

# AEROTECH

## Camera Adapter for 2- & 3-Axis Laser Scan Heads

# AGV-CA



### Powerful, Flexible Vision

The AGV-CA camera adapter enables digital imaging of the galvo laser scan heads' focal plane for part alignment, quality assessment and any other automated machine vision application. A multi-wavelength design provides maximum flexibility within a single module for high-performance laser systems. Designed specifically for high-resolution monochrome imaging applications required by industrial machine builders to minimize their machine footprint and maximize productivity, the AGV-CA sets the standard for through-laser scan head imaging performance.

### Key Applications

AGV-CA is ideal for galvo laser scan head imaging applications, including:

- ◆ Part identification & alignment
- ◆ Automated scanner calibration
- ◆ Laser process quality assessment
- ◆ Machine vision applications

### KEY FEATURES:

- ◆ **HIGH-RESOLUTION MONOCHROME IMAGING** of 2D & 3D laser scanners' field of view (FOV)
- ◆ Choose from **150 MM OR 300 MM FOCAL LENGTH LENSES** to enable imaging of features as small as 5  $\mu$ m
- ◆ Supports **CW TO ULTRAFAST PULSED YB:YAG (1064 NM) & ND:YAG (1030 NM) LASERS** & their harmonics
- ◆ Enclosure is **RESISTANT TO INGRESS OF PARTICLES & PROCESS DEBRIS**
- ◆ Adjustable (0/90/180/270°) **INPUT APERTURE/CAMERA POSITIONING**
- ◆ Optional **CO-AXIAL ILLUMINATION FOR OPTIMAL IMAGE CONTRAST** on complex surfaces

## AGV-CA SPECIFICATIONS

Specifications	AGVCA10	AGVCA14	AGVCA20 & AGV3D
Laser Beam Clear Aperture <sup>(1)</sup>	10 mm	14 mm	20 mm
Compatible Laser Wavelengths <sup>(2)</sup>	-LR: 335-360 nm (UV), 510-540 nm (Visible), and 1025-1085 nm (IR) -LT1: 335-360 nm (UV) -LT2: 510-540 nm (Visible) and 1025-1085 nm (IR)		
Observation Wavelength <sup>(3)</sup>	635 nm +/- 15 nm		
Laser Beam Input Interface	SM1 threaded for lens tubes or 4-bolt fiber optic coupler		
Laser Power Efficiency	-LR: >99% -LT1/2: >98%		
Laser Input/Camera Orientation Adjustment <sup>(4)</sup>	360°, fully adjustable		
Objective Lens Specifications			
Imaging Lens Focal Length	-F1: 150 mm -F2: 300 mm		
Minimum Resolvable Feature Size <sup>(5)</sup>	-F1: 0.01 mm [10 µm] -F2: 0.005 mm [5 µm]		
Typical Field of View (FOV) <sup>(5)</sup>	-F1: 3.80 X 2.85 mm -F2: 1.90 X 1.43 mm		
Camera Compatibility <sup>(6)</sup>			
Recommended Camera Type	Monochrome		
Camera Sensor Size/Format	Up to 2/3"		
Camera Connection on Lens	C-mount		
Mechanical Specifications			
Dimensions (L x W x H) <sup>(7)</sup>	-LR: 211 X 112 X 54 mm -LT1/2: 74 X 112 X 192 mm		
Weight <sup>(7)</sup>	1.25 kg		
Operating Temperature	15° to 35°C		
Operating Humidity	< 60% RH, non-condensing		
Coaxial Illumination Specifications			
LED Wavelength	Visible Red		
Input Voltage	5V DC		
Beam Conditioning	Diffused		
Illumination Mode	Continuous		

Notes:

1. Clear aperture represents the smallest aperture within the optical path for both the laser beam and imaging.
2. Laser compatibility includes beam splitter and input cover glass for only, note -LR and LT1/2 are compatible with different laser wavelengths.
3. Observation wavelength limited by bandpass filter installed on lens.
4. Camera orientation only compatible with -LT1/2 laser configurations. With -LR configuration the input aperture is fully adjustable and the camera orientation is fixed.
5. Based on specified lens focal length at 1030 nm with 100 mm FL F-theta objective with a 1/2.5" camera sensor, 2.2 µm pixel size.
6. Camera is not included. Camera sensor format and pixel size will impact the minimum resolvable feature size specification.
7. Without camera.

## AGV-CA ORDERING OPTIONS

### AGV-CA Scan Head Camera Adapter

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**AGV-CA** AGV Camera Adapter

### Input Model Adapter (Required)

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- 10 Adapter plate for AGV10 (BE1 & BE2)
- 14 Adapter plate for AGV14 (BE1 & BE2)
- 20 Adapter plate for AGV20 (BE1 & BE2)
- 3D Adapter plate for AGV3D (BE1 & BE2)

### Laser Configuration (Required)

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- LR Reflect (Laser): UV (335-360 nm), Green (510-540 nm), IR (1025-1085 nm)  
Transmit (Image): Red (620-650 nm)
- LT1 Reflect (Image): Red (620-650nm)  
Transmit (Laser): UV (335-360nm)
- LT2 Reflect (Image): Red (620-650nm)  
Transmit (Laser): Green (510-540 nm), IR (1025-1085 nm)

### Objective Lens (Required)

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- F1 Focal Length F=150 mm
- F2 Focal Length F=300 mm

### Illumination (Optional)

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- None No illumination
- CL With coaxial illumination

