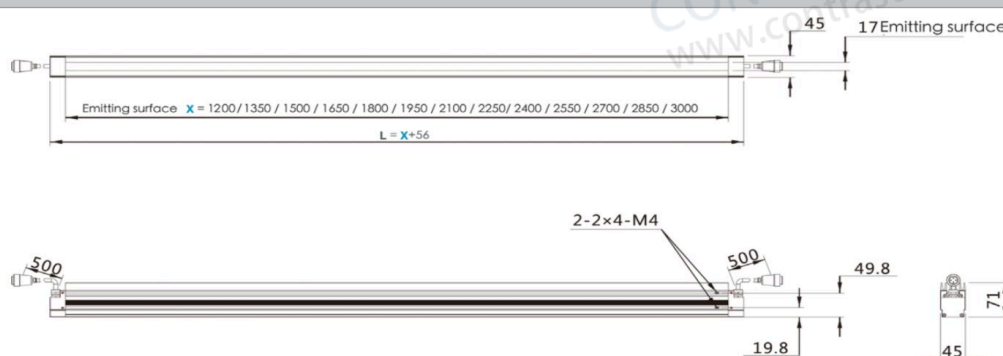
	Optical spec.		Electrical specifications (GREEN / NIR / UV Accept custom)			Dimensions		
Model No.	Light Area		Supply Voltage (v)	Power cons. (w) ●	Power cons. (w) ● ○ ●	Length (mm)	Width (mm)	Height (mm)
	Length (mm)	Width (mm)						
VT-LT3-Li150	150	17	24	15.4	23.1	188	45	71
VT-LT3-Li300	300	17	24	30.8	46.1	338	45	71
VT-LT3-Li450	450	17	24	46.1	69.2	488	45	71
VT-LT3-Li600	600	17	24	61.5	92.2	638	45	71
VT-LT3-Li750	750	17	24	76.8	115.2	788	45	71
VT-LT3-Li900	900	17	24	92.2	138.3	938	45	71
VT-LT3-Li1050	1050	17	24	107.6	161.3	1088	45	71
VT-LT3-Li1200	1200	17	24	122.9	184.4	1256	45	71
VT-LT3-Li1350	1350	17	24	138.3	207.4	1406	45	71
VT-LT3-Li1500	1500	17	24	153.6	230.5	1556	45	71
VT-LT3-Li1650	1650	17	24	168.9	253.4	1706	45	71
VT-LT3-Li1800	1800	17	24	184.3	276.4	1856	45	71
VT-LT3-Li1950	1950	17	24	199.6	299.5	2006	45	71
VT-LT3-Li2100	2100	17	24	215.0	322.5	2156	45	71
VT-LT3-Li2250	2250	17	24	230.4	345.6	2306	45	71
VT-LT3-Li2400	2400	17	24	245.7	368.6	2456	45	71
VT-LT3-Li2550	2550	17	24	261.1	391.6	2606	45	71
VT-LT3-Li2700	2700	17	24	276.4	414.7	2756	45	71
VT-LT3-Li2850	2850	17	24	291.8	437.7	2906	45	71
VT-LT3-Li3000	3000	17	24	307.2	460.8	3056	45	71

Dimension

VT-LT3-Li150-1050



VT-LT3-Li1200-3000



Line Scan Illumination

LiN + Series

Features

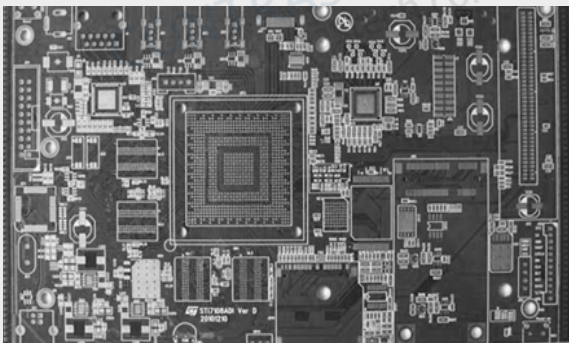
- With high power LEDs, the light intensity is times higher than standard one.
- Aluminum housings ensure an optimal heat dissipation and dispose of various practical mounting possibilities.

