Service Note – 22007

Regarding MES1001 NO_X, SO2 and NH3 Sensor

Date: 03-01-2023

Danfoss IXA A/S
Service & Support
www.danfoss-ixa.com

Address
Marsvej 5
DK-6000 Kolding
Contact
ixa.service@danfoss.com
+45 7488 8500

Dear Customer,

At Danfoss IXA our products are subjects to continuous development and updates. We strive to keep our customers informed regarding these developments and updates hence we send you this Service Note for MES1001. Kindly read the below information.

Importance of preventing oil and soot entering in sensor:

Our experience suggest that oil and soot can contaminate the sensor components and affect the functionality of the sensors. Oil can carry over with the compressed air and find its way to the sensor. Soot can find its way to the sensor if air supply is stopped.

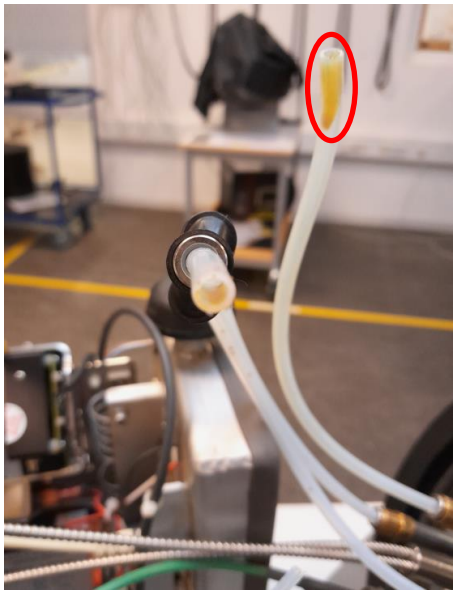
How oil can damage your sensor:

Sensors must always be supplied with air, while exhaust gas is present in the stack. Air must be free from oil, condensed water and any particulate matter. Poor quality of air mixed with oil can contaminate the sensor parts for example optical fiber, reflector, lens, air block and results in damage to the sensor. In cases where the installed air compressor is lubricated with oil there is always a risk of oil carry over along with compressed air. This poses a threat to the sensor and affects it´s operation. The recommended lubricant content should be close to zero ppm. A filter must be installed before the sensor to ensure that air delivered to the sensor is compliant with ISO 8573-1:2010 (1:7:2) at all the times. Although Danfoss IXA sensor is robust, it is not designed to work with excessive oil in the air system. Where there are possibilities of excessive oil present in the air, we recommend using our three-stage air filter to arrest those excessive oil from the air.

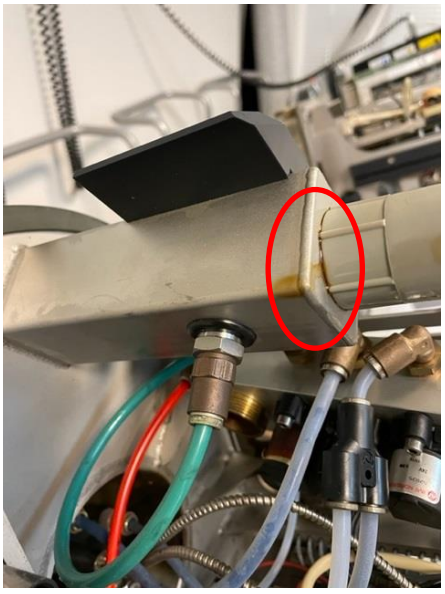
Below are a few pictures of actual sensors we received in our factory for service and repair. They show where we have found oil where it is not supposed to be. The contamination can affect the output of the sensor and damage vital components.

