



Vision Datum

Machine Vision LED Illumination

Machine Vision
LED Ring illumination

ABOUT US

Vision Datum 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, Vision Datum 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.

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



High Angle Ring Illumination

HR Series

Features





- Multi angles available for right light to get vivid image
- High density LED arrays for the intensity illumination
- Diffuser is available to increase the uniformity of illumination
- Breakthrough wave-soldering technology to improve production quality and efficiency.

Applications

- Lead frame inspection
- Electronic component appearance inspection
- QFP/SOP lead curve inspection
- Transparency film dirt inspection
- Various types of silhouette observation



Sample Images

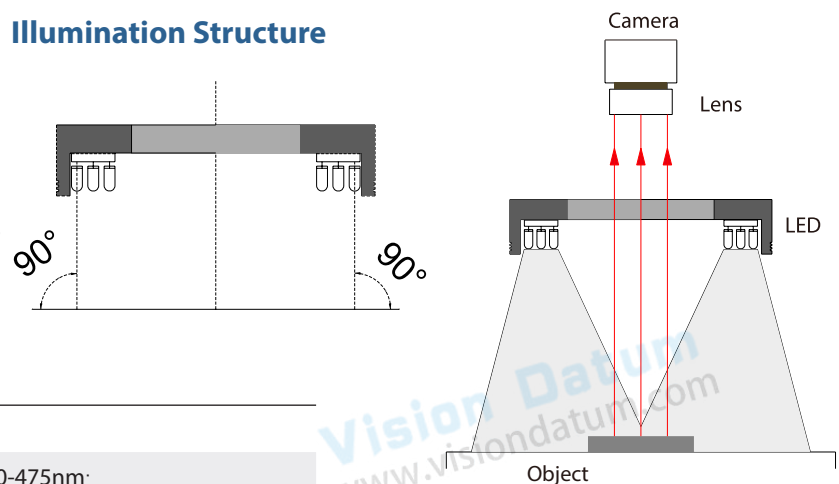
			
Imaging for characters printed on water bottle cap	Imaging for characters SD card contact	Imaging for characters Bearing scratch	Imaging for characters Battery surface

Explanation of Model Code

VT-LT2-HR	7035	90	(W/B/G/R)
Series	O.D./I.D.	Angle *	Color

*The emission angle refers to the angle between light and horizontal plane.

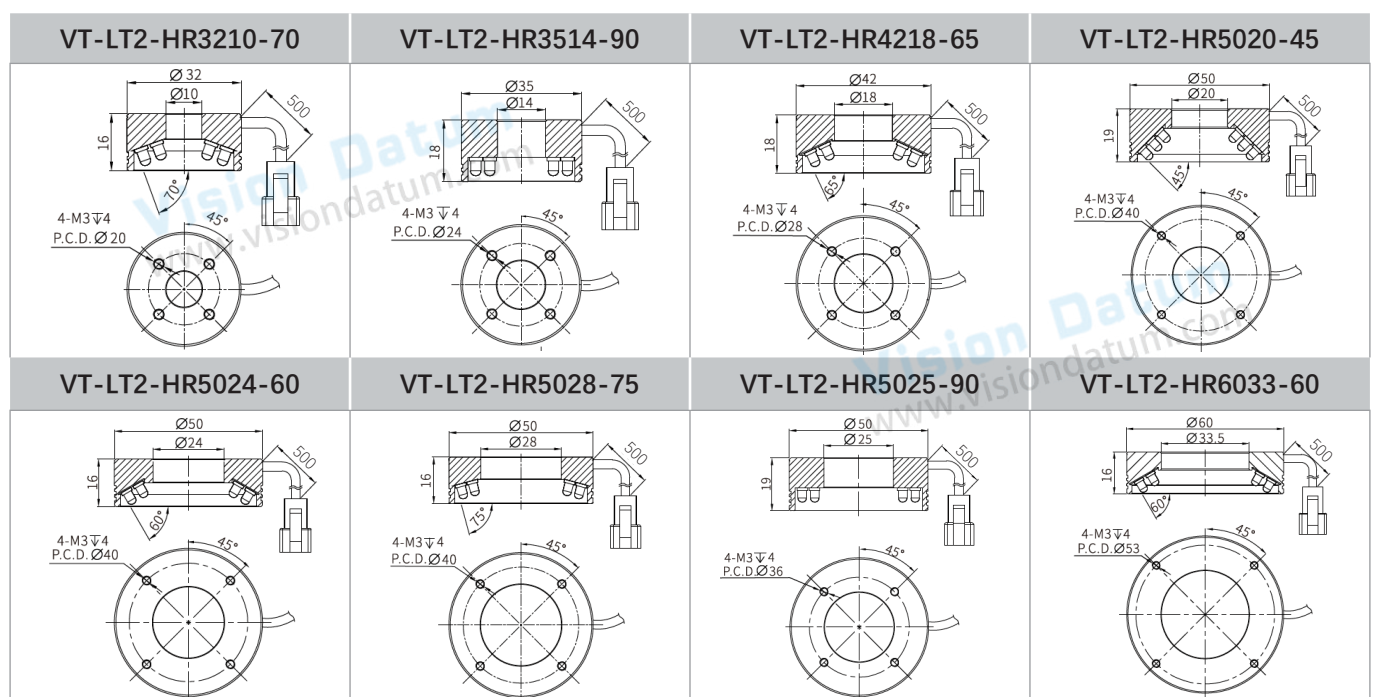
Illumination Structure



Common Specifications

Input voltage	24 VDC
Wavelength range	Red: 620-630nm; Blue: 460-475nm; Green: 520-530nm;
Color temperature (white)	6500-8500K
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 guarantee)
Case material	Aluminum alloy, Resin