Applications

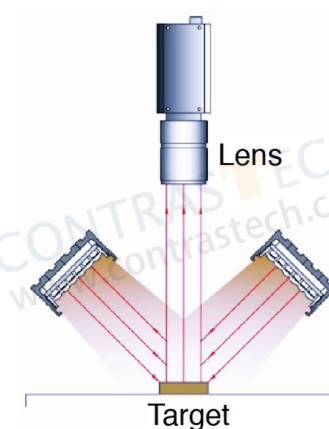
- Inspection of LCD, TP screen, LTO circuit, PCB circuit, medicine and food packaging, defects of printing surface on the assembly line, etc..
- Appearance inspection of food or medicine



Examples of LiN+ Series Images



Illumination Structure



Common Specifications

Input voltage	48 VDC
Connector	ZHQC�-19M-6H
Polarity	1:(Light source +), 2: (Light source -), 3:(Fan +), 4:(Fan -), 5:(R +), 6:(R -)
Cable length	/
Auxiliary module	VT-LT3-PiC+ Kit
Operating environment (indoor)	Temperature: 0~40°C Humidity:20% to 85% RH (with no condensation)
Life time	White:30,000hrs, Red: 60,000hrs (Depends on the operating environment, not a gurantee)
Case material	Aluminum alloy, Resin

