

## CIMEL SUN PHOTOMETER SET-UP MANUAL

The basic assembly is relatively simple and one can probably get the robot assembled, etc. with no problems. Most of the cables only fit in one place and are labeled clearly.

Once you have the robot assembled, orient it so the zenith motor casing is pointing roughly east (the metal claw to which the sensor head is attached, then points to the west). This configuration is just a rough starting point. The set-up details that follow should aid you.

A photo illustrating the Cimel sun photometer components is below (FIGURE 1).

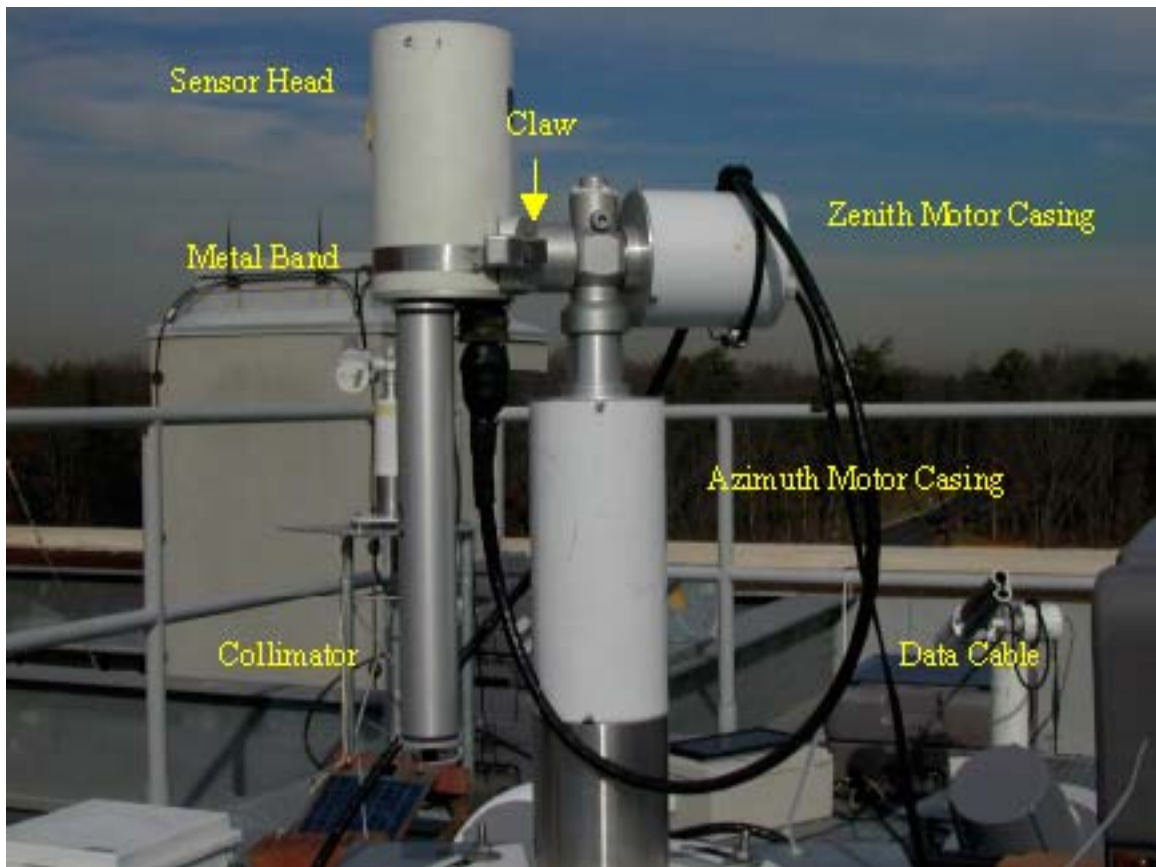


Figure 1: Cimel sun photometer with sensor head and data cable attached

**NASA AEROSOL ROBOTIC NETWORK (AERONET)**  
**<http://aeronet.gsfc.nasa.gov>**

\*\*\*\*\* SET-UP \*\*\*\*\*

1. The round connector end of the data cable should be attached to the sensor head, and the flat connector should be plugged into the white Cimel control box. Strap the sensor head to the robot metal claw using the silver metal band. Make sure that the face of the sensor head is flush with the edge of the metal claw (**FIGURE 2**).

