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Camera Adapter

RCA-50/135/30H



Installation

The camera adapter is mounted between the scan head's beam entrance and the laser flange (see Fig 1).

Working Principle

Illumination light reflected from the surface of the workpiece pass through achromatic F-theta, galvo scanner,beam splitter,CCD lens to reach the CCD sensor.Adjust beam splitter position to compensate the error of machinng and assembly to ensure the optical path of the laser and reflected light coxial.Make the laser coincides with the CCD image detection point.

安装

相机适配器安装在二维扫描振镜的入光面和激光器安装板之间，通过转接板进行连接（见图一）。

工作原理

环境光从工件表面反射后经过消色差场镜、二维扫描振镜系统、分束镜、CCD镜头后到达CCD感光件。调节分束镜位置补偿机械加工的误差及安装误差，保证激光光路与反射光光路同轴，实现激光加工位置与CCD影像的检测点重合。

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视野范围RCA-50/135 FOV RCA-50/135

视野范围由场镜焦距，CCD镜头，CCD相机感光元件的尺寸共同决定。以160mm场镜、135mmCCD镜头、CCD靶面尺寸为1/2″（6.4mm*4.8mm）为例，视野范围是7.6X5.7mm（如下表）。

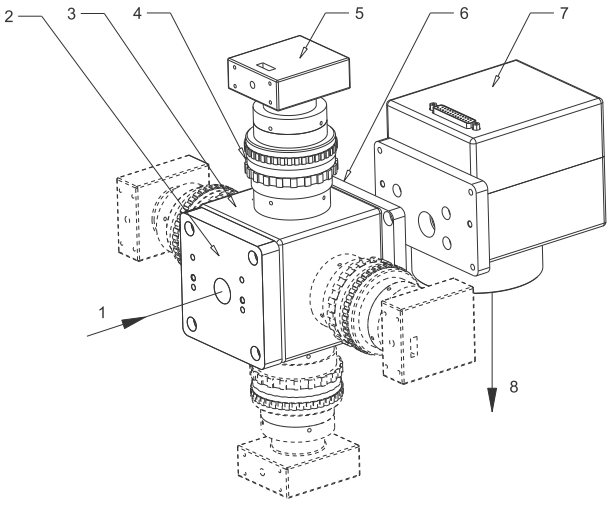
Field of view is decided by the lens focal length, CCD camera, CCD camera photosensitive element size together. For example, 160mm lens,CCD camera focus is 135mm, CCD target surface size of 1/2″ (6.4mm*4.8mm), the field of view is 7.6x5.7mm(see table)

激光波长 Laser wavelength	1064nm	532nm	355nm	10.6/9.3um
照明波长（nm） Illumination wavelength	635			
最大入射直径（mm） Diameter of entering beam	16			
CCD相机接口 Camera mount	C			

场镜焦距（mm） Flat field objective	100	160	210	254
加工范围（mm²） Marking area	60x60	100x100	150x150	170x170
视野范围RCA-50（mm²） Observation field size	12.8x9.6	20.4x15.3	26.8x20.1	32.5x24.3
视野范围RCA-135（mm²） Observation field size	4.7X3.5	7.6x5.7	10x7.5	12x9