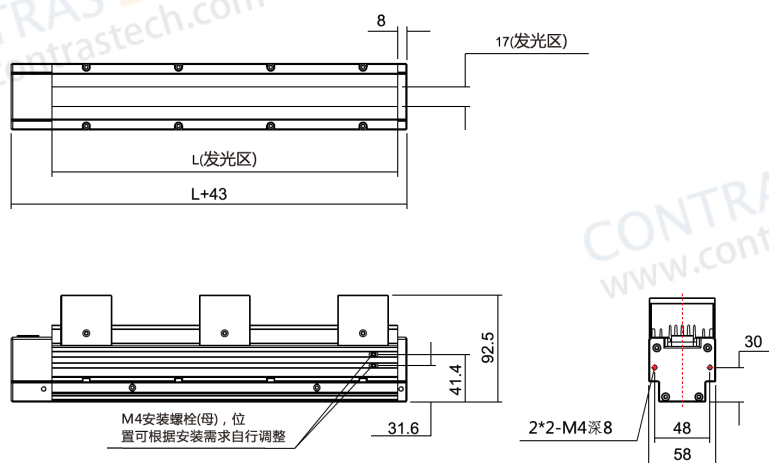
Explanation of Model Code

VT-LT3-LiN+	100
Series	Emitting Length

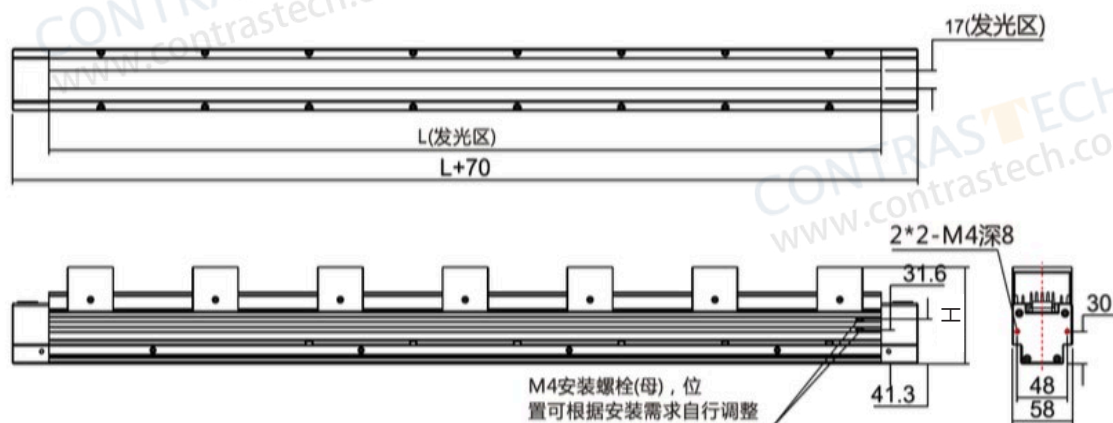
Model No.	Optical spec.		Electrical specifications (GREEN / NIR / UV Accept custom)		Dimensions		
	Light Area		Supply Voltage (v)	Power cons. (w) ● ○ ●	Length (mm)	Width (mm)	Height (mm)
	Length (mm)	Width (mm)					
VT-LT3-LiN+100	100	17	48	-	143	58	90.1
VT-LT3-LiN+168	168	17	48	48	211	58	101.6
VT-LT3-LiN+200	200	17	48	-	243	58	90.1
VT-LT3-LiN+300	300	17	48	96	343	58	92.5
VT-LT3-LiN+400	400	17	48	129.6	443	58	92.5
VT-LT3-LiN+500	500	17	48	172.8	543	58	92.5
VT-LT3-LiN+600	600	17	48	216	643	58	92.5
VT-LT3-LiN+650	650	17	48	259.2	693	58	90.1
VT-LT3-LiN+700	700	17	48	-	770	58	90.1
VT-LT3-LiN+800	800	17	48	336	870	58	90.1
VT-LT3-LiN+900	900	17	48	384	970	58	90.1
VT-LT3-LiN+1000	1000	17	48	393.6	1070	58	90.1
VT-LT3-LiN+1100	1100	17	48	432	1170	58	90.1
VT-LT3-LiN+1200	1200	17	48	480	1270	58	90.1
VT-LT3-LiN+1800	1800	17	48	518.4	1870	58	90
VT-LT3-LiN+2200	2200	17	48	778	2270	58	90
VT-LT3-LiN+3400	3400	17	48	952	3470	-	91

Dimension

VT-LT3-LiN+100-650



VT-LT3-LiN+700-3400



H=Height

Coaxial accessories for Line Scan Illumination

LiC / LiC+ Kit

Features

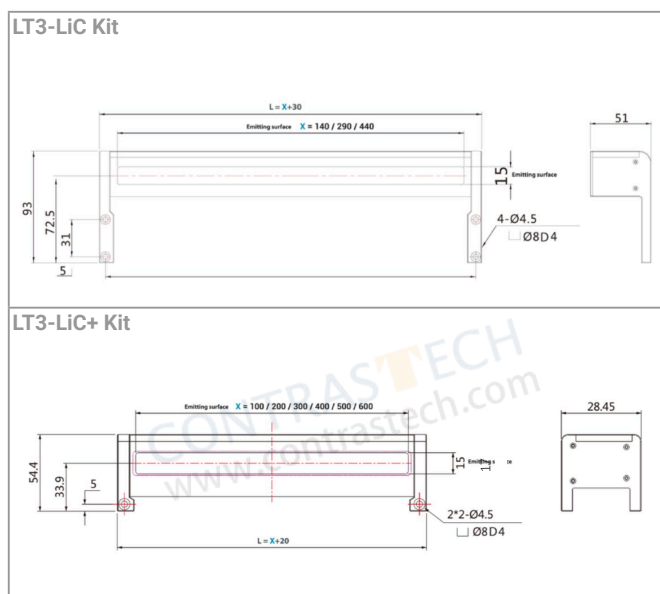
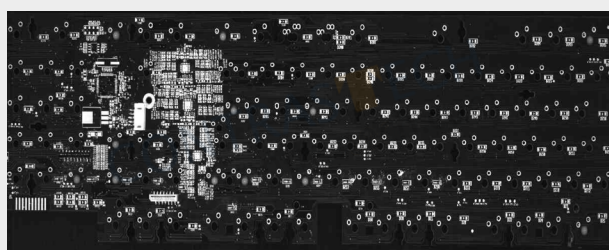
- Coaxial function suite, realize the characteristic of line light source coaxial.
- Match Li or Li+ series line light source to use.

