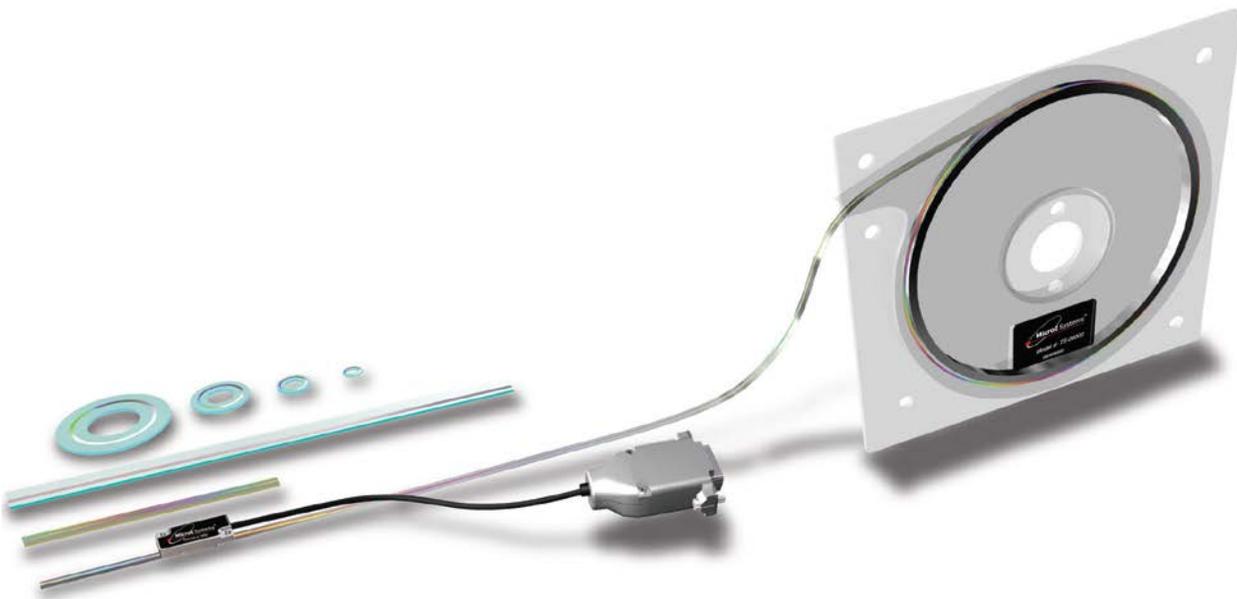


TECHNICAL NOTES: OPTICAL TECHNOLOGIES



Cleaning Encoder Optics

TN-1103 | REV 150923



Encoder Optics Cleaning, before you start:

Did you receive new product from MicroE with dirty optics?

You should receive MicroE product clean from the factory. We take great pride in our product and processes. If you are unsatisfied in any way with the product you received we want to know. Please contact Customer Service.

Did your optics get dirty during installation?

Our tape scale products come with a protective coating on them, and most of our encoders have recessed windows. This should help prevent the accidental fingerprint or scratch during installation. You should consider wearing powder free latex gloves or finger cots when installing either the encoder or the tape scales. You should always wear powder free latex gloves or finger cots when handling our glass scales.

Did either the encoder window or scale get dirty because of their location in the application?

It is in your best interest to consider cleanliness when choosing the location of the encoder or scale. Scales mounted flat on the base of a stage can collect debris much easier than one mounted perpendicular to the bottom surface. You should also consider protective covers in excessively dirty applications.

How dirty is “dirty”

Along with its industry leading large positional error tolerances we also can deal with an amount of contaminant on the scale or encoder window. If you do not see any detriment to performance you may want to keep your cleaning to a minimum.



Always start with compressed air

A majority of contaminants can be removed with some high quality canned air or ionizer. When using your high quality canned air or ionizer, keep the can upright and keep the nozzle a safe distance away from the product. Start the flow of gas with the nozzle pointed away from the optic. This is the best, and safest, way to clean optics.

