



UV filter & UV detector information

I. SCOPE:

To inform our customers on UV filter and UV detector information, that we have collected over the years.

II. PARTS:

None

III. TOOLS:

None

IV. INFORMATION:

1. We have noticed over the years that are 2 failure modes of the UV lamp circuit in the M100A analyzer. What we have found is that if you have a decrease of UV lamp energy (as seen on the front panel of the instrument) over about a 3 month period of time that you might have a UV filter that is actually getting "darker". What this means is that the UV filter is not allowing the 214.3 NM light into the Rcell and that means that the UV detector can't "see" that light.
2. As of this Service Note we have found that this does not occur that often and we have seen a rapid decline of this failure in the M100A analyzers.
3. Another "failure" mode is that over about 9 months that the UV energy out of the lamp declines enough that operators become worried about the amount of UV energy in the Rcell. The operator's manual informs you that the nominal range of the UV energy is from 2000 MV to 4000 MV, as seen on the front panel. A common misconception is that this means that the instrument will not work if the UV energy is lower than 2000 MV. This is NOT true. The analyzer will perform correctly with the UV lamp energy lower than 2000 MV. What this does mean though, is that you might want to increase the UV lamp energy, so that you do not have to go out to the site, within six months or so, to increase the UV lamp energy.
4. There are several ways to increase the UV lamp energy, as seen on the front panel. One way is to actually move the lamp in the lamp holder so that you are "peaking" the lamp in front of the hole that goes between the lamp and the Rcell.

5. We now have a new UV detector/preamp assembly for the M100A instrument. This detector/preamp assembly has a potentiometer (pot) on it. What this will allow you to do is to peak the lamp to the highest energy, again as seen on the front panel, and turn the pot to get the number that you would like on the front panel.
6. This new preamp and detector assembly, also allows you to turn up on the gain, as the lamp naturally ages. This is a common characteristic of an UV lamp.
7. To make an adjustment of the UV lamp energy, when you have the new preamp detector assembly, all you have to do is to turn up on the pot so that you have the number on the front panel that you are looking for.
8. Any time you change the UV lamp energy on the front panel you will want to go into the DIAG menu and do the lamp calibration. This is an important step, that should be done so that the computer can keep track of the UV lamp energy and do the compensation correctly.
9. The UV lamp calibration even applies when you have not made an UV lamp energy adjustment. How this applies is as follows: say you have a M100A that had the lamp calibrated when the UV lamp energy was at 4200 MV. If 12 to 18 months have gone by and a lamp calibration has not been done the UV lamp ratio is going to be way down. It might be down as much as 30%. If that is the case and your UV lamp voltage is above 1000 MV then you are going to want to increase the UV lamp energy and do the calibration. If you can't get the UV lamp voltage up, you can still do the lamp calibration and then calibrate the instrument on calibration gas and put the instrument back into service. This will allow you to contact your parts supplier and get a new lamp, filter or detector/preamp assembly.
10. If you have any questions about the UV detector preamp assembly please see the service note 99-006.
11. If you are having problems diagnosing a problem with any of the API family of analyzers please fill out the warranty/repair form for that analyzer and fax it to API.

If you have questions regarding this procedure or any API equipment, please contact an API Customer Service representative at:

Phone: (858) 657-9800

Email: customerservice@advpol.com

Fax: (858) 657-9816

WWW: <http://www.advpol.com>

**API, INC. WARRANTY/REPAIR QUESTIONNAIRE
MODEL 100A**

CUSTOMER:
CONTACT NAME: _____ **PHONE NO.** _____ **FAX NO.** _____
SITE ADDRESS: _____
MODEL 100A SERIAL NO: _____ **PROM NO.** _____
ARE THERE ANY FAILURE MESSAGES? _____

RECORD VALUES

****TEST VALUES****	****NORM****	****TEST VALUES****	****NORM****
RANGE = _____		Rx CELL TMP= _____ °C	50°C+1°C
PRES = _____	AMBIENT	BOX TEMP = _____ °C	AMBIENT + 5°C
SAMPLE FLOW= _____ CC	650CC+50	PMT TEMP = _____ °C	7°C+1°C
PMT = _____ mV		IZS TEMP = _____ °C	50°C+1°C
UV LAMP = _____ mV	2000mV...4000mV	AUTO ON/OFF	<input type="checkbox"/> ON <input type="checkbox"/> OFF
STR LIGHT = _____ PPB	<60PPB	DYN ON/OFF	<input type="checkbox"/> ON <input type="checkbox"/> OFF
DRK PMT = _____	< 100 mV	IZS ON/OFF	<input type="checkbox"/> ON <input type="checkbox"/> OFF
DRK LMP = _____	< 50 mV	PMT VOLTS AT SPAN= _____ mV	(RANGE 500 PPB)
SO ₂ SLOPE = _____	1.0 + 0.3	+SPAN INPUT _____ PPB	
SO ₂ OFFSET = _____	<250	ELECTRIC TEST A) PMT VOLTS= _____	2000 mV
HVPS = _____ Vdc	500-800VDC	B) PPB= _____	~1000 PPB
PMT VOLTS AT ZERO	(RANGE 500) <500mV	OPTIC TEST A) PMT VOLTS= _____	2000 mV
DCPS = _____ mV	2.50VCD+200mV	B) PPB= _____	~1000 PPB
STABIL AT SPAN = _____		IF DUAL RANGE OR INDEPENDENT RANGE IS ON:	
STABIL AT ZERO = _____		SLOPE #1 = _____	OFFSET #1= _____
		SLOPE #2 = _____	OFFSET #2= _____

WHAT IS REAL SAMPLE FLOW? _____ (USE FLOWMETER TO MEASURE)

IS UNIT LEAK CHECKED? YES _____ NO _____

WHAT ARE FAILURE SYMPTOMS? _____

THANK YOU FOR PROVIDING THIS INFORMATION. YOUR ASSISTANCE ENABLES API TO RESPOND FASTER TO THE PROBLEM THAT YOU ARE ENCOUNTERING.

**API CONTACT PHONE: (619) 657-9800 (800) 324-5190
 FAX: (619) 657-9816 Email: customerservice@advpol.com**

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