Applications

- PCB detection, flexible circuit board or copper foil detection
- Shadow elimination of large area circuit board fluctuant device



Examples of Li+ & LiC Kit Light Images



Explanation of Model Code

VT-LT3-PiC / LiC+ Kit	-	100
Series		Emitting Length

Model No.	Optical spec.		Electrical specifications			Dimensions		
	Light Area		Supply Voltage (v)	Power cons. (w)	Power cons. (w)	Length (mm)	Width (mm)	Height (mm)
	Length (mm)	Width (mm)						
VT-LT3-LiC140	140	15	48	15.4	23.1	170	51	93
VT-LT3-LiC290	290	15	48	30.8	46.1	320	51	93
VT-LT3-LiC440	440	15	48	46.1	69.2	470	51	93
VT-LT3-LiC+100	100	17	48	48	48	120	28.45	54.4
VT-LT3-LiC+200	200	17	48	96	96	220	28.45	54.4
VT-LT3-LiC+300	300	17	48	129.6	129.6	320	28.45	54.4
VT-LT3-LiC+400	400	17	48	172.8	172.8	420	28.45	54.4
VT-LT3-LiC+500	500	17	48	216	216	520	28.45	54.4
VT-LT3-LiC+600	600	17	48	259.2	259.2	620	28.45	54.4



LT3-Li+ With LT3-LiC-Kit

Oblique Line Illumination (Single/Double Oblique) LiO / LiT

Applications

- Detection of wrinkles and unevenness on the surface of sheet objects
- Scratch detection of transparent films
- Scratch detection of glass panels
- Damage detection on metal surfaces, etc.



Features

- The unique optical design uses a Fresnel lens to achieve oblique light illumination, which can flexibly respond to the requirements of different illumination directions.
- Wrinkles and unevenness on objects that diffuse light, such as paper and non-woven fabrics, can be easily detected in the conveying direction of the production line.
- The patented thermal management platform uses natural cooling to easily achieve 3 million LUX illumination, effectively increasing the service life of the light source.
- The structure design can be doubled, the length can be up to 4800mm, and there is no light spot gap.

Explanation of Model Code

VT-LIO/T***-Z/F/Q/S						
VT-LI	O/T	***	Z	F	Q	S
Series	Single Oblique/ Double Oblique	Luminous surface length	Natural cooling (Recommended)	Forced air cooling	Air cooling	Water cooling

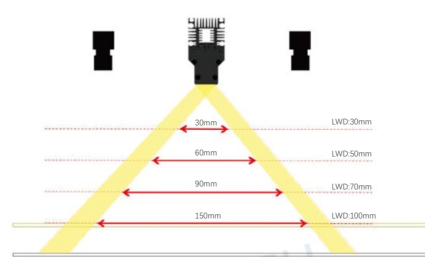
Schematic diagram of single oblique irradiation



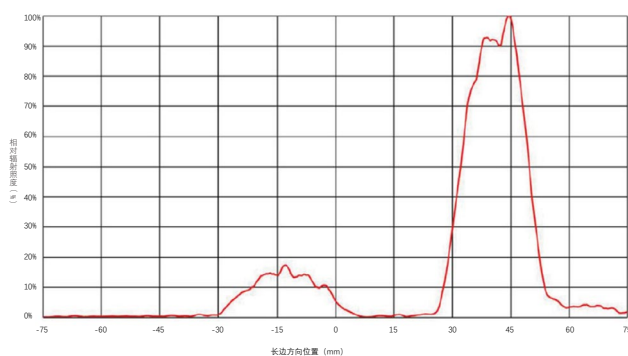
Schematic diagram of double oblique irradiation



