
TROUBLESHOOTING THE EMS421 OPACITY MONITOR

Please fill in the following and fax to 203-634-6663 or email to: service@emsct.com.

Company name _____

Your name _____, Ph. _____, Email _____

Note: It is assumed that the person conducting the testing below is familiar with the EMS421 operation and typical electronic instruments used for the procedures