

Kokyo

Beam Profiler

SELECTION
GUIDE

Key Elements for Right Selection

The Largest Measurable Beam Size in The Industry ^{*1}	Kokyo's Laser Beam Profiler Covers 2 μm to 800 mm
Wavelength	Kokyo's Laser Beam Profilers cover the industry-widest bandwidth 190 nm - 16 μm Please select a right model for your applicaiton
The Largest Beam Power Allowance in the Industry ^{*1}	Kokyo's Laser Beam Profilers allow the industry-widest power range 0.001 W/cm ² through 100 kW/cm ² ^{*1}
CW or Pulse Laser Beam	Pulse repetition frequency and width information are needed to specify one of our products for a pulse laser application

Note *1) According to our survey

LaseView

Kokyo Laser Beam Profiling Analytical Software "LaseView"

- Multiple Camera Connection
- M²(M Square) Beam Quality Measurement
- Beam Spot Position Movement Measurement
- Beam Spot Diffusion Angle (Divergence) Measurement
- Timelapse Function
- Majority of Generic Cameras in the Market can be used



LHB Series with LaseView

Screen Integrated Beam Profiler for Immediate Measurement "LHB series with LaseView"

- Measure large beam spot from 25 mm to 800 mm (31.5" dia)
- Measures high power beam spot up to 100 kW/cm²
- Ignores stray light with a specific model (for LiDAR inspection)



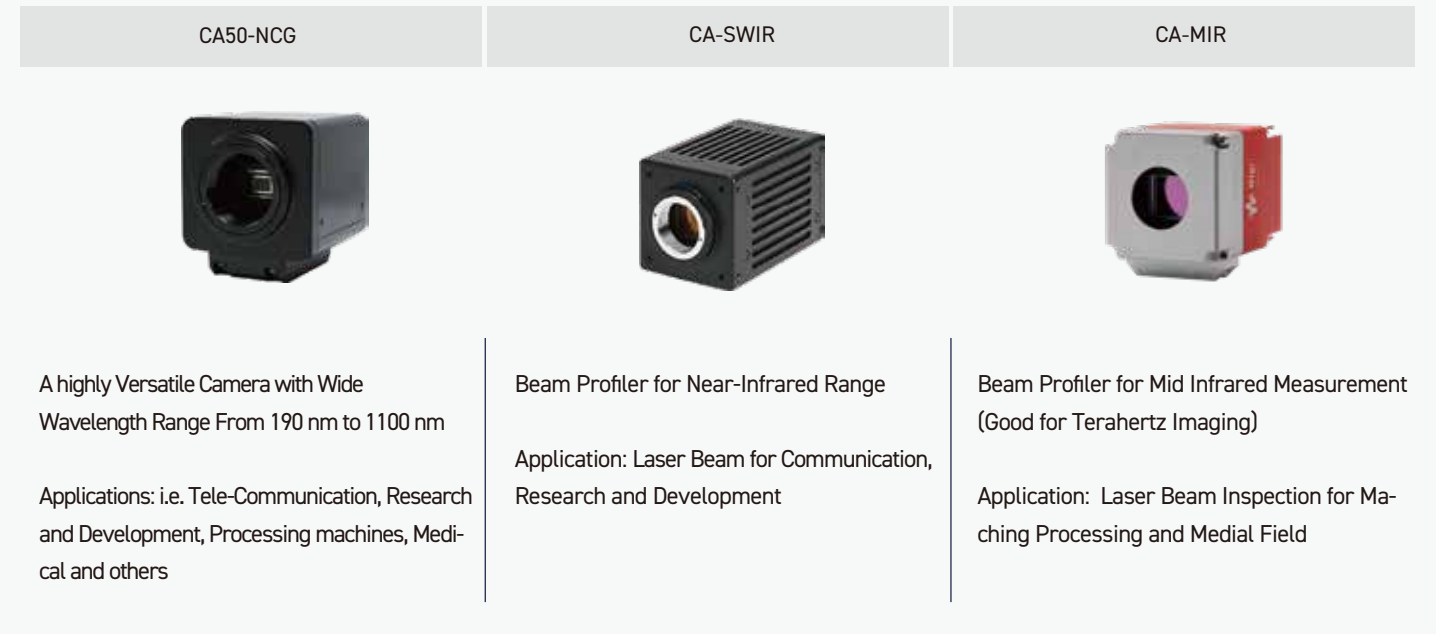
Screen size: 25 × 25 mm, 50 × 50 mm, 100 × 100 mm, 200 × 200 mm, 800 × 800 mm. ^{*2} ^{*3}
Large beam diameter can be covered with single screen and it does not require. multiple measurement of divided beam images.