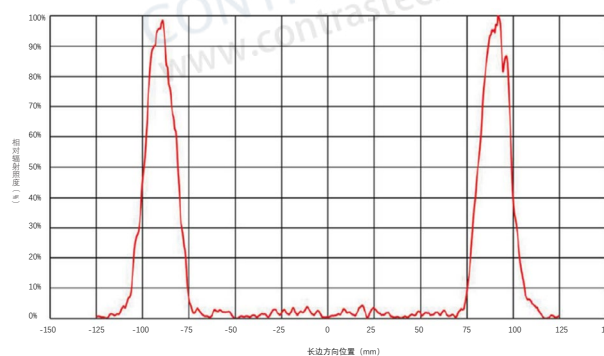
Schematic diagram of double oblique irradiation range



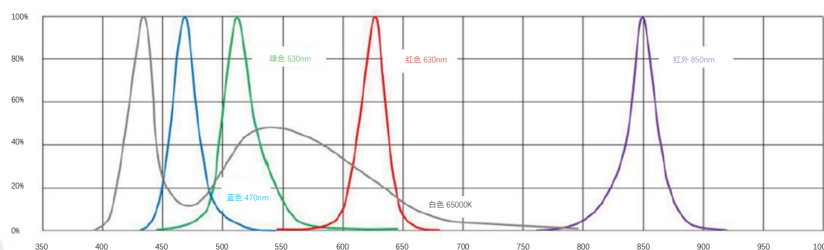
Schematic diagram of single-oblique light distribution



Schematic diagram of double oblique light distribution



Uniformity / Relative Irradiance



Remark: 1. Infrared series products are customized products, with optional wavelengths: 850nm, 940nm, 1050nm, 1350nm, 1450nm;

2. The data is for reference only, please refer to the actual data.

Model No.	Light Area		Luminous Surface Size		Illuminance (Ten Thousand Lx)	Power Consumption (W/24v)	Cooling Method	Weight (kg)
	Length(mm)	Width(mm)	Length(mm)	Width(mm)				
VT-LIO/T150-Z/F/Q/S	193	60	151	24	300	42	Natural Cooling	1.36
					500	70	Forced Air Cooling	
					800	112	Air Cooling	
					1000	140	Water Cooling	
VT-LIO/T300-Z/F/Q/S	343	60	301	24	300	84	Natural Cooling	2.58
					500	140	Forced Air Cooling	
					800	224	Air Cooling	
					1000	280	Water Cooling	
VT-LIO/T450-Z/F/Q/S	493	60	451	24	300	126	Natural Cooling	3.80
					500	210	Forced Air Cooling	
					800	336	Air Cooling	
					1000	420	Water Cooling	
VT-LIO/T600-Z/F/Q/S	643	60	601	24	300	168	Natural Cooling	5.02
					500	280	Forced Air Cooling	
					800	448	Air Cooling	
					1000	560	Water Cooling	
VT-LIO/T750-Z/F/Q/S	793	60	751	24	300	210	Natural Cooling	6.25
					500	350	Forced Air Cooling	
					800	560	Air Cooling	
					1000	700	Water Cooling	
VT-LIO/T900-Z/F/Q/S	943	60	901	24	300	252	Natural Cooling	7.46
					500	420	Forced Air Cooling	
					800	672	Air Cooling	
					1000	840	Water Cooling	
VT-LIO/T1050-Z/F/Q/S	1093	60	1051	24	300	294	Natural Cooling	8.60
					500	490	Forced Air Cooling	
					800	784	Air Cooling	
					1000	980	Water Cooling	
VT-LIO/T1200-Z/F/Q/S	1243	60	1201	24	300	336	Natural Cooling	10.00
					500	560	Forced Air Cooling	
					800	896	Air Cooling	
					1000	1120	Water Cooling	
VT-LIO/T1500-Z/F/Q/S	1543	60	1501	24	300	420	Natural Cooling	12.50
					500	700	Forced Air Cooling	
					800	1120	Air Cooling	
					1000	1400	Water Cooling	
VT-LIO/T1800-Z/F/Q/S	1843	60	1801	24	300	504	Natural Cooling	14.80
					500	840	Forced Air Cooling	
					800	1344	Air Cooling	
					1000	1680	Water Cooling	