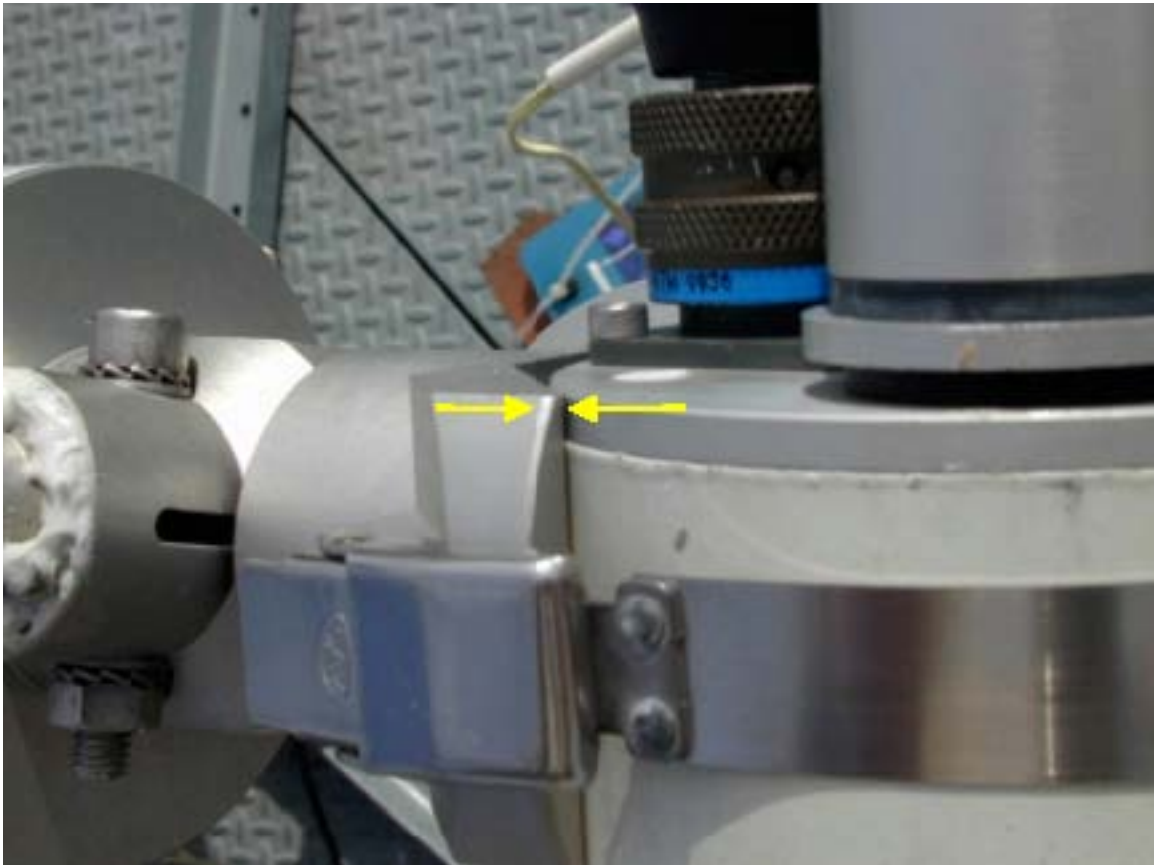


Figure 2 Attached sensor head edge should be flush with the robot claw edge

**NASA AEROSOL ROBOTIC NETWORK (AERONET)**  
<http://aeronet.gsfc.nasa.gov>

2. Ensure that the long axis of the collimator cross-section is perpendicular to the axis of the zenith motor casing and claw (FIGURE 3).