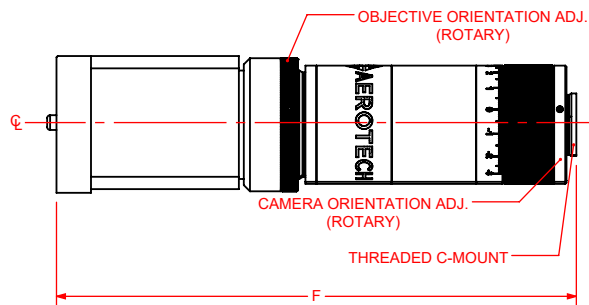
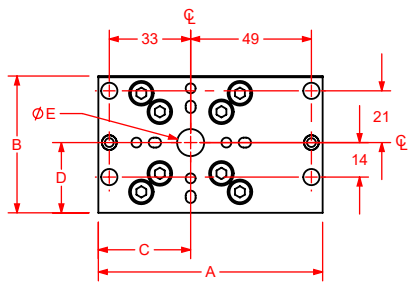
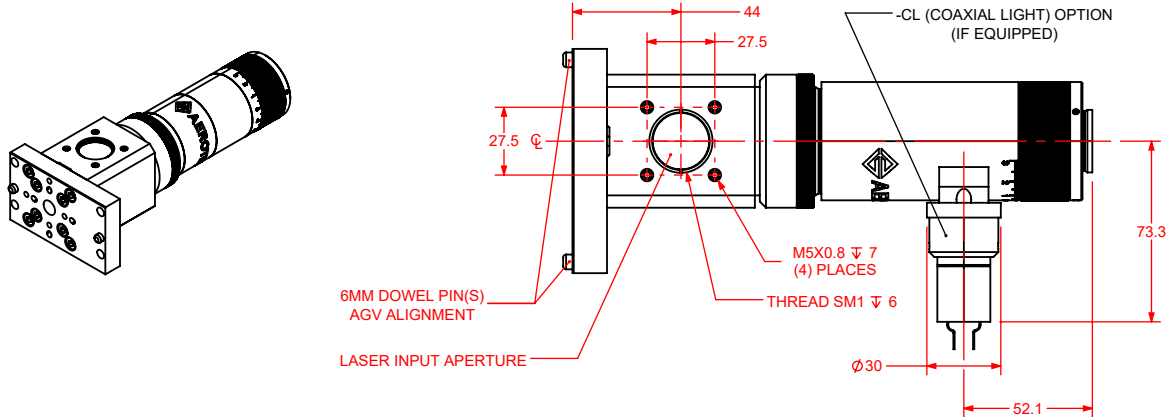


## AGV-CA DIMENSIONS

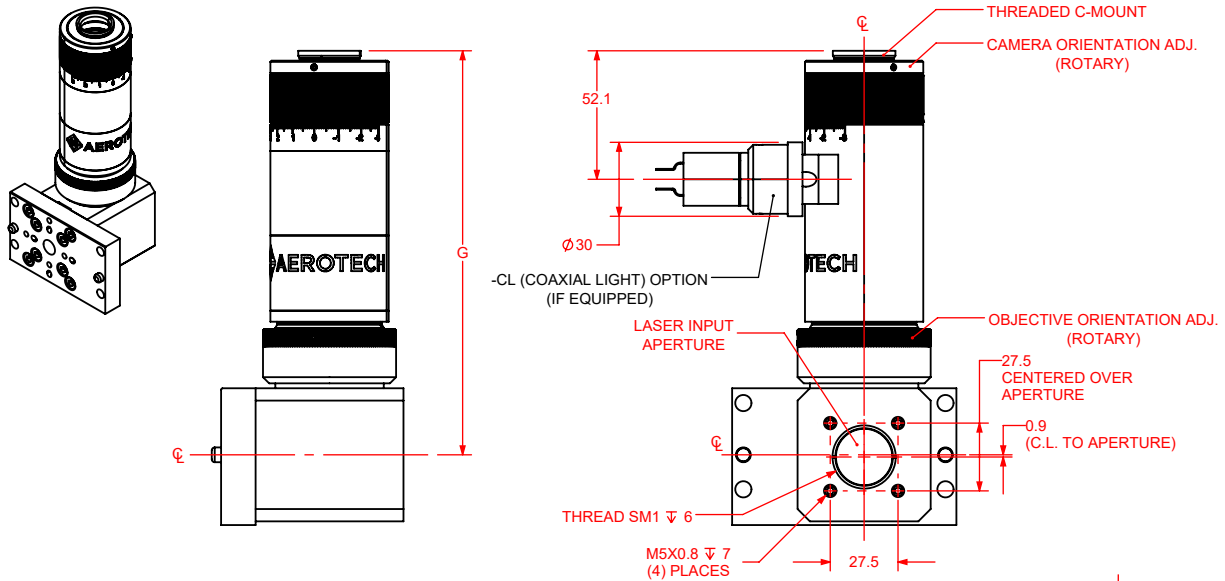
AGV SIZE					
OPTION	A	B	C	D	E
-10	91	55.5	37.4	28.5	11
-14	93	54	38.5	27	15
-20	100	55	41.8	27	21
-3D	100	55	41.8	27	21

OBJECTIVE LENS		
FOCAL LENGTH	F	G
150mm (-F1)	200	155
300mm (-F2)	210	165
150mm W/ COAX. LED (-F1-CL)	210	165
300mm W/ COAX. LED (-F2-CL)	220	175

### -LR (LASER REFLECT) OPTION



### -LT (LASER TRANSMIT) OPTION



DIMENSIONS: MILLIMETERS