Model No.	Light Area		Luminous Surface Size		Illuminance (Ten Thousand Lx)	Power Consumption (W/24v)	Cooling Method	Weight (kg)
	Length(mm)	Width(mm)	Length(mm)	Width(mm)				
VT-LIO/T2100-Z/F/Q/S	2143	60	2101	24	300	588	Natural Cooling	17.30
					500	980	Forced Air Cooling	
					800	1568	Air Cooling	
					1000	1960	Water Cooling	
VT-LIO/T2400-Z/F/Q/S	2443	60	2401	24	300	672	Natural Cooling	19.80
					500	1120	Forced Air Cooling	
					800	1792	Air Cooling	
					1000	2240	Water Cooling	
VT-LIO/T2700-Z/F/Q/S	2743	60	2701	24	300	756	Natural Cooling	22.10
					500	1260	Forced Air Cooling	
					800	2016	Air Cooling	
					1000	2520	Water Cooling	
VT-LIO/T3000-Z/F/Q/S	3043	60	3001	24	300	840	Natural Cooling	24.60
					500	1400	Forced Air Cooling	
					800	2240	Air Cooling	
					1000	2800	Water Cooling	
VT-LIO/T3300-Z/F/Q/S	3343	60	3301	24	300	924	Natural Cooling	27.00
					500	1540	Forced Air Cooling	
					800	2464	Air Cooling	
					1000	3080	Water Cooling	
VT-LIO/T3600-Z/F/Q/S	3643	60	3601	24	300	1008	Natural Cooling	29.50
					500	1680	Forced Air Cooling	
					800	2688	Air Cooling	
					1000	3360	Water Cooling	
VT-LIO/T3900-Z/F/Q/S	3943	60	3901	24	300	1092	Natural Cooling	31.80
					500	1820	Forced Air Cooling	
					800	2912	Air Cooling	
					1000	3640	Water Cooling	
VT-LIO/T4200-Z/F/Q/S	4243	60	4201	24	300	1176	Natural Cooling	34.50
					500	1960	Forced Air Cooling	
					800	3136	Air Cooling	
					1000	3920	Water Cooling	
VT-LIO/T4500-Z/F/Q/S	4543	60	4501	24	300	1260	Natural Cooling	36.60
					500	2100	Forced Air Cooling	
					800	3360	Air Cooling	
					1000	4200	Water Cooling	
VT-LIO/T4800-Z/F/Q/S	4843	60	4801	24	300	1344	Natural Cooling	39.10
					500	2100	Forced Air Cooling	
					800	3584	Air Cooling	
					1000	4480	Water Cooling	

Outline Dimension Drawing(mm)		
Natural cooling dimensions		<p>B (light-emitting surface length) is an integer multiple of 150mm + 1mm, length range: 151mm-4801mm; A (total length) is (B+42) mm! Note: When the length of the luminous surface is 2401mm-4801mm, it appears at both ends</p>
Air cooling dimensions		<p>B (light-emitting surface length) is an integer multiple of 150mm + 1mm, length range: 151mm-4801mm; A (total length) is (B+42) mm! Note: When the length of the luminous surface is 2401mm-4801mm, it appears at both ends</p>
Dimensional drawings of air-cooling and water-cooling		<p>B (light-emitting surface length) is an integer multiple of 150mm + 1mm, length range: 151mm-4801mm; A (total length) is (B+42) mm! Note: When the length of the luminous surface is 2401mm-4801mm, it appears at both ends</p>

Multi-Angle Line Scan Illumination MLi Series

Features

- characteristic
- Brightness up to 1 million LUX.
- The angle can be adjusted to suit different needs.
- Multiple groups of highly concentrated light beams from different angles are focused on the same point to achieve multi-angle light effects.

