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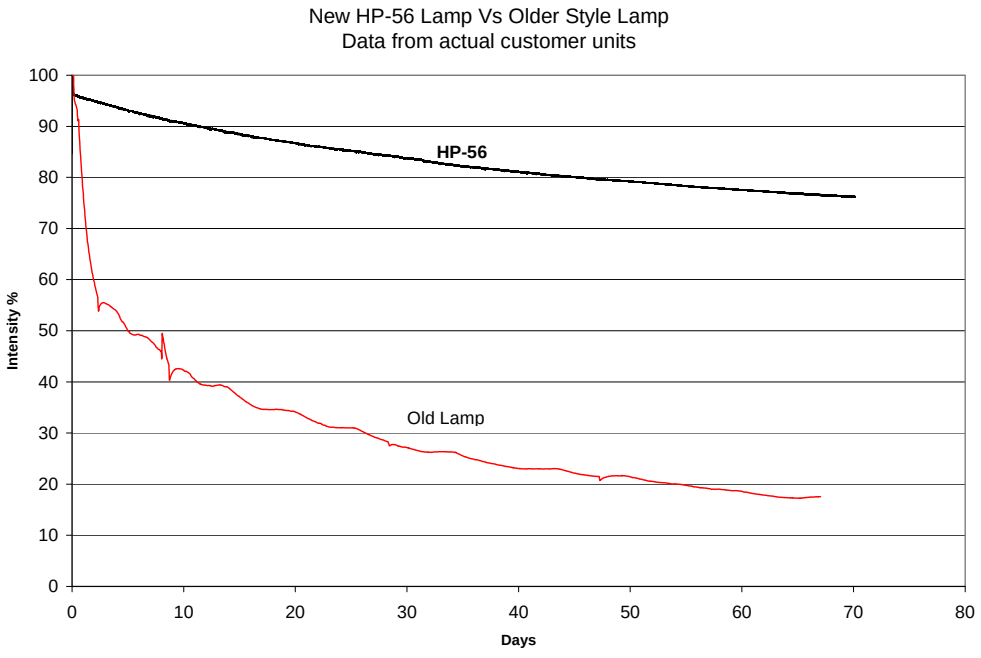
Introducing the HP-56 Hg Lamp for the Thermo Scientific Mercury Freedom System

April 29, 2013

We are pleased to announce that a new and improved lamp design is now available for use in the Thermo Scientific Mercury Freedom System. The HP-56 Mercury (Hg) lamp is proven to have significantly better performance characteristics, including intensity, drift, noise and warm-up time, than the current style 1 mg Hg lamps. The HP-56 Hg lamp is expected to fully resolve previously identified issues related to lamp failures seen with the older style lamps. This announcement also includes the new HP56 Hg lamp installation instructions and procedures.

During the past year, we extensively tested the HP-56 Hg lamp at 12 field sites with strong results. The test results prove that the HP-56 Hg lamp has high operational stability and a shorter warm-up time (time to stabilization). While the light intensity from the older style lamps drifted approximately 1% per day, the light output from the HP-56 Hg lamp in the field trials only drifted on the order of 0.2% after initial stabilization (example shown in figure below). Note that the reference intensity drift is not the same as measurement drift as the Lamp Compensation feature compensates for the bulk of the intensity drift.



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The HP-56 Hg lamp is a drop-in replacement for the 1 mg Hg lamps (using the same lamp power supply and lamp housing) and will not change the performance specifications of the Mercury Freedom System. The only changes apparent to the user are that the HP-56 Hg lamp operates at a slightly higher temperature (49°C) and higher reference intensity. The change in temperature is reflected in updated firmware, Version 01.06.16.315 (currently available in the Online Library), which must be installed in order to use the HP-56 Hg lamp. Please refer to the manual for lamp installation instructions.

Please note, to use and install the new HP-56 Hg Lamp, the new version of firmware, Version 01.06.16.315 (or later when released), must be installed in the Thermo Scientific Model 80i Mercury Analyzer. Earlier firmware versions cannot be used with the new style HP-56 lamp due to setting changes outlined above. The latest firmware version is backwards compatible for use with the old lamps.

Also, for instruments using previous firmware versions 01.00.60.276 or earlier, several MODBUS changes were made. If MODBUS was used with earlier firmware versions, programming changes must be taken into account and made in order for the systems to operate correctly. MODBUS Firmware versions after 01.06.00.276 incorporate all changes previously made and any new items are added to the end of the list to avoid additional complications. A complete and current listing of all MODBUS read coils, read registers, and write coils can be found in the *i*Series Manual Addendum located in the Online Library (www.thermoscientific.com/theonlinelibary).

After installing the new HP-56 Hg lamp, several instrument configuration changes must be made. In addition the lamp settle-in period has been reduced to approximately eight hours from the old lamp period of 24 hours.
The lamp normalization function has been removed and is no longer required.

Installation and set up procedure for the new HP-56 Hg Lamp:

1. Download firmware version 01.06.16.315, or later when available, from the Online Library and upgrade the firmware version for the Model 80i Mercury Analyzer. It is not necessary to upgrade the firmware in the 81i calibrator but a new compatible version is also available for upgrade if desired.
2. Prior to installing the new HP-56 Hg lamp, ensure that the existing lamp assembly has the lamp heater installed (this is only applicable for early versions of the Model 80i Analyzer that have not previously been upgraded. If not previously upgraded, contact our Technical Support Department for assistance.)
3. Go to the Instrument Controls menu and turn the lamp supply off.
4. Disconnect the 3 pin lamp connector from the lamp power supply board and remove the lamp from the housing.
5. Install the new HP-56 Hg lamp into the housing. There is no longer any vertical alignment required as the new lamp has no specific orientation. The new lamp will protrude from the lamp housing approximately ¼".
6. Tighten lamp set screw and plug the 3 pin connector into the lamp power supply board.
7. Put the unit in the Service Mode. In the Service Menu tab to Set Temperatures. Tab to Lamp Temperature (degrees Celcius) and set the lamp temp to 49°C. (Note: It may already be at this temperature setting with the new firmware upgrade.)
8. Return to the Main Menu and tab to Alarms. In the Alarms menu, tab to Instrument and select. In the Alarms Analyzer menu select Intensity. Enter Intensity and set the minimum alarm value to 10,000 Hz. Set the maximum value to 250,000 Hz.
9. Also in the Alarms Menu, go to Lamp Temp. Set the minimum lamp alarm temp to 45°C. Set the maximum alarm temp to 50°C.
10. Return to the Main Menu and tab to Instrument Controls. In the Instrument Controls Menu tab to Lamp Compensation and turn it Off.
11. Also in the Instrument Controls Menu Turn the Lamp Supply back to On.
12. After approx. 8 hours of lamp stabilization period, perform advanced system calibration starting with a pmt voltage adjustment (with the high calibration gas). Complete instrument zero and span and then system zero and span.
13. After calibration procedure turn the lamp compensation back on through the Instrument Controls menu.
14. System is ready for normal operation.

If there are any questions regarding this procedure or instrument set up, please contact our Technical Support Department at (508) 520-0430, choose option 2 for Technical Support and then select Mercury.