4 out of 6 fibers are working

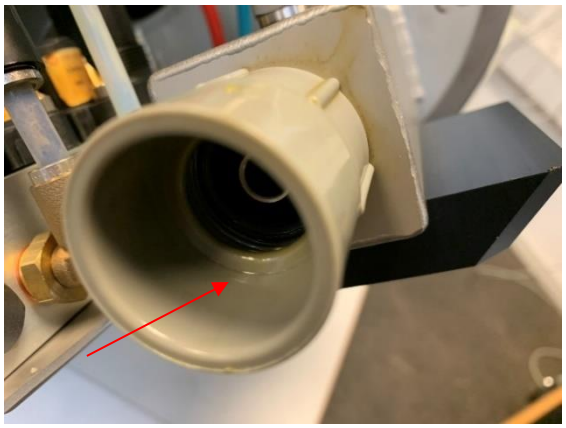
Contaminated reflector



Oil in the air tubes



Traces of oil in the vortex cooler



Traces of oil in Vortex cooler

Inlet and pipe connectors

Preventive Actions to avoid oil contamination:

- Make sure that suitable filters are installed in the air line before sensor
- Uninterrupted supply of oil free air to the sensor
- Maintain the correct air pressure to the sensor as recommended in MES1001 operation manual.
- Drain the filter regularly to avoid oil and water goes to the sensor.
- If possible, introduce pipe layout that can arrest oil and water before going to the sensor. Please refer to our Service note 22008.
- Where there are possibilities of excess oil in the supply air, it is recommended to purge the airline frequently based on observed accumulation.
- It is recommended to install three stage filter when there are possibilities of excessive oil in the sir line.
- Follow the maintenance tasks in the MES1001 user guide section 6.2.1

How soot can destroy the functionality of sensor

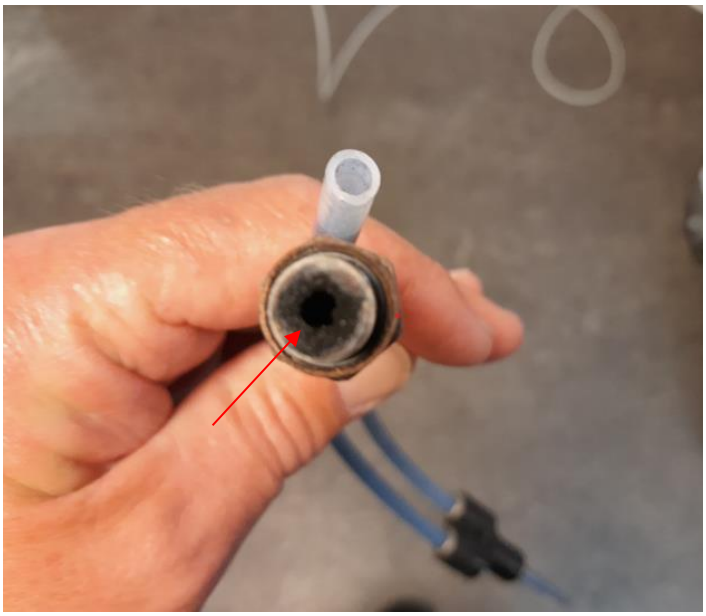
One of the reasons why the soot can find its way to the sensor, is when air supply is stopped to the sensor and exhaust gas is still present in the exhaust stack. Air is used in the sensor for cooling, purging, inducing exhaust gas in the measuring chamber and for calibration. When the air supply is stopped, the complete probe will be filled with exhaust. This can clog the narrow passage of the probe and contaminate the backend of the sensor with soot. It may also affect the measurement if the soot enters in the protected area of the sensor.

Preventive Actions to avoid exhaust / soot contamination:

- Make sure that there is uninterrupted air supply when there is exhaust gas present in the stack.
- Follow the procedure on maintenance of the air supply.
- When the sensor for some reason is not in use, it is recommended to keep the sensor in standby mode in order to extend the life of the UV lamp. Make sure that the air supply is still on. Maintenance must still be performed according to IXA guidelines.

Below a few pictures of sensors arrived at our factory for service and repair. They show internal components contaminated with soot.

Soot inside the air hose



Air hose clogged with soot

Soot in the air hose

Soot deposit inside the probe

Previous Service Notes can be found at our https://danfoss-ixa.com/services-and-support.

Best regards,

Service & Support
ixa.service@danfoss.com