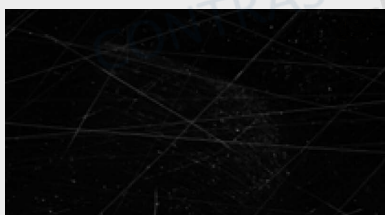
Applications

- Glass surface defect detection
- Phone screen scratch detection
- PCB substrate inspection

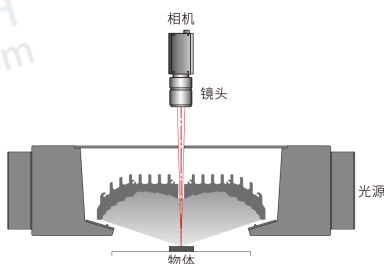


Examples of MLi Light Images

Silicon substrate scratch detection
Partial image of imaging effect



Illumination Structure



Explanation of Model Code

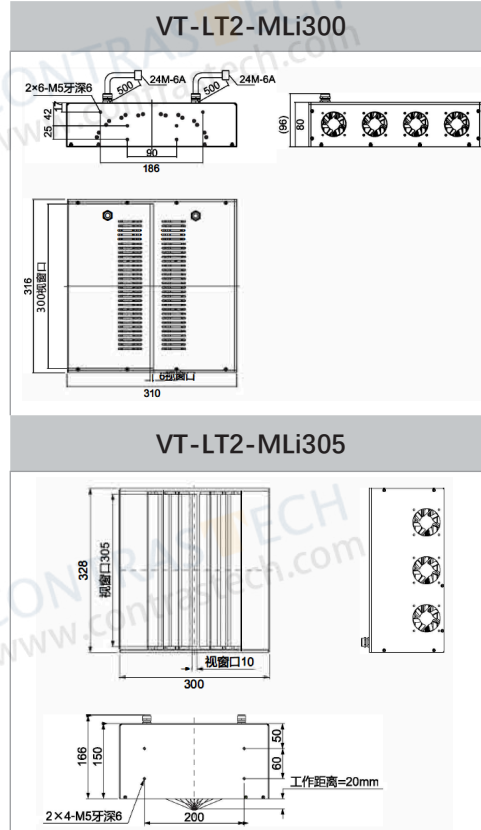
VT-LT2-MLi	300
Series	Emitting Length

Dimension

Common Specifications

Input voltage	48 VDC
Wavelength range	Red: 620-630nm; Blue: 465-475nm; Green: 515-530nm; White: 6000-10000K(ColorTemperature)
line length	Standard length 485±15mm, optional 1/2/3 meter long wire
Operating environment (indoor)	Temperature: 0~40℃ Humidity:20% to 85% RH (with no condensation)
Life time	White:30,000hrs, Red: 60,000hrs (Depends on the operating environment, not a gurantee)

	Optical spec.		Electrical specifications		Dimensions		
Model No.	Light Area		Supply Voltage (v)	Power cons.(w)	Length (mm)	Width (mm)	Height (mm)
	Length (mm)	Width (mm)					
VT-LT2-MLi300	300	6	48	576	316	310	80
VT-LT2-MLi305	305	10	48	241.92	328	300	150