Model No.	Optical spec.	Working Distance	Electrical specifications (NIR / UV Accept custom)			Dimensions		
	Emission angle (deg)	Recommended WD (mm)	Supply Voltage (v)	Power cons. (w) ●	Power cons. (w) ● ○ ●	Outer diam. (mm)	Inner diam. (mm)	Height (mm)
VT-LT2-HR3210-70	70°	15-25	24	1.4	1.4	32	10	16
VT-LT2-HR3514-90	90°	15	24	1.5	1.5	35	14	18
VT-LT2-HR4218-65	65°	19-29	24	1.7	2.2	42	18	18
VT-LT2-HR5020-45	45°	4-16	24	2.5	3.8	50	20	19
VT-LT2-HR5024-60	60°	22-31	24	2.1	2.6	50	24	16
VT-LT2-HR5028-75	75°	56	24	1.8	2.5	50	28	16
VT-LT2-HR5025-90	90°	26	24	1.9	2.6	50	25	19
VT-LT2-HR6033-60	60°	30-38	24	3.1	3.2	60	33.5	16
VT-LT2-HR6630-60	60°	27-43	24	3.8	5.2	66	30	17
VT-LT2-HR7038-45	45°	12-35	24	4.1	5.8	70	38	21
VT-LT2-HR7030-60	60°	28-46	24	4.1	5.2	70	30	20
VT-LT2-HR7035-90	90°	36	24	4.1	4.8	70	35	22
VT-LT2-HR7435-60	60°	28-45	24	4.0	5.4	74	35	20
VT-LT2-HR9056-45	45°	50-90	24	6.6	6.4	90	56	20
VT-LT2-HR9050-70	70°	68-103	24	7.6	9.0	90	50	20
VT-LT2-HR10040-90	90°	100-150	24	9.9	10.0	100	40	20
VT-LT2-HR12080-50	50°	30-48	24	12.1	12.9	120	80	21
VT-LT2-HR12065-75	75°	130-180	24	13.1	15.5	120	65	17
VT-LT2-HR12076-90	90°	120-200	24	13	16	120	76	18
VT-LT2-HR14085-70	70°	70-100	24	13.5	18	140	85	20
VT-LT2-HR15070-90	90°	150-240	24	15	22	150	70	22
VT-LT2-HR180126-60	60°	106-240	24	20.1	29.4	180	126	23
VT-LT2-HR210145-60	60°	116-166	24	23.5	30.0	210	145	25



Dimension (mm)

<p>VT-LT2-HR6630-60</p> <p>4-M3x4 P.C.D. 49.5</p>	<p>VT-LT2-HR7038-45</p> <p>4-M3x4 P.C.D. 54</p>	<p>VT-LT2-HR7030-60</p> <p>4-M3x4 P.C.D. 54</p>	<p>VT-LT2-HR7035-90</p> <p>4-M3x4 P.C.D. 50</p>
<p>VT-LT2-HR7435-60</p> <p>4-M3x4 P.C.D. 60</p>	<p>VT-LT2-HR9056-45</p> <p>4-M3x4 P.C.D. 75</p>	<p>VT-LT2-HR9050-70</p> <p>4-M3x4 P.C.D. 70</p>	<p>VT-LT2-HR10040-90</p> <p>4-M3x4 P.C.D. 75</p>
<p>VT-LT2-HR12080-50</p> <p>4-M3x4 P.C.D. 100</p>	<p>VT-LT2-HR12065-75</p> <p>4-M3x4 P.C.D. 110</p>	<p>VT-LT2-HR12076-90</p> <p>4-M3x4 P.C.D. 106</p>	<p>VT-LT2-HR14085-70</p> <p>4-M3x4 P.C.D. 120</p>
<p>VT-LT2-HR15070-90</p> <p>4-M3x4 P.C.D. 120</p>	<p>VT-LT2-HR180126-60</p> <p>4-M3x4 P.C.D. 161</p>	<p>VT-LT2-HR210145-60</p> <p>4-M3x4 P.C.D. 180</p>	

High Angle High Brightness Ring Illumination HR+ Series

Features

- Using high-power LED, higher brightness.
- Add concentrator bowl for longer working distance.

Applications

- Robot-guided grasping
- Appearance inspection of high-speed assembly lines
- Logistics barcode, character detection



Sample Images

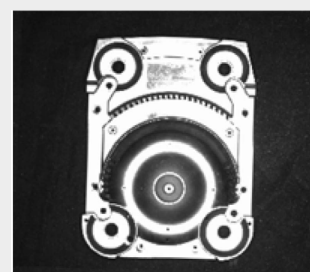
Sound shell round hole positioning detection



Ambient Light Imaging



Ring shadowless illumination imaging



High Brightness illumination imaging

Common Specifications

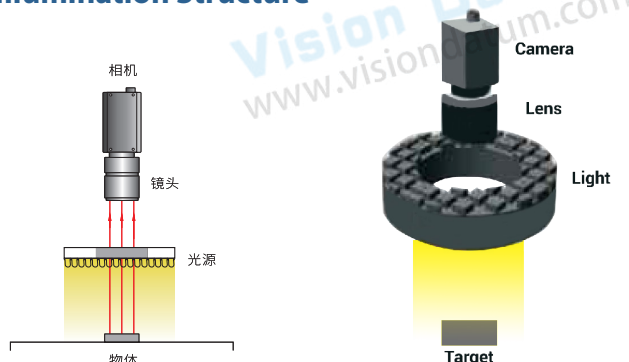
Input voltage	24 VDC
Wavelength range	Red: 620-630nm; Blue: 460-475nm; Green: 520-530nm;
Color temperature (white)	6000-10000K
Operating environment (indoor)	Temperature: 0~40°C Humidity: 20% to 85% RH (with no condensation)
Life time	White:30,000hrs, Red: 60,000hrs (Depends on the operating environment, not a gurantee)
Case material	Aluminum alloy, Resin

