

## CCD-100D Autocollimator Data Sheet (16 June 2020)

### 1.0 Introduction

The CCD-100D is a compact visual pinhole autocollimator that emits its own collimated light to accurately measure small angular displacements. It is designed to check the mutual alignment of multiple target surfaces by comparing the pinhole images reflected from each surface. Sample applications include checking the alignment of laser rod ends or checking the alignment of optical windows and wedges. The CCD-100D provides a digital video output through a single USB 2.0 connection. Although the CCD-100D outputs a digital signal, it is a truly visual device and measurements are made through a visual comparison of images. There is no numeric readout of angle.

### 2.0 Manufacturer

Micro-Radian Instruments, 131 E. Grover St, Lynden, WA 98264 USA (CAGE 50223)

### 3.0 General Specifications

Recommended maximum working distance*	1 meter
Emitted beam diameter (nominal)	30 mm
Recommended minimum target mirror size	5 mm diameter
Maximum angular measuring range*	±2850 arc-seconds AZ, ±2100 arc-seconds EL
Resolution (typical)	5 arc-seconds
Pinhole diameter	100±5 microns, subtends 100±5 arc-seconds
Light source	white LED
Power input requirements	+5VDC (camera) and 100VAC to 240 VAC (light source)
Signal output	USB 2.0
Weight	430 g

\*Maximum working distance and maximum measuring range are not simultaneously achievable.

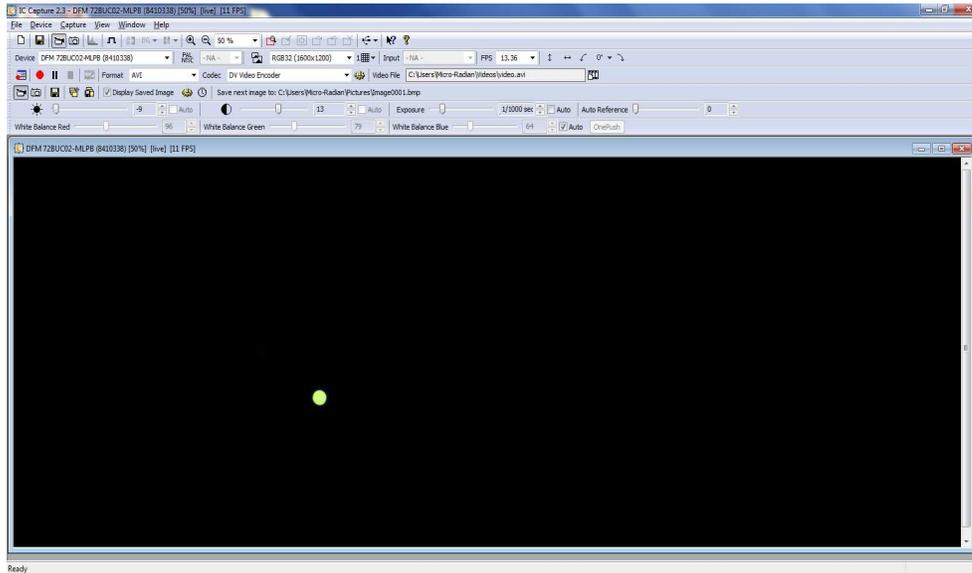
### 4.0 Housing

All housing components are machined from solid blocks of 6061 aluminum and are black anodized inside and out. The part number and manufacturer name are permanently engraved on the right side surface of the housing. Mounting is designed for an optical table using three 1/4 -inch through holes in the base plate. There are no moving parts and mounting in any orientation is acceptable.

### 5.0 Electronics

The CCD-100D contains a built-in board-level camera. The camera is a high resolution CMOS device with power input and data output via USB 2.0. An additional external plug-in power supply is provided to power the internal light source. The plug-in power supply will provide an adjustable DC output for the LED light source. The CCD-100D is designed for use with a PC and a USB driver for Windows-based computers and image viewing software are included.

## 6.0 Image Viewing GUI and Sample Image



## 7.0 Calibration

The CCD-100D pinhole image diameter subtends  $100 \pm 5$  arc-seconds. The angle subtended by the image is independent of the magnification setting used in the image viewing software- the image diameter will always subtend  $100 \pm 5$  arc-seconds. There is no electronic calibration and there are no moving parts. The autocollimator does not require recalibration.

## 8.0 Outline and Mounting (Inches)

