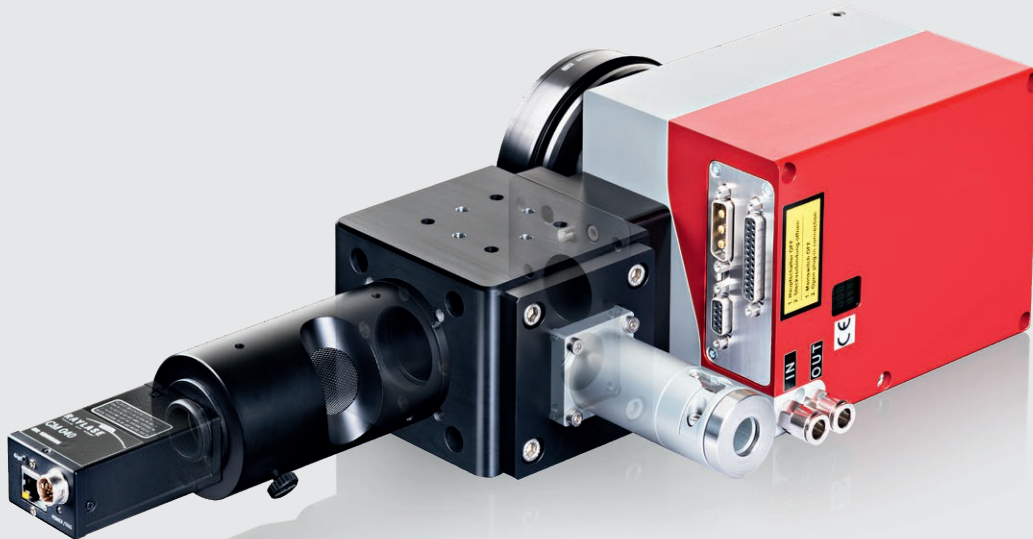


CAMERA ADAPTER



MVC ACCESSORY

FOR CHALLENGING INDUSTRIAL APPLICATIONS



- Compatible with all RAYLASE 2-axis systems with 7 mm to 20 mm apertures
- Collimator mount sets for all standard collimators
- On-Axis camera with lenses for process positioning and monitoring
- Different laser and observation wavelengths
- Input aperture: 20 mm, laser power up to 500 W

THE BEST COMBINATION OF CAMERA AND LASER PROCESS

YOUR BENEFITS

Used in combination with our On-Axis camera lenses, the RAYLASE CAMERA ADAPTER allows digital cameras to be connected, enabling the "On-Axis" observation of workpieces via the mirrors in the deflection unit. The active process can be observed and detected "online", while the process result can be observed and detected "offline". Additional sensors can be adapted as an alternative or extra option.

CONFIGURABLE THROUGH AND THROUGH

Thanks to the availability of various "Collimator mount sets CA", all standard fiber collimators can be adapted. Mounting plate sets CA adapt all deflection units of the MINISCAN II and SUPERSCAN IIE/III/IV/V series up to an input aperture of 20 mm.

The CAMERA ADAPTER is available for all standard laser wavelengths. On-Axis camera lenses are available for various resolutions, fields of view and observation wavelengths. We would be happy to provide a customized configuration for your application.

TYPICAL APPLICATIONS

- Workpiece inspection at high field resolution < 10 μm
- "Online" or "offline" process monitoring
- Downstream machine vision:
 - RAYLASE CLICK&TEACH application for production setup
 - RAYLASE weldMARK® Vision for determining the position of the workpiece with automatic adjustment of the process file
 - Automated IO/NIO – measurements (quality)
 - Readout of serial numbers and codes

INNOVATION AND QUALITY

Innovation and maintaining high product quality standards are our priorities at RAYLASE. All our products are developed, built and tested in our own laboratories and production facilities. Through our world-wide support network we can offer best maintenance and rapid service for our customers.

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FOR CHALLENGING INDUSTRIAL APPLICATIONS

GENERAL SPECIFICATIONS

Ambient temperature	+15°C to +35°C
Storage temperature	-10°C to +60°C
Humidity	≤ 80 % non-condensing

MECHANICAL VALUES

CAMERA ADAPTER	CA 355 001	CA 532 001	CA 800-980 001	CA 1064 001
Input aperture (mm)	20.0			
Weight excluding adapter plates, excluding camera lens (kg)	approx. 1.57			
Dimensions excluding adapter plates (L x W x H) (mm)	94 x 85 x 100			
Camera lens connection thread / sensor adaptation	M36 x 1			
Water cooling	none			

TYPE-DEPENDENT SPECIFICATIONS – LASER DATA AND WAVELENGTHS

CAMERA ADAPTER	CA 355 001	CA 532 001	CA 800-980 001	CA 1064 001
Laser wavelength (reflective) (nm)	355	532	800 – 980	1,064
Max. laser power (W)	500			
Recommended input beam diameter (1/e ²) (mm)	13			
Observation wavelength range (nm)	450 – 880	640 – 880	450 – 640	450 – 880

ON-AXIS CAMERA LENSES

On-axis camera lenses are available for various resolutions and fields of view (FOVs). The camera lenses have special steep-slope filters that ensure a sharp and brilliant image of the field of view on the camera chip. The average wavelength of these filters is available in two versions for 640 nm and 850 nm. The camera lenses (Camera Lens 00X) are equipped with a manual, lockable focus setting, allowing image sharpness to be adjusted within a wide range, depending on the F-Theta lens. An additional lockable setting allows the image field to be aligned with the laser field orientation.

SPECIFICATIONS FOR ON-AXIS CAMERA LENSES

ON-AXIS CAMERA LENS	CAMERA LENS 002	CAMERA LENS 003	CAMERA LENS 004	CAMERA LENS 005
Input aperture (mm)	20			
Camera connection on lens	C mount			
Weight (kg)	0.67			
Observation wavelength (nm) ¹	640 ± 6.5		850 ± 6.5	
Typical field of view (FOV) (mm) ^{2,3}	2.9 x 1.9	11 x 7	11 x 7	2.9 x 1.9
Max. optical field resolution (µm) ³	5.9 (up to f = 340 mm)	5.9	5.9	5.9 (up to f = 340 mm)

¹ Observation wavelength = required monochromatic illumination wavelength.

² Based on focal length of F-Theta lens f = 100 mm.

³ Camera chip size 1:1.2 inches, 2.35 megapixels.

The FOV (field of view) increases in proportion to the focal length at a constant camera chip size. The field resolution decreases simultaneously. With long focal lengths, the field of view (FOV) may be limited by the relevant scanning head aperture, depending on the configuration (keyhole effect).

Note: As the fields of view and field resolutions depend on the F-Theta lenses used, the On-Axis camera objective, the camera's chip size and number of pixels, a range of different combinations are possible. Customer specific configurations are also possible. Please contact the RAYLASE support team for specific information and possible combinations on +49 8153 88 98-0 or email support@raylase.de.

To improve image quality, cameras should be used without infrared filters. This filtering is achieved in the camera lens itself with less light loss. In addition to camera adapters and On-Axis lenses, RAYLASE also offers cameras, illumination packages and complete machine vision packages for On-Axis and Off-Axis monitoring.

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