

Care and handling of your Coherent sensor

Questions often arise about care and handling of our sensors and meters. This document is designed to help answer these questions and provide a guideline for future use. Regarding storage, there are two aspects of storage: one is the environmental precautions, and the other is the mechanical handling precautions. Care or maintenance, on the other hand, is a separate consideration.

Environmental storage: Most of our sensors are designed to operate from 5°C to 40°C during normal operation, so it's fair to say that they can be stored in normal room temperatures. Relative humidity is not critical for our sensors but you should ensure that, dependent on the room temperature air flow and circulation, the humidity is never allowed to condense. We do not want to have moisture build or collect on the sensor surfaces. This will degrade the sensor over time.

Mechanical storage: we recommend that the sensors be covered to keep debris, dust, and dirt from collecting on the surface. Plastic covers and caps that come with the sensors should be used to protect inadvertent damage to the surface when the sensor is not in use. All cables should have minimum 6" to 8' in coil loops to keep from binding, bending, or otherwise pinching and breaking down the wires which can cause premature failure. Whenever possible wrap the cables in their natural coil or roll. Store items in original boxes as this will help protect them from accidental drops and stacking damage.

Care or maintenance: Cleaning thermopile sensors can be a challenging considering that we recommend avoiding any liquids coming in contact with the coating on the sensor. This is due to the coating's porous nature and the potential for corrosion or long-term damage. If there is dust or debris that has settled on the sensor coating, the safest cleaning method is to use an air puffer. This is a rubberized bulb that creates air pressure based on a squeezing motion. If this does not work, you can also try pressurized air or compressed nitrogen air to blow the contamination off the sensor surface. Thermopile disks are fairly robust to this method of cleaning and can take quite a bit of pressure blowing onto them when trying to dislodge something that is on the surface. It is important that the air supply be clean and dry as you do not want to introduce additional problems by spraying oil or other contaminants in the air supply. If needed, a soft bristle brush such as an optics brush or camel hair brush can be used to brush any material off the sensor surface. This could be used in conjunction with pressurized air. Avoid using a cloth or anything similar that could leave lint behind.

For Thermopiles with Broadband and X coatings only: if there is oil or grease on the sensor that can't be simply blown off, a small amount of optical cleaning solution (such as alcohol) can be used on the sensor. This would need to be applied using something similar to a soft brush. Again, avoid using material that will leave lint behind. Any type of optical cleaning solution should be used sparingly and dried off immediately using a heat gun or compressed air. Any residual liquid on the sensor surface is at risk of seeping into the coating and eventually doing more damage than the original contaminate. Solution cleaning is only for thermopiles with Broadband or X coatings! Some coatings are just thermal paint that can easily be broken down using solvents. When in doubt of your coating, do not use any solutions!

Care or maintenance: EnergyMax or Pyroelectric sensors have special coatings and should not, in general, have any liquid solution used on them. Use the air and brush methods described above. Some have diffusing optics and require special care and procedures for cleaning. These should only be cleaned at the factory (note that Coherent does provide a cleaning service on these types of sensors). If you are concerned about a contamination on your EnergyMax, ask about cleaning during your next calibration.

Care or maintenance: Trying to avoid contamination on the sensor surface is an important part of caring for the PowerMax-Pro. Any type of dirt, dust, oil, or grease that settles on this surface can cause a layer of contamination that can lead to problems. Debris or liquids that collect on the sensor surface can actually burn up when a laser beam hits the surface, which can cause increased heat on the sensor surface and can lead to damage. Keep sensors in a relatively clean environment as this will help extend the lifetime and accuracy of the product. When you are finished using your sensor you can cover it with its protective cap and leave it on the shelf until its next use. When your PowerMax-Pro sensor needs to be cleaned, use the air methods described previously: air puffer, nitrogen, compressed air etc. A soft brush can be used to brush away stubborn particles. Lint free cloth or tissue may also be used. Precautions should be taken to make sure that you are not leaving debris on the sensor surface in the process of trying to remove debris. Always avoid applying excess pressure to the sensor during cleaning.

Sharp items or tooling should never be placed on or near the sensor surface as there is a possibility of puncturing the surface layer and causing damage which can lead to inaccurate readings. Any significant changes in the color of the absorbing disk due to contaminants will most likely lead to changes in the absorption properties of the sensor and can lead to accuracy degradation. Similar to energy sensors, if you are concerned with surface contamination contact our service department and we can evaluate any issues during calibration.

You can contact our service dept. by email at LSMService@coherent.com or by calling (800) 343-4912

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