Explanation of Model Code

VT-LT2-HR+	7035	90	(W/B/G/R)
Series	O.D./I.D.	Angle*	Color

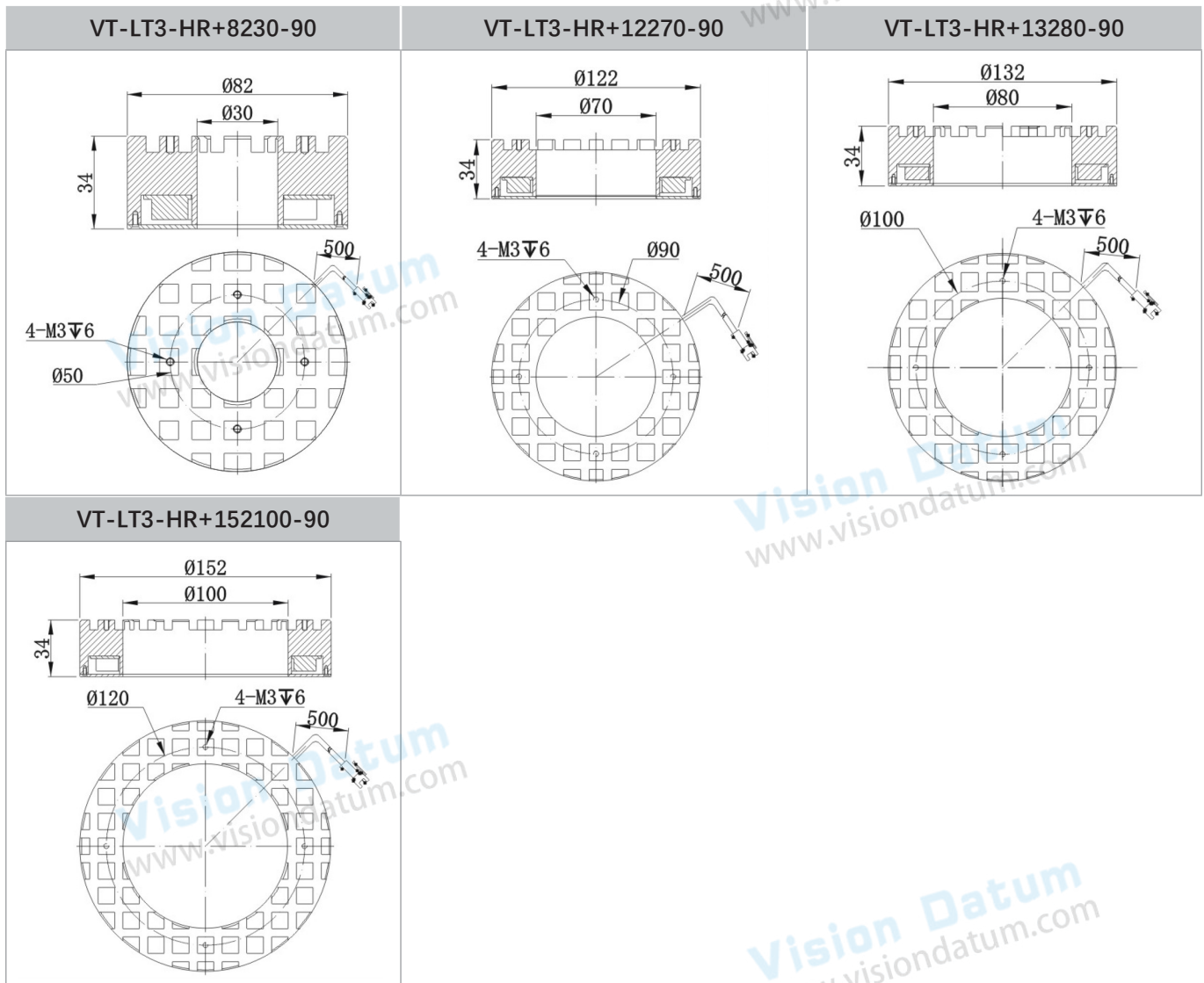
* The emission angle refers to the angle between light and horizontal plane.

Illumination Structure



Model No.	Optical spec.		Working Distance	Electrical specifications (NIR / UV Accept custom)			Dimensions		
	Light Area (mm) in-out	Emission angle (deg)	Recommended WD (mm)	Supply Voltage (v)	Power cons. (w) ●	Power cons. (w) ● ●	Outer diam. Ø (mm)	Inner diam. Ø (mm)	Height (mm)
VT-LT3-HR+8230-90	Ø34-Ø72	90°	100-200	24	3.6	7.2	82	30	34
VT-LT3-HR+12270-90	Ø74-Ø112	90°	150-300	24	4.8	9.6	122	70	34
VT-LT3-HR+13280-90	Ø84-Ø122	90°	150-300	24	4.8	9.6	132	80	34
VT-LT3-HR+152100-90	Ø104-Ø142	90°	150-400	24	9.6	14.4	152	100	34

Dimension (mm)



Low Angle Ring Illumination LR Series

Features

- Lights create dark field of view, suitable for edge detection and scratches on glossy surface.
- High brightness LEDs are mounted on a flexible circuit board in a steep angle.
- Breakthrough wave-soldering technology to improve production quality and efficiency.

Applications

- Substrate and PCB positioning
- Chip component inspection
- LCD alignment
- Plastic container inspection
- Label inspection
- Mounter
- IC marking inspection, etc.

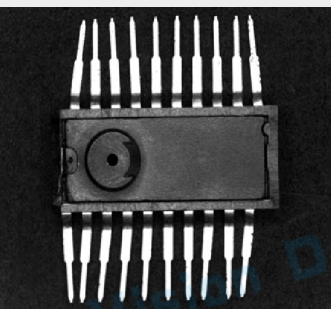


Examples of Low-Angle Ring Light Images

Lights: LR-7440-30R

Inspect IC pins flatness.

Use ring lights illuminated on the pins surface in a specific angle, can light the whole surface in white. Choose the black background. Substantial improved the contrast. Good for software detect.



Lights: LR-170134-20B

Inspect Power Plug Pins.

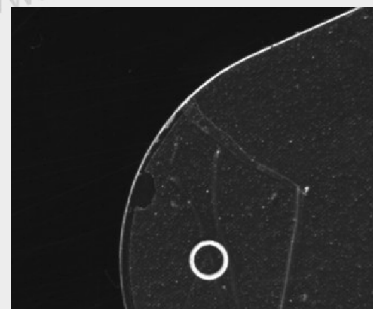
Use LR-100B to illuminate the pins, the top parts of the pins will be lighted and the reflection of the bottom part which will decrease the image contrast can be avoided.



Lights: LR-9660-00W

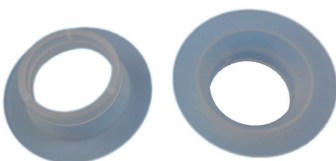
Inspect Mobile Touch Screen MARK Point.

The low angle lights can make the MARK point bright and avoid the light-reflecting problem on the surface caused by high angle lights. Thus the whole field of view is in high contrast which is easier for the computer analysis.



Optional Accessory: Diffusion Plate

Used to create a relatively non-directional light. Reducing glare on specular surfaces.