Figure 3 The long axis of the collimator cross-section (yellow) should be exactly perpendicular to the robot's zenith motor axis (green)

## NASA AEROSOL ROBOTIC NETWORK (AERONET)

<http://aeronet.gsfc.nasa.gov>

3. Verify the Cimel control box TIME and DATE are correct, i.e., it agrees with the Vitel clock. If the Time or Date is wrong, the Cimel will NOT find the sun on a GOSUN command.
4. Verify that the ROBOT itself is level. Do not use the bubble level on top of the ROBOT. Place a different bubble level on top of the flat ledge of the central robot tubular body (below the sensor head motor). This should be level in both the north/south and east/west axes (FIGURE 4).



Figure 4: Leveling robot (Do not use top bubble level).

**NASA AEROSOL ROBOTIC NETWORK (AERONET)**  
**<http://aeronet.gsfc.nasa.gov>**

5. Put the Cimel in manual mode. In Manual mode, the main screen looks like this:

**PW MAN SCN VIEW**

6. Do a PARK procedure (see the Cimel Sun photometer Manual). When PARK is complete, it should result in a parked position where the sensor head collimator is pointing down, perpendicular to the ground. Place the bubble level on the top of the metal claw arm (FIGURE 5) and verify that this is level.



Figure 5: Leveling robot claw (sensor head attachment point)

**NASA AEROSOL ROBOTIC NETWORK (AERONET)**  
<http://aeronet.gsfc.nasa.gov>

**6 b.** If the metal claw is not level, loosen the zenith bolt's hex nut (below the permanent bubble level on the top of the robot) (FIGURE 6) and level it by rotating the zenith motor casing with your hand.



Figure 6: Zenith bolt used to adjust sensor head leveling

7. Re-tighten the zenith nut tightly (FIGURE 7).

**Important: Perform another PARK procedure or two and make sure it is in fact level.**



Figure 7: Adjusting zenith bolt

**NASA AEROSOL ROBOTIC NETWORK (AERONET)**  
**<http://aeronet.gsfc.nasa.gov>**

**8.** Using the right 2 buttons, change the display to read GOSUN. Select GO to initiate. The sensor head should point to the sun (FIGURE 8).



Figure 8: Cimel performing a GOSUN procedure



**NASA AEROSOL ROBOTIC NETWORK (AERONET)**  
**<http://aeronet.gsfc.nasa.gov>**

**9.** The hole at the top of the collimator should allow the sunlight to illuminate the marker spot at the base of the collimator (FIGURE 9). When the bright spot is on the mark, the instrument is aligned. If it is off to the left or right, rotate the robot base to align it. After you rotate the robot, you will need to verify that the robot is still level as before.



Figure 9: Sun spot from collimator centered on white alignment disk

## NASA AEROSOL ROBOTIC NETWORK (AERONET)

<http://aeronet.gsfc.nasa.gov>

**10.** PARK the instrument. Perform another GOSUN to check that the alignment is still good. If not, ensure that the robot is level, and that the sensor head is level when manually parked.

**Important Note:** When you level the sensor head and do a GOSUN, repeat this process a few times to verify the alignment. The first GOSUN after leveling is often not correct because moving the sensor head while leveling can temporarily change the robot's zeroing point. Re-PARKing and performing a second GOSUN will be more accurate. If the alignment seems accurate and consistent on repetition, you can continue.

**11.** Press PW, **increment to 1**, press **“Pass”**, press **“PAR”**, and then place the instrument in AUTO mode.

The main AUTO mode display should read:

### **PW AUTORUN VIEW**

The Cimel should be left in this mode in order to perform automatic measurement sequences.

ADDITIONAL SET-UP PHOTOS ARE AVAILABLE AT  
[http://aeronet.gsfc.nasa.gov/new\\_web/cimel\\_photos.html](http://aeronet.gsfc.nasa.gov/new_web/cimel_photos.html)