



# INSTRUCTION MANUAL

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## SMALL VIAL ATTACHMENT

TO THE PC-2200 AND PC-2300 LASER PARTICLE COUNTERS

Rev G  
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## Items Included

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<b>Item</b>	<b>Quantity</b>	<b>Description</b>	<b>Part Number</b>
1	1	Collector Lens Assembly	2000301
2	1	Hex Key	2000530
3	1	Clean Calibration Vial	2000405
4	1	5 $\mu$ m Calibration Vial	2000406
5	1	Small Vial Stand ("V" Block)	2000302
6	1	Empty Vial	2000608

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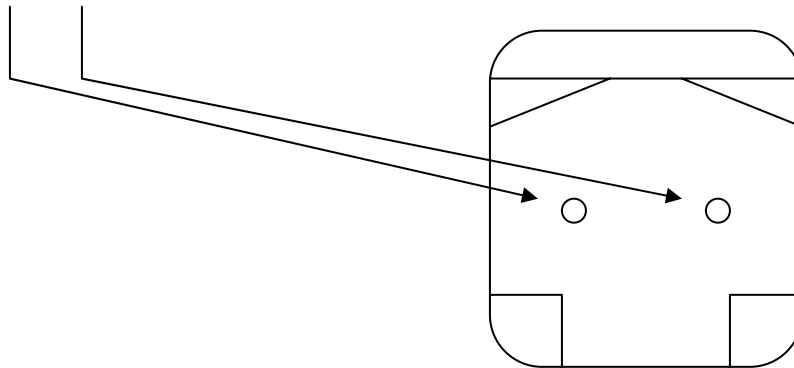
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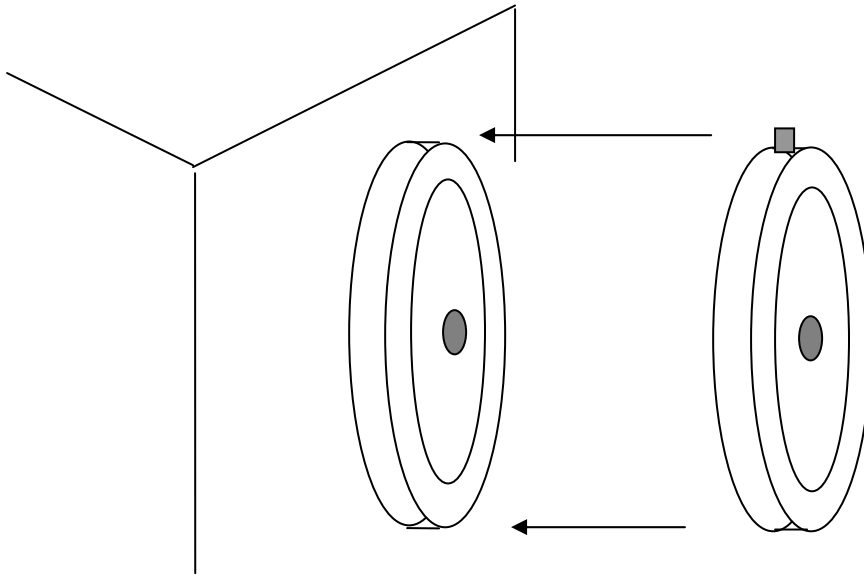
The PC-2200 Particle Counter has a precisely defined, optically focused, sensitive zone within a container. Only particles within this zone are counted and it is important that the glass walls of the container are outside the zone. The standard instrument has a sensitive zone approximately 2 ½ cm long (and 3mm diameter) so that it would be impossible to count the particles within small vials or ampules as their diameters are much smaller. Basically, the small vial attachment shrinks this sensitive zone by reducing its length.

The sensitive zone's length is reduced to 10 mm by the addition of the collector lens assembly in front of the black target lens. This reduces the overall focal length of the collector optics to the required 10 mm and is ideal for handling vials down to 10 mL capacity. For 3-5 mL vials, an extra component, the Projection Lens Assembly, is used. See page 7 for further information.

- A. Remove the Light Tight Cover.
- B. Remove the "V" Block by unscrewing the two (2) Philips-headed screws holding it to the base plate.



- C. Fit the Collector Lens Assembly over the lens with the black target in its center. Ensure the red laser circle is closest to center of black target. Tighten it with the Hex Driver provided.

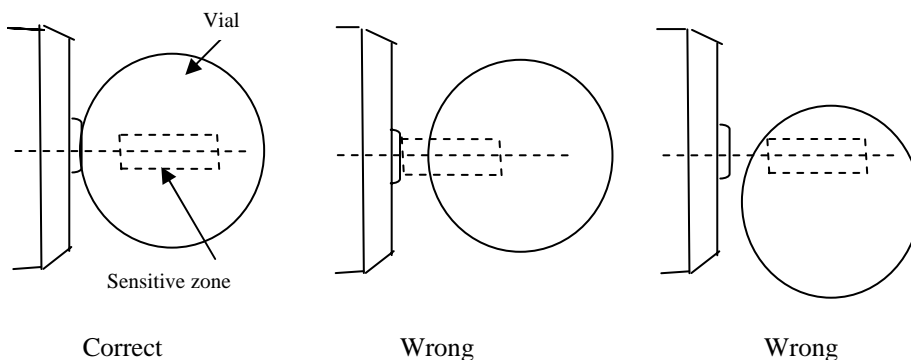


- D. Replace the “V” block with the Multi-Vial or Small Vial Stand provided. Do a final check that the red laser circle is close to the center of the black target.
- E. Replace Light Tight Cover. The Small Vial Attachment is now ready for use.

## Sample Handling

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- A. Resuspend the sample by gently inverting the vial several times. Make sure the vial’s walls are clean from fingerprints or markings.
- B. Place the vial onto the Small Vial Stand so that it is central and as close to the black target as possible. This positioning must be correct to avoid spurious counts from the glass walls of the small vial touching the sensitive zone of counting. The spring provided is an assist.



- A. Establish **background level**. With no vial on the “V” block and the light tight cover blocking any fluorescent light that could cause spurious counts, find the threshold setting where there are two or less counts on the particle counter. This is your background level.
- B. **Standard Vials**. With the “clean” vial provided and threshold set at 10, check that the counts are less than 20. With the red capped vial provided, and threshold knob set at 10, see that the counts match the number on the vial  $\pm 20\%$ . Because the small vial attachment reduces the sensitive zone by 2, multiply these counts by 2.5 to obtain the absolute number. This can be entered into the software as an x2.5 dilution factor.
- C. **Sizing particles using the computer/software setup**. All the standard procedures for the PC-2200 are used except the filter files F-11 and F-81 are used instead of F-0 and F-80.

**The procedure for changing over to filter file 11 is as follows:**

1. Ensure the Histogram is on the computer screen.
2. Click on **Filters** at the top of the screen.
3. Click on **Load Filter File**.
4. Click on **11 ft**.
5. Click on **file**.
6. Ensure that the number 11 appears in the filter box in top-right corner of histogram.  
*Note that the sizing now goes down to  $3\mu\text{m}$ , not  $1\mu\text{m}$  as in the F-0 program.*
7. If an **integrate** count is required, hit the “i” key or click on the integrated icon.

Note: F-11 and F-81 are linked together.

**Note about vials: Clean vials like the ones supplied, can be purchased from EP Scientific Products, phone number 800-331-3144. The part number is 140-40C/CT/LP.**