Note
^{*2}) Maximum power per square millimeter varies by product in LHB series.
^{*3}) 10 W cannot be exceed for continuous operation.

CA Series with LaseView

Kokyo Selected Camera Set Series with "LaseView"

- Suitable for measuring small beam diameters, from 2 μm to 16 mm
- Compact size and easy installation (inside of a processing machine)
- We have a lineup of cameras with high sensitivity ranging from UV to near MIR with several model.



A highly Versatile Camera with Wide Wavelength Range From 190 nm to 1100 nm
 Applications: i.e. Tele-Communication, Research and Development, Processing machines, Medical and others

Beam Profiler for Near-Infrared Range
 Application: Laser Beam for Communication, Research and Development

Beam Profiler for Mid Infrared Measurement (Good for Terahertz Imaging)
 Application: Laser Beam Inspection for Matching Processing and Medial Field

Measurement Wavelength: 190 nm to 1100 nm
 Beam Diameter: 30 μm to 5 mm ^{*4}

Note
^{*4}) Optional optical system lens allows to measure down to 2 μm diameter.

Measurement Wavelength: 900 nm to 1700 nm
 Beam Diameter: 120 μm to 5 mm ^{*5} ^{*6}

Note
^{*5}) Optional optical system lens allows to measure down to 4 μm diameter.
^{*6}) The power needs to stay 10 $\mu\text{W}/\text{cm}^2$ or lower by using ND filter and so on for the high sensitivity sensor with this model.

Measurement Wavelength: 2 μm to 16 μm ^{*7}
 Beam Diameter: 90 μm to 16 mm

Note
^{*7}) NIR (2 μm to 3 μm) type with Sapphire Material Screen Window and MIR (4 μm to 16 μm) type with Ge Material one are available.






- **Line Profile**
Plays line profiles in the crosshairs. FWHM of the beam profile can be determined, fitting with Gauss, Lorentz and Sech² functions, crosshairs can be rotated.
- **Integral Profile**
Displays horizontally and vertically averaged profiles. The same analysis functions as for line profiles can be used.
- **Maximum Projection Value Profile**
Displays only the profile of the positive projection (maximum value) in the horizontal / vertical direction.
The same analysis functions as for line profiles are available.
- **Distance measurement between two points**
Measure the distance between any two points on the screen.
- **Peak integration**
Analysis of the integral values within a circle with the outside of the circle as background.



Laser Beam Profiler Selection Guide

WA WA Model to Ignore Stray Light
GigE GigE Model for GigE Interface Connection

UHP UHP Models for High Power Laser Beam Inspection
NIR GigE NIR GigE Models for Near Infrared Light

VISNIR GigE VISNIR-GigE Models Covering Visible Light through out Near Infrared Light