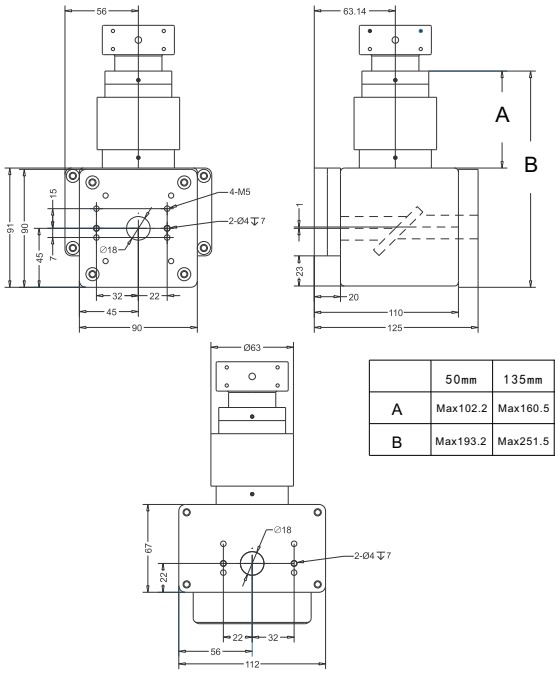
其他参数 Other parameters

质量（不包括CCD相机） Weight(without camera)	≈2.6Kg
CCD靶面尺寸 Max. Chip size	½″
工作温度 Operating temperature	25℃ ±10℃
激光透过率 Laser transmittivity	95%



图一 Fig 1

机械参数 Mechanical parameters



	50mm	135mm
A	Max102.2	Max160.5
B	Max193.2	Max251.5

图二 Fig 2

注释：

1 入射光束 Entering beam
2 相机适配器光束入射面 Beam-entrance side camera adapter
3 相机适配器 Camera adapter
4 CCD镜头部分 CCD objective
5 CCD相机 CCD camera
6 相机适配器光束出射面 Beam-exit side camera adapter
7 扫描振镜 Scan head
8 出射光束 Exit beam

注：所有尺寸都以毫米（mm）为单位 All dimensions in mm

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Coaxial CCD adapter tuning method and steps

CCD同轴视觉模组分束部分调节方法与步骤

1、调节振镜高度，找到振镜焦点位置。

Adjust the galvanometer height, find the galvanometer focus position.

2、控制振镜在加工面打出十字线。 Mark the crosshair.

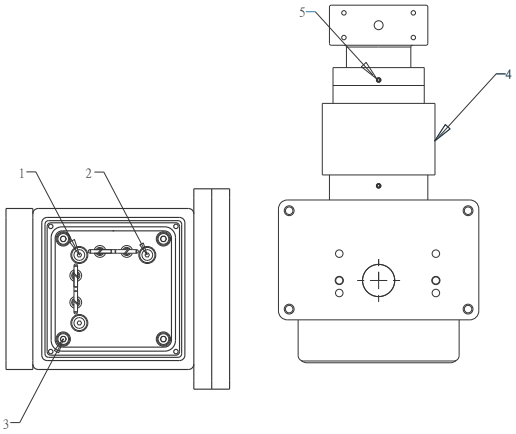
3、顺/逆时针调节调焦环4，至CCD呈现清晰图像。

Adjust the focus ring 4 (CW or CCW), to the camera showing a clear image.

4、将镜头锁死。 Locking camera

5、放松螺丝5，顺/逆时针调节镜头，使CCD图像的方向与十字线方向一致。

Loosen screw 5, CW or CCW adjusting camera, to make the orientation of the image the same as the crosshairs.



图三Fig3

6、锁紧螺丝5。 Lock screw 5.

7、观察CCD图像十字中心线与打标十字线的位置，若十字线交点与CCD图像十字中心线不重合则需打开保护盖，调节旋钮2、3。调节旋钮2时(见图三)图像中心点会斜着左右移动，调节旋钮3时图 像中心点会斜着上下移动。旋钮2、3配合调节使十字线与CCD图像十字中心点重合。

Observe the CCD image crosshair and the marked crosshair position. If the two crosshair does not coincide with each other need to open the protective cover,tuning the knob 2 and knob 3. Take 2 (see Figure 3) as an example,When the knob 2 is adjusted, the center of the image will move left and right diagonally.When the knob 3 is adjusted, the center of the image will move up and down diagonally .Tuning knob 2 and 3 to make the image crosshair coincide with the marked crosshair.

8、十字线与CCD图像中心点重合之后盖上保护盖。

After tuning restore the cover.

注:上述资料如有更改，将不作另行通知 The above information is subject to change without notice. 04/2022

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