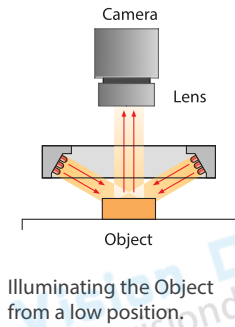
Explanation of Model Code

VT-LT2-LR	4822	-30	(W/B/G/R)
Series	O.D./I.D.	Angle*	Color

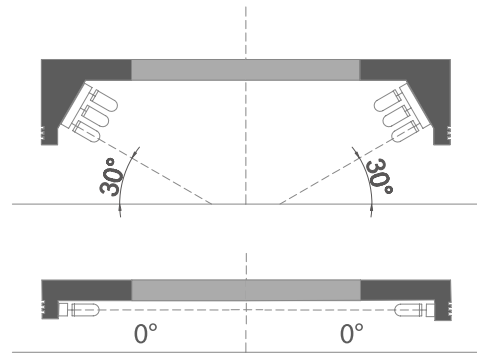
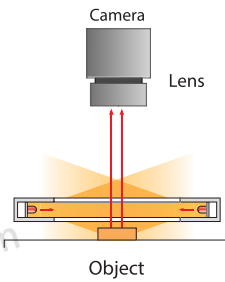
*The emission angle refers to the angle between light and horizontal plane.

Illumination Structure

LR Series



LRXXX-0 Series



Common Specifications

Input voltage	24 VDC
Wavelength range	Red: 620-630nm; Blue: 460-475nm; Green: 520-530nm;
Color temperature (white)	6500-8500K
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

Model No.	Optical spec.	Working Distance	Electrical specifications (NIR / UV Accept custom)			Dimensions		
	Emission angle (deg)	Recommended WD (mm)	Supply Voltage (v)	Power cons. (w) ●	Power cons. (w) ● ○ ●	Outer diam. (mm)	Inner diam. (mm)	Height (mm)
VT-LT2-LR5024-30	30°	5	24	2.0	2.6	50	24	16
VT-LT2-LR6630-30	30°	0-10	24	3.2	4.6	66	30	22
VT-LT2-LR7448-30	30°	9-14	24	3.2	4.2	74	48	19
VT-LT2-LR10070-30	30°	12-21	24	7.9	8.3	100	70	22
VT-LT2-LR12088-30	30°	17-27	24	8.4	10.5	120	88	22
VT-LT2-LR13296-15	15°	3-12	24	10.0	12.2	132	96	22
VT-LT2-LR150120-30	30°	15-29	24	14.3	18.5	150	120	22
VT-LT2-LR180132-30	30°	24-34	24	15.0	28.8	180	132	29
VT-LT2-LR208172-25	25°	31-41	24	17.8	18.0	208	172	22
Zero Angle Ring Illumination								
VT-LT2-LR5018-0	0°	0-10	24	1.6	1.6	50	18	9.8
VT-LT2-LR7547-0	0°	0-10	24	1.5	2.0	75	47	9.8
VT-LT2-LR9660-0	0°	0-10	24	4.6	5.5	96	60	9.8
VT-LT2-LR12086-0	0°	0-10	24	4.8	4.8	120	86	9.8
VT-LT2-LR146104-0	0°	0-10	24	5.5	8.8	146	104	9.8
VT-LT2-LR176134-0	0°	0-10	24	8.8	11.0	176	134	9.8
VT-LT2-LR206164-0	0°	0-10	24	11.0	13.8	206	164	9.8

Dimension (mm)

VT-LT2-LR5024-30	VT-LT2-LR6630-30	VT-LT2-LR7448-30	VT-LT2-LR10070-30
VT-LT2-LR12088-30	VT-LT2-LR13296-15	VT-LT2-LR150120-30	VT-LT2-LR180132-30
VT-LT2-LR208172-25	VT-LT2-LR5018-0	VT-LT2-LR7547-0	VT-LT2-LR9660-0
VT-LT2-LR12086-0	VT-LT2-LR146104-0	VT-LT2-LR176134-0	VT-LT2-LR206164-0

Shadowless Ring Illumination

WR Series (Standard with diffuser panel)

Ring lights provide uniform surface illumination.

Features

- LED beads are evenly distributed around. The light penetrate the LGP and become uniform and diffusible.
- This series are widely used in the occasion that reflective light or light spots are not welcome.

