

Installation Instructions

Mirror Cleaning Procedure

EA01381C/66/EN/01.21

If contamination makes its way into the cell and accumulates on the internal optics, a fault will result. Consult the firmware manual for actual alarm message.

Use the following procedure to clean the mirrors if contamination is suspected.



*This procedure should be used ONLY when necessary and is not part of routine maintenance. To avoid compromising the system warranty, refer to "**Service**" on page 3 before cleaning mirrors.*



The sample cell assembly contains a low-power, 10 mW MAX, CW Class 3b invisible laser with a wavelength between 750 to 3000 nm. Never open the sample cell flanges or the optical assembly unless the power is turned off.

Tools and supplies

- Lens cleaning cloth (Cole Parmer® EW-33677-00 TEXWIPE® Alphawipe® Low-Particulate Clean Room Wipes or equivalent)
- Reagent-grade isopropyl (ColeParmer® EW-88361-80 or equivalent)
- Small drop dispenser bottle (Nalgene® 2414 FEP Drop Dispenser Bottle or equivalent)
- Acetone-impenetrable gloves (North NOR CE412W Nitrile Chemsoft™ CE Cleanroom Gloves or equivalent)
- Hemostat (Fisherbrand™ 13-812-24 Rochester-Pean Serrated Forceps)
- Bulb blower or dry compressed air/nitrogen
- Torque wrench
- Permanent marker
- Non-outgassing grease
- Flashlight

Cleaning the mirror

1. Power down the analyzer following the procedure outlined in the section called "**Powering Down the Analyzer**" in the firmware manual.
2. Disconnect the sample supply and return tubes from the analyzer.



All valves, regulators, switches, etc. should be operated in accordance with site lock-out/tag-out procedures.

3. If possible, purge the measurement cell with nitrogen for 10 minutes.



Process samples may contain hazardous material in potentially flammable and/or toxic concentrations. Personnel should have a thorough knowledge and understanding of the physical properties and safety precautions for the sample contents before operating the Sample Conditioning System (SCS).

4. Carefully mark the orientation of the mirror assembly on the cell body.



Careful marking of the mirror orientation is critical to restoring system performance upon reassembly after cleaning.

5. Gently remove the mirror assembly from the cell by removing the 6 (0.1 m or 0.8 m cell) or 4 (28 m cell) socket-head cap screws and set on a clean, stable and flat surface.



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Always handle the optical assembly by the edge of the mount. Never touch the optical surfaces of the mirror.

6. Look inside the sample cell at the top mirror using a flashlight to ensure that there is no contamination on the top mirror or window.



*Endress + Hauser does not recommend cleaning the top mirror. If the top mirror is visibly contaminated, refer to "**Service**" on page 3.*

7. Remove dust and other large particles of debris from the lower mirror using a bulb blower or dry compressed air/nitrogen. Pressurized gas duster products are not recommended as the propellant may deposit liquid droplets onto the optic surface.
8. Put on clean acetone-resistant gloves.
9. Double-fold a clean sheet of lens cleaning cloth and clamp near and along the fold with the hemostats or fingers to form a "brush."
10. Place a drop or two of isopropyl onto the mirror and rotate the mirror to spread the liquid evenly across the mirror surface.
11. With gentle, uniform pressure, wipe the mirror from one edge to the other with the cleaning cloth only once, and only in one direction, to remove the contamination. Discard the cloth.



Never rub an optical surface, especially with dry tissues, as this can mar or scratch the coated surface.

12. Repeat with a clean sheet of lens cleaning cloth to remove the streak left by the first wipe. Repeat, if necessary, until there is no visible contamination on the mirror.
13. Check the O-ring.
 - a. If replacement is needed, apply grease on fingertips and then to the new O-ring.
 - b. Place newly greased O-ring into the groove around the outside of the mirror taking care not to touch the cleaned mirror.
14. Carefully replace the mirror assembly onto the cell in the same orientation as previously marked making sure the O-ring is properly seated.
15. Tighten the socket-head cap screws evenly with a torque wrench to 13 in-lbs (0.1 m or 0.8 m cell) or 30 in-lbs (28 m cell).

Service

For Service, refer to our website (www.endress.com) for the list of local sales channels in your area.

Returns

Obtain a **Service Repair Order (SRO) Number** from Customer Service before returning mirrors to the factory. All returns should be shipped to:

Endress+Hauser
11027 Arrow Rte.
Rancho Cucamonga, CA 91730-4866
United States of America
1-909-948-4100

Renewity returns

Returns can also be made inside the USA through the Renewity system. From a computer, navigate to www.us.endress.com and complete the online form.