



13-004

15 March, 2013

PERFORMING A PMT ADJUSTMENT ON A SO_x “ULTRA” ANALYZER

I. PURPOSE:

The purpose of this service note is to outline the steps necessary to correctly perform a PMT Adjustment on the M100EU, T100U, M108EU and the T108U.

II. TOOLS:

N/A

III. PARTS:

N/A

IV. PROCEDURE:

The PMT Adjustment will recalculate the slope of the **PMT** output when the analyzer slope and offset values are outside of the acceptable range. This instruction should only be performed when all other more obvious causes for this problem have been eliminated. Because the **HVPS** is controlled automatically through the analyzer software, there are no physical PMT Preamp gain adjustment switches.

1. Let the instrument stabilize by allowing it to run for one hour. Adjust the UV Lamp. (See “Adjusting the UV Lamp” in the M100EU/T100U addendum), then perform a **LAMP CALIBRATION** (See “Lamp Calibration” in the M100E/T100 Manual). Verify that the UV Lamp Ratio is 100% \pm 5%. This is required to ensure proper scaling of the **NORM PMT** value.
2. Perform a full zero air calibration (See “Calibration Procedure” in the M100E/T100 Manual).
3. Feed your span gas into the analyzer, and wait approximately 30-60 minutes (or until the stability reads \leq 0.1 ppb). If your analyzer is in dual range, then use the High range span gas.
4. Press **SETUP, MORE, DIAG**, enter the **929** password, and press **ENTER**. In the **DIAG** menu press **NEXT** to scroll to **PMT CALIBRATION** and press **ENTER**. Verify that the displayed span concentration value matches your actual span gas concentration, if not change the displayed value to match your actual span gas value, and press **ENTER**.
5. If your analyzer is in dual range press **HIGH** otherwise press **LOW**, and press **ENTER**.

PERFORMING A PMT ADJUSTMENT ON A SO_x “ULTRA” ANALYZER

13-004 Rev A (DCN6702) 3-15-2013

Page 1 of 2

PRINTED DOCUMENTS ARE UNCONTROLLED

6. The analyzer will now electronically adjust to the correct value based on the span gas value entered in step 4. The analyzer may take up to 5 minutes to complete this calibration. The analyzer will display "PMT Calibration succeeded" upon successful calibration.
7. Perform a 15 minute zero calibration and a 15 minute span calibration. For dual range, span calibration must be run on the High and Low ranges.
8. The slope should be 1.000 ± 0.300 , and the offset values should be < 250 mV. For dual range this spec applies to both the High and Low range slopes and offsets.
9. Steps 3 – 7 may have to be performed more than once in order to compensate for any over/undershooting of the **NORM PMT** reading based on the adjusted **HVPS** drive voltage. Best results occur after performing the **NORM PMT** calibration (steps 3 - 7) at least two consecutive times

PERFORMING A PMT ADJUSTMENT ON A SO_x "ULTRA" ANALYZER

13-004 Rev A (DCN6702) 3-15-2013

Page2 of 2

PRINTED DOCUMENTS ARE UNCONTROLLED