Applications

- Check cigarette case printing
- Latness of diode pins
- Haracters on IC chips

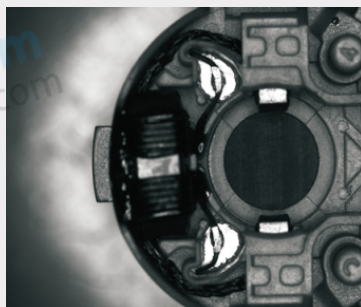


Examples of Shadowless Ring Light Images



Lights:WR100W

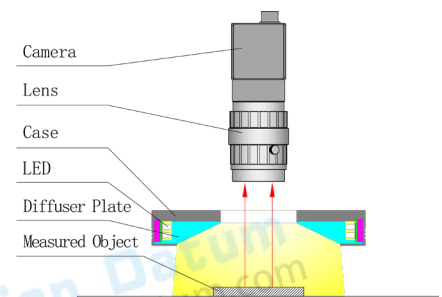
Imaging of CAN's bottom



Lights: WR48W

Imaging of soldering on plastic parts

Illumination Structure



Common Specifications

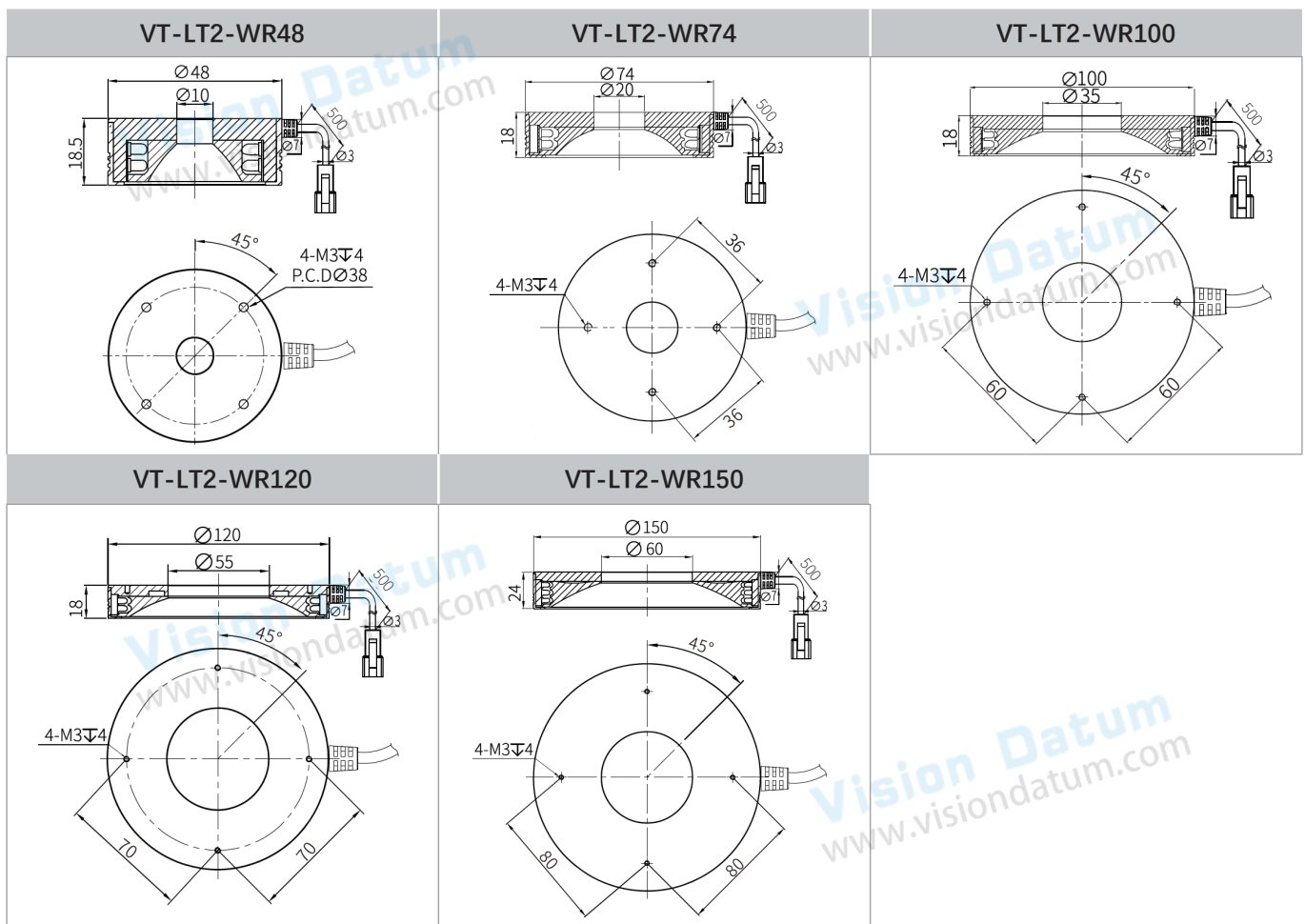
Input voltage	24 VDC
Connector	SMR-03V-B
Wavelength range	Red: 620-630nm; Blue: 460-475nm; Green: 520-530nm;
Color temperature (white)	6000-7500K
Operating environment (indoor)	Temperature: 0~40°C Humidity: 20% to 85% RH (with no condensation)
Life time	White:30,000hrs, Red: 60,000hrs (Depends on the operating environment, not a gurantee)
Case material	Aluminum alloy, Resin

Explanation of Model Code

VT-LT2-WR	116	(W/B/R)
Series	Outer Diameter	Color

Model No.	Electrical specifications (GREEN / NIR / UV Accept custom)			Dimensions		
	Supply Voltage (v)	Power cons. (w)	Power cons. (w)	Outer diam. (mm)	Inner diam. (mm)	Height (mm)
VT-LT2-WR48	24	2.2	3.8	48	10	18.5
VT-LT2-WR74	24	3.6	6.3	74	20	18
VT-LT2-WR100	24	7.4	9.7	100	35	18
VT-LT2-WR120	24	9.9	12.7	120	55	18
VT-LT2-WR150	24	15.0	20.2	150	60	24

Dimension (mm)



Shadowless Ring Illumination- Low Angle

LWR Series (Standard with diffuser panel)

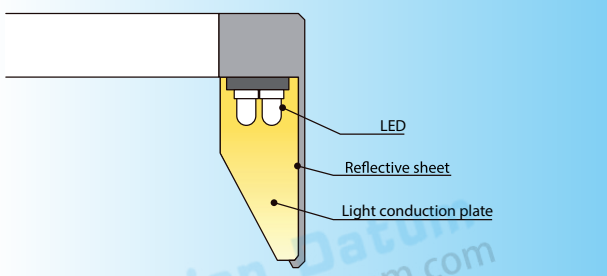
Low angle ring lights provide diffused lighting.

Features

- High density LED is distributed perpendicularly.
- Special material is used to diffuse light.
- Widespread use in inspection of object edge and scratches.



Cross-sectional View of an LWR-series Light



Applications

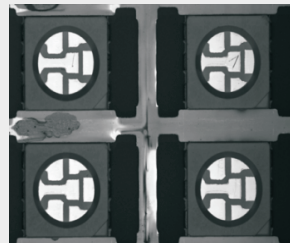
- Low angle uniform illumination and dark field lighting.
- Inspection of scratches on the workpiece.
- Plastic surface optical character recognition, capacitor character recognition.

Examples of Shadowless Low Angle Ring Light Images



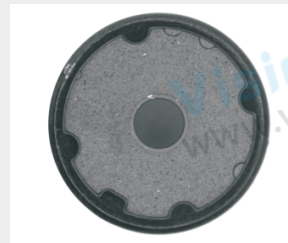
Lights:LWR50W

Imaging of characters on capacitance



Lights: LWR100W

Imaging of interior of LED

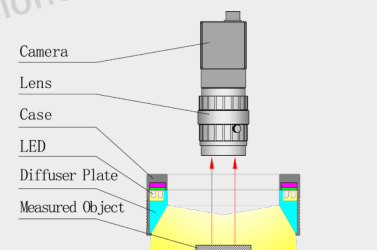


Lights:LWR180B

Imaging of rubber cushion

Illumination Structure

The object is illuminated from a low angle by uniform diffuse light through the light conduction plate.