Overview

Light Controller Collection



Model	Drive Mode	Input Voltage	Output Voltage	Power	Output Current	Channel	Output Port	Adapt to line light
Digital Controller								
VT-LT4-0506PWDC-2	Constant Current	88V-264V	5V	Total:6W/Single :3W Expandable: Total:12W/Single:6W	/	2	SMP-03V	
VT-LT4-2420PWDC-2	Constant Voltage	88V-264V	24V	Total:20W Single:20W	/	2	SMP-03V	
VT-LT4-2460PWDC-4	Constant Voltage	88V-264V	24V	Total:60W Single:25W	/	4	SMP-03V	
VT-LT4-24150PWDC-4	Constant Voltage	88V-264V	24V	Total:150W Single:70W	/	4	SMP-03V	
VT-LT3-24240PWDC-2	Constant Current	100V-120V(Ver.A) 200V-240V(Ver.B)	24V	240W	Total:10A Single:10A	2	19M-5	✓
VT-LT3-24500PWDC-2	Constant Voltage	100V-240V	24V	480W	Total:20A Single:light 9A, fan 1A	2	19M-2E	
VT-LT4-48300PWDC-1	Constant Current	90V-264V	48V	300W	0-6A	1	-	
Stroboscopic Controller (With Brightening Module)								
VT-LT3-PLU24120-4	Constant Voltage	100V-240V	48V	120W	10A(Instantaneous Value)	4	SMP-03V-BC	
VT-LT3-PLU24200-2	Constant Voltage	100V-240V	48V	200W	50A(Instantaneous Value)	2	12M-2	
VT-LT3-PLU24200-4	Constant Voltage	100V-240V	48V	200W	25A(Instantaneous Value)	4	SMP-03V-BC	
Line Source Stroboscopic Controller (With Brightening Module)								
VT-LT3-PLU481000LI-6	Constant Voltage	100V-240V	48V	1000W	Total:25A Single:25A	6	16M-2	✓
Line Source Controller								
VT-LT3-24300PWLI-1	Constant Voltage	100V-240V	24V	≤ 300W	12.5A	1	AM20K4Z	✓
VT-LT3-48600PWLI-2	Constant Current	100V-120V(Ver.A) 200V-240V(Ver.B)	48V	600W	Total:12A Single:6A	2	19M-6	✓
VT-LT3-48600PWLIN-1	Constant Current	100V-120V(Ver.A) 180V-240V(Ver.B)	48V	≤ 600W	Total:12A Single:6A	1	19M-6	✓
VT-LT3-48300PWLIN-2	Constant Current	100V-240V	48V	≤ 300W	Total:6A Single:6A	2	16M-6	✓
VT-LT3-48600PWLIN-2	Constant Current	180V-240V	48V	≤ 600W	Total:12A Single:6A	2	19M-6	✓
VT-LT3-48800PWLIN-1	Constant Current	100V-240V	48V	< 800W	14A	1	19M-6	✓
VT-LT3-48800PWLIN-2	Constant Current	100V-240V	48V	≤ 800W /Single ≤ 400W	14A	2	19M-6	✓
VT-LT3-481200PWLIN-1	Constant Current	100V-240V	48V	≤ 1200W	Total:24A Single:12A	1	19M-6	✓
Analog Controller								
VT-LT4-0506PWAC-2	Constant Current	88V-264V	5V	Total:6W Single:3W	/	2	SMP-03V	
VT-LT3-2460PWAC-4	Constant Voltage	100V-240V	24V	60W	Total:2.5A Single:2.5A	4	SMP-03V-BC	

Note: Default -Ver.B version voltage

2024

HOT PRODUCTS

Infrared Series Camera

- ◇ Near-Infrared(**NIR**) Industrial Cameras: 300-1100nm
- ◇ Short-Wave(**SWIR**) Industrial Cameras: 900-1700nm
- ◇ Cooled Mid-Wave Infrared(**MWIR**) Cameras: 1500-5200nm
- ◇ Long-Wave Infrared(**LWIR**) Industrial Cameras: 8000-14000nm



NIR



SWIR



MWIR

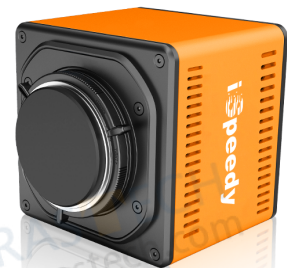


LWIR

High-Speed Camera

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- ◇ 1000 ~ 1000000 FPS

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