Product Name	LHB Series				
	LHB-25	LHB-50	LHB-100	LHB-200	LHB-800
					
Photosensitive Surface Dimensions	25 mm × 25 mm	50 mm × 50 mm	100 mm × 100 mm	200 mm × 200 mm	800 mm × 800 mm
Measurable Wavelength Range	WA UHP GigE 400 nm ~ 1100 nm		WA UHP GigE 400 nm ~ 1100 nm		
	NIR GigE 950 nm ~ 1700 nm		NIR GigE 950 nm ~ 1700 nm		VISNIR GigE
	VISNIR GigE 400 nm ~ 1700 nm		VISNIR GigE 400 nm ~ 1700 nm		VISNIR GigE
Measurable Maximum Power per Square Milimeter	0.1 W/cm ² ~ 100 W/cm ²				0.001 W/cm ² ~ 100 W/cm ²
	10 kW/cm ²				UHP
			0.001 W/cm ²	WA	
Optical Resolution	about 50 μm	100 μm ~ 400 μm	200 μm ~ 800 μm	400 μm ~ 600 μm	~ 1200 μm
Total Incident Power Density	Maximum 100 W/cm ²				
Total Incident Power	Maximum 10 W				Maximum 100 W
Measurable Light Beam Angle	UHP VISNIR GigE GigE NIR GigE ± 15°		UHP VISNIR GigE GigE NIR GigE ± 15°		VISNIR GigE
	± 70°			WA	± 70°
Effective Pixels	1600 × 1600	400 × 400 ~ 1600 × 1600	400 × 400 ~ 2000 × 2000	1250 × 1250 ~ 2500 × 2500	
A / D Conversion Resolution	8 bit / 16 bit	8 bit ~ 16 bit	8 bit ~ 12 bit	8 bit ~ 12 bit	8 bit / 16 bit
Frame Rate	238 fps (Max)	130 fps to 238 fps (Max)	36 fps to 130 fps (at 8 bit)	24 fps to 60 fps (Max)	23 fps to 60 fps (Max)
Exposure Time	1 μs ~ 30 sec.	0.001 ms ~ 30 sec.	0.001 ms ~ 4 sec.	6 μs ~ 30 sec.	1 μs ~ 4 sec.
Interface	USB	USB / GigE	USB / GigE	USB / GigE	USB 3.0(Type-B)
External Trigger Function	Available	Available	Available	Available	Available
Power Supply	AC Adapter				
External Dimensions	W 129 mm D 116 mm H 57.5 mm	W 154 mm ~ 195 mm D 130 mm ~ 196 mm H 82.5 mm ~ 83 mm	W 208 mm ~ 222 mm D 173 mm ~ 219 mm H 137 mm	W 389 mm D 268 mm H 258 mm	W 1100 mm D 1116 mm H 1065 mm
Weight	Approx. 1 kg	Approx. 2.5 kg	Approx. 2.5 kg	Approx. 8 kg	Approx. 85 kg

Product Name	CA Series				
	CA50-NCG	CA-SWIR	CA30-MIR	CA80-MIR	CA160-MIR
					
Measurement Wavelength range	190 nm ~ 1100 nm	900 nm ~ 1700 nm	NIR 2 μm ~ 3 μm / MIR 4 μm ~ 16 μm		
Beam Diameter	30 μm ~ 5 mm	120 μm ~ 5 mm	150 μm ~ 3 mm	100 μm ~ 8 mm	90 μm ~ 16 mm
Beam Diameter when Optical System Attached (Optional)	—	4 μm ~ 150 μm	—	—	—
Image Sensor	CCD	InGaAs	FPA	FPA	FPA
Number of Pixels	1360 × 1024	320 × 256	160 × 120	640 × 480	1920 × 1080
Imaging Area	6.47 mm (H) × 4.83 mm (V)	—	—	—	—
Frame Rate	12 fps	228 fps (Max) at 1 μs Exposure Time	—	—	—
Refresh Rate	Global Shutter	—	9 Hz	50 Hz	4 Hz or 9 Hz
Shutter Method	Global Shutter (Electronic Shutter 1/58824 sec. to 1/12.5 sec.)	Global Shutter	None	Automatic Operation by Algorithm	
Lens Mount	—	C Mount 1 Inch	—	—	—
Interface	USB	GigE	USB	USB	GigE
Power Supply	USB Power Supply	AC Adapter	USB Power Supply	AC Adapter	USB Power Supply
Environment	Operating Temperature: 0 °C ~ 35 °C Humidity: 10 % ~ 80 % (No Condensation Required) Operating Temperature and Humidity 0 °C to +40 °C, 20 % to 80 % (No Condensation Required) Storage Temperature Humidity 0 °C to +40 °C, 20 % to 80 % (No Condensation Required) Peltier Setting Temperature 5 °C to +35 °C, 20 % to 80 %				
External Dimensions	W 50 mm D 49.7 mm H 47 mm	W 58 mm D 90 mm H 58 mm	W 32 mm D 40 mm H 32 mm	W 60 mm D 56 mm H 63 mm	W 66 mm D 79 mm H 81 mm
Weight	Approx. 120 g	Approx. 560 g	Approx. 70 g	Approx. 145 g	Approx. 400 g
Window Material	—	—	NIR Sapphire MIR Germanium	NIR Sapphire MIR Germanium	NIR Sapphire MIR Germanium



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