Common Specifications

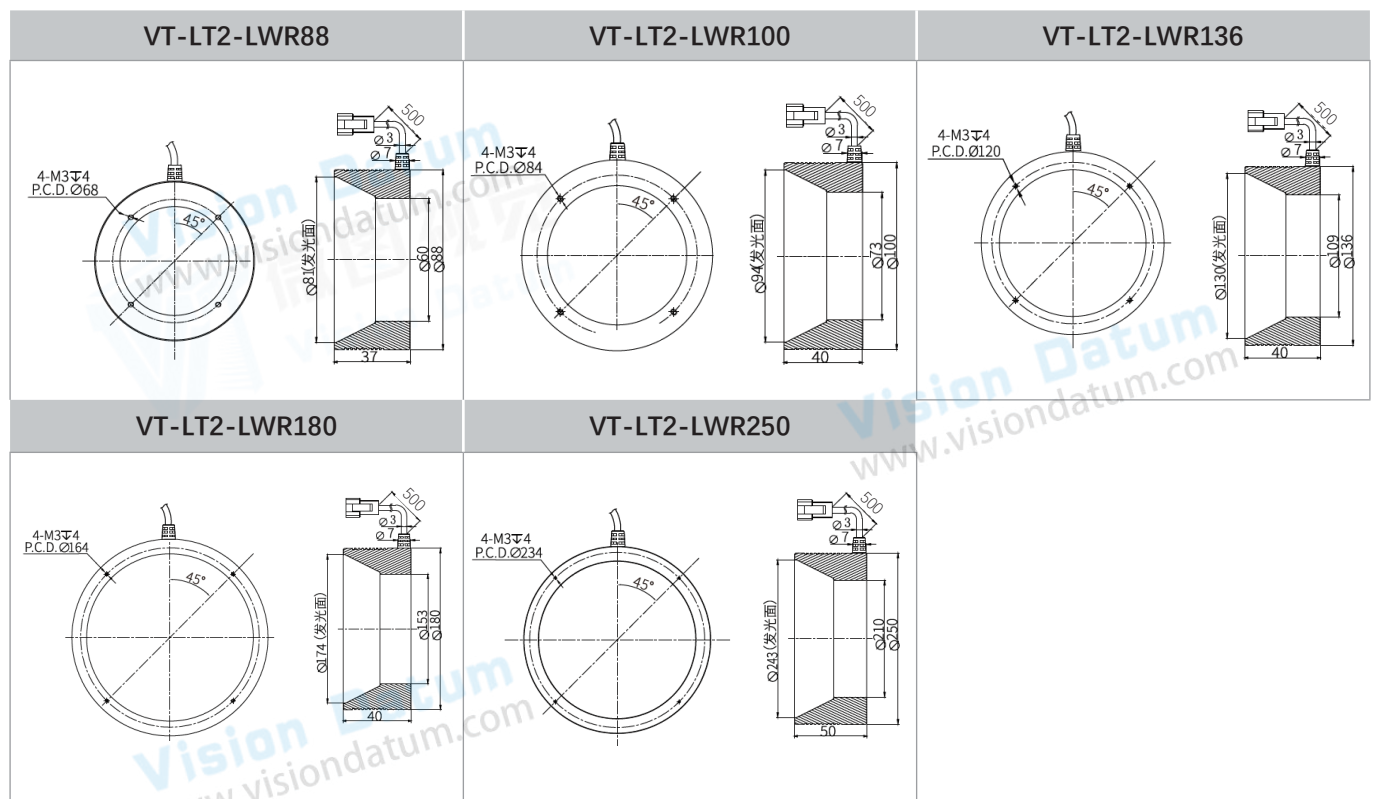
Input voltage	24 VDC
Connector	SMR-03V-B
Wavelength range	Red: 620-630nm; Blue: 460-475nm; Green: 520-530nm;
Color temperature (white)	6000-7500K
Operating environment (indoor)	Temperature: 0~40°C Humidity: 20% to 85% RH (with no condensation)
Life time	White:30,000hrs, Red: 60,000hrs (Depends on the operating environment, not a guarantee)
Case material	Aluminum alloy, Resin

Explanation of Model Code

VT-LT2-LWR	116	(W/B/R)
Series	Outer Diameter	Color

Model No.	Optical spec.	Electrical specifications (GREEN / NIR / UV Accept custom)			Dimensions		
		Light Area (mm)	Supply Voltage (v)	Power cons. (w) ●	Power cons. (w) ● ○ ●	Outer diam. (mm)	Inner diam. (mm)
VT-LT2-LWR88	Ø81	24	4.6	7.5	88	60	37
VT-LT2-LWR100	Ø94	24	4.9	7.8	100	73	40
VT-LT2-LWR136	Ø130	24	6.6	12.4	136	109	40
VT-LT2-LWR180	Ø174	24	9.5	13.8	180	153	40
VT-LT2-LWR250	Ø243	24	13.1	32.8	250	210	50

Dimension (mm)



Shadowless Ring Illumination - High Angle

GWR Series (Standard with diffuser panel)

Features

- The lights achieve a uniform region with high luminance by using unique illumination mechanism.
- Compact design, convenient to installation.

Applications

- Inspection of defects on unfairness specular surface, food and medicine packages, the welding points of electronic components, etc..

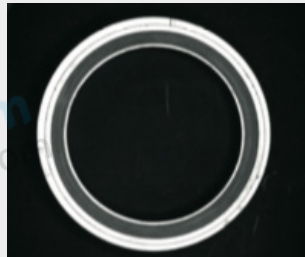


Examples of Shadowless GWR Light Images



Lights: GWR150W

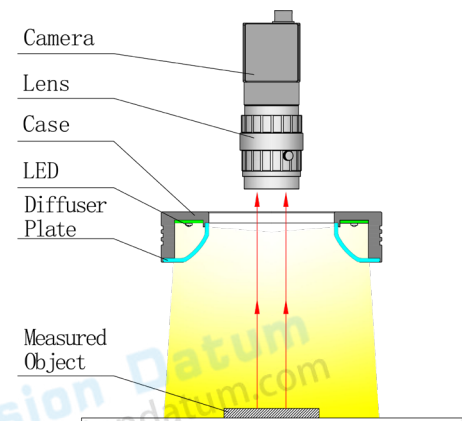
Imaging of keyboard and inner buttons



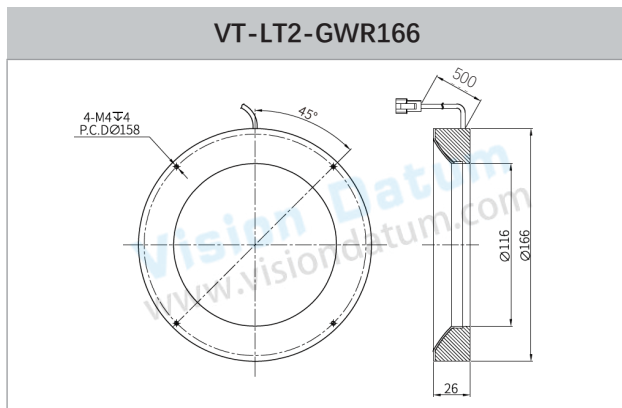
Lights: GWR150W

Imaging of cambered surface

Illumination Structure



Dimension



Explanation of Model Code

VT-LT2-GWR	60	(W/B/R)
Series	Outer Diameter	Color

Model No.	Electrical specifications (GREEN / NIR / UV Accept custom)			Dimensions		
	Supply Voltage (v)	Power cons. (w)	Power cons. (w)	Outer diam. (mm)	Inner diam. (mm)	Height (mm)
VT-LT2-GWR166	24	13.2	19.2	166	116	26

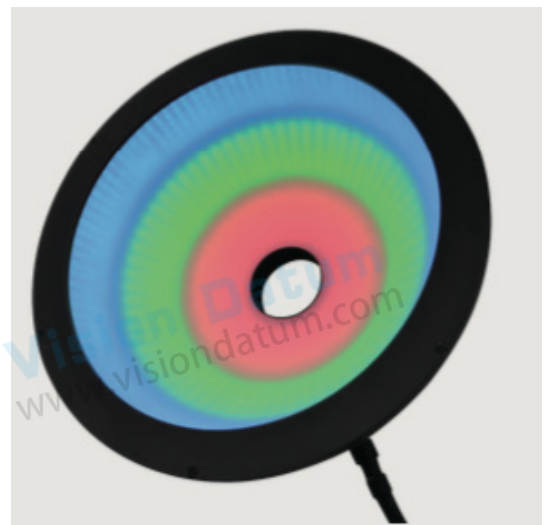
Three-color Illumination AOI Series

Features

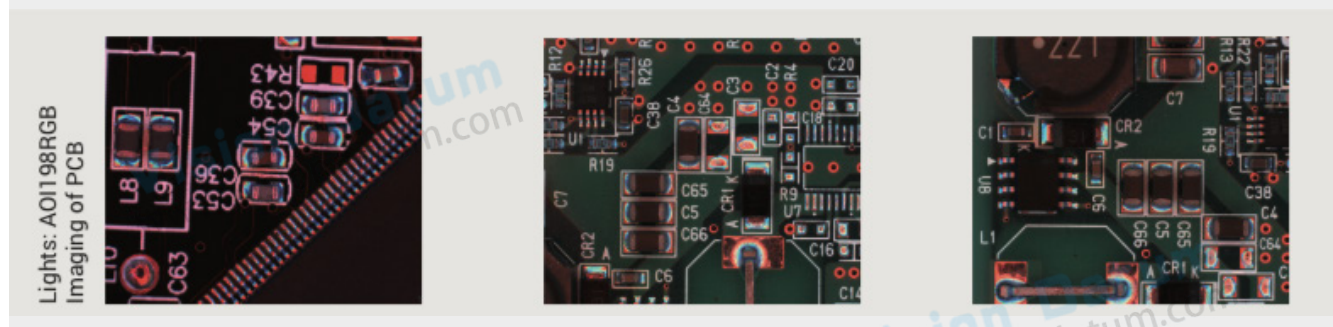
- The angles of red/green/blue/white color LED beads can be customized.
- Each color beads can be designed to be controlled separately.

Applications

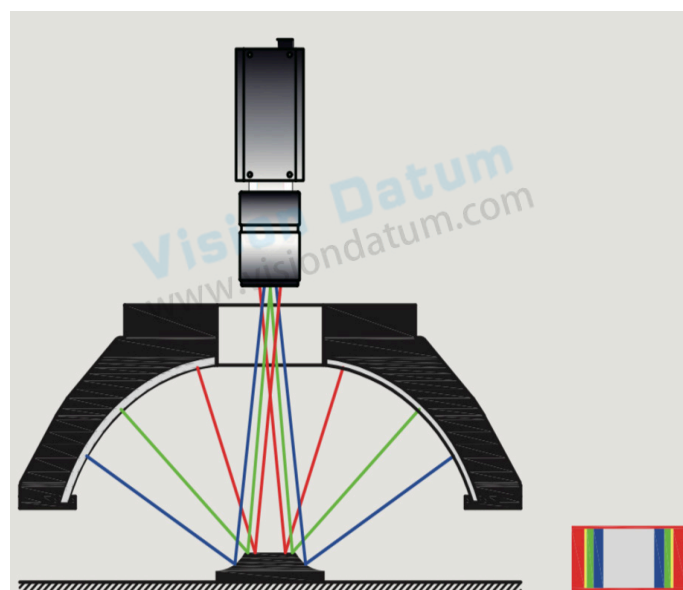
- PCB soldering inspection (applied to inspecting missing/wrong / inclined parts, insufficient/excessive/ no soldering, and other defects in PCB industry).
- Surface defects inspection for multiple layers.