 **DO NOT use compressed from your machine shop**, it could be full of oils and moisture.

 **DO NOT try to blow the debris off with your breath**, it's a quick way to make a simple cleaning very complicated.



What to use if air does not work:



Compressed air or ionizer gun

High quality canned air or ionizer.

Powder-free/latex gloves or finger cots

Working with latex gloves or finger cots will go a long way in keep optics clean while installing them, but they are doubly important when using cleaning solutions to avoid INTRODUCING oils from your hands onto the optics you are trying to make clean.

Reagent grade isopropyl alcohol

Low grade alcohol can also introduce contaminant residue. You should also avoid using stainless steel pump dispensers, prevalent on many bench tops. A small amount freshly poured alcohol in a clean tin or glass crucible is your best bet for not adding to your contamination issue.

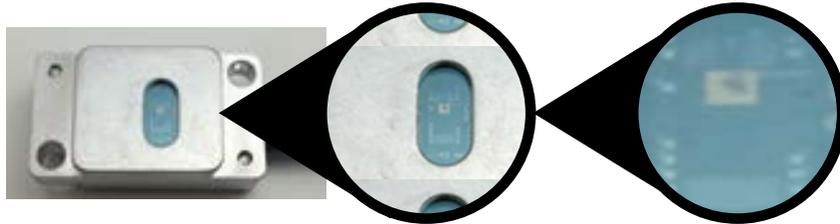
 **DO NOT use acetone.** Acetone can start to dissolve the epoxy used to hold the protective window in place, weakening the bond AND causing you to deposit a film of it over the window as you wipe.

Lint-free cotton wipes or swabs

The lint-free swabs, with wooden stems are perfect for cleaning optics. There are low contamination cleaning tissues with less than 0.001% contamination and no visible hazing that are ideal for sensitive surfaces.



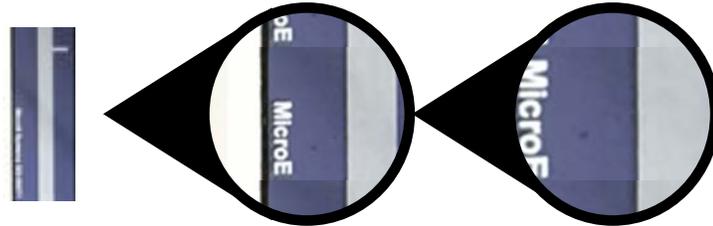
Sensor Window Cleaning Procedure



- Visually inspect window for contamination under magnification before you start.
- Dampen a lint-free cotton swab with recommended solvent.
-  ***Do not over soak cotton swab as it will leave solvent stains on the window.***
- Wipe the window with the cotton swab in one direction over the window.
- Be careful not to leave droplets of solvent on the window. The cotton swab should only be dampened so it has the ability to absorb any excess solvent during the cleaning operation.
- Wait for solvent to evaporate from window.
- Re-inspect sensor window for presence of contamination.
- Use compressed air or ionizer gun to blow off any remaining particulates.



Gratings Cleaning Procedure



- Visually inspect grating for contamination under magnification before you start.
- Dampen a lint-free cotton cloth or swab with the recommended solvent.
-  ***Do not over soak cloth or swab as it will leave solvent stains on the grating.***
- Wipe the grating in the direction of the diffraction lines (perpendicular to direction of travel) with the cloth or swab in one direction.
- Be careful not to leave droplets of solvent on the grating. The cloth or swab should only be dampened so it has the ability to absorb any excess solvent during the cleaning operation.
- Wait for solvent to evaporate from grating.
- Re-inspect the grating for the presence of contamination.
- Use compressed air or ionizer gun to blow off any remaining particulates.



Conclusion

You should expect to receive clean optics from MicroE. If you do find your optics dirty, you should try to dust it off with high quality canned air. If there are fingerprints or other contamination that does not come off with air, take great caution when following the provided procedure to clean gratings and encoder head protective window. If you cannot get the optics clean enough to function, please contact Customer Service.