Examples of AOI Light Images



Lighting Structure



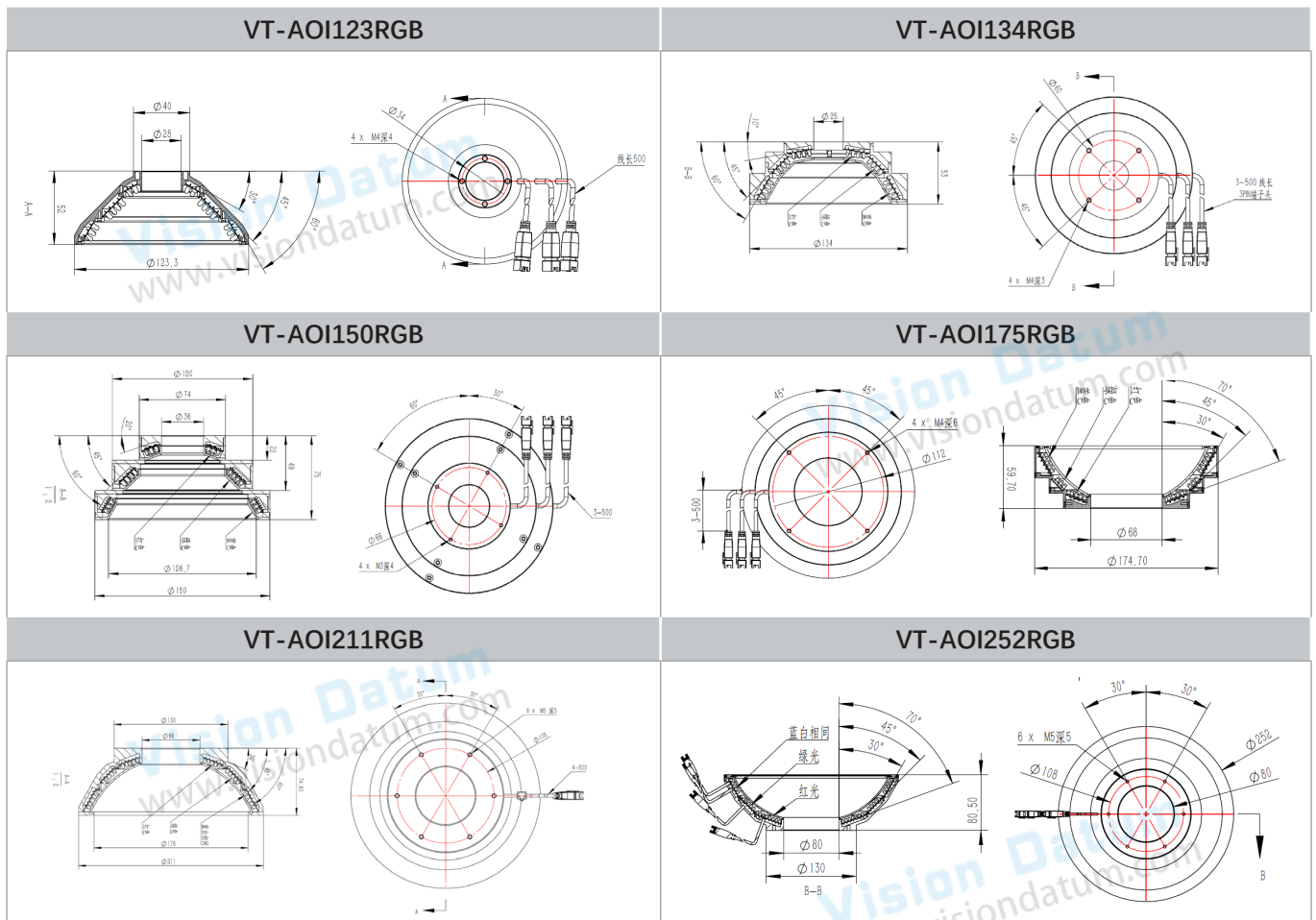
Explanation of Model Code

VT-AOI	123	RGB
Series	Outer Diam	Color

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Model No.	Electrical specifications (NIR / UV Accept custom)					Dimensions		
	Supply Voltage (v)	Power cons. (w) ●	Power cons. (w) ●	Power cons. (w) ●	Power cons. (w) ○	Outer diam. (mm)	Inner diam. (mm)	Height (mm)
VT-AOI123RGB	24	3	7	8	/	123.3	40	52
VT-AOI134RGB	24	4	6	9	/	134	25	53
VT-AOI150RGB	24	4	9	12	/	150	36	75
VT-AOI175RGB	24	6	11	16	/	174.7	68	59.7
VT-AOI211RGB	24	6	13	11	11	211	66	74.6
VT-AOI252RGB	24	10	16	16	16	252	80	80.5

Dimension (mm)



Multi-Spectrum Lighting MSR Series

Features

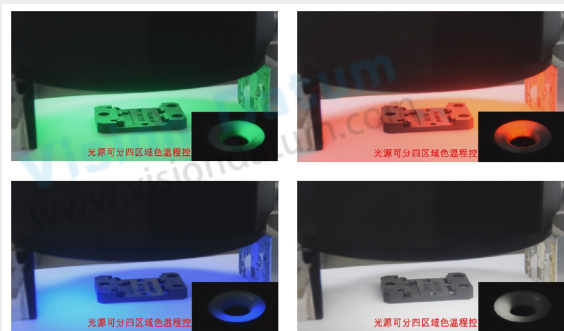
- The lighting includes lamp beads in 5 bands of red, green, blue, white and infrared, which can realize the color temperature adjustment of 1000-10000K color temperature (interval 200K).

Applications

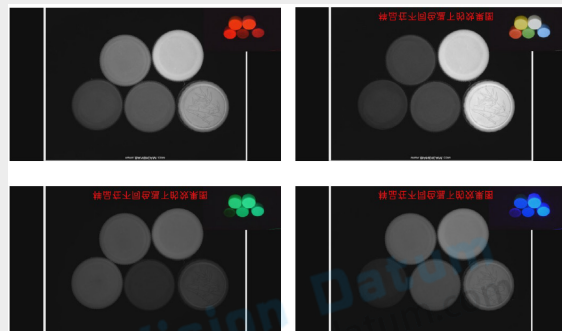
- Photometric Stereo Detection
- Highlight local 3D changes
- Extract 3D information of sample surface
- Sample color difference detection
- Realize any wavelength composite effect



Examples of MSR Light Images



Photometric Stereo Detection



Sample color difference detection

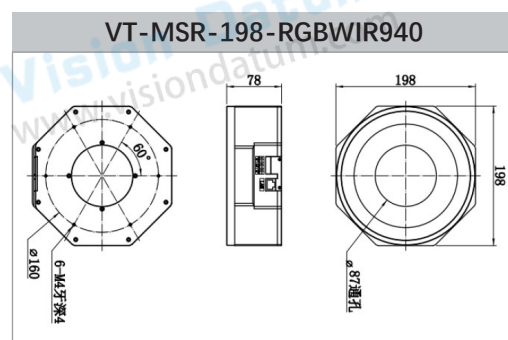
Specifications

Model No.	VT-MSR-198-RGBWIR940
Illumination Color	Multicolor (can be customized)
Illumination Color Temp.	1000-10000K
Illumination Method	Always-on light-emitting mode / Triggered light-emitting mode
Power	>35W
Input Power	DC12V/3.5A
Trigger Input	DC5-24V ≤6mA
Trigger Out	DC12V ≤10mA
Communication Method	Ethernet (RJ-45 port)
Environmental (Working)	Temperature:0-40°C ; Humidity:20-85%RH(non-condensing)
Environmental (Storage)	Temperature:-20-60°C ; Humidity:20-85%RH(non-condensing)

Explanation of Model Code

VT-MSR	198	R G B W IR	940
Series	Outer Diam	Including R, G,B, W, IR (MSR-198 are band pass) five color	Wavelength

Dimension (mm)



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

- ◇ 10GigE, SDI
- ◇ 1000 ~ 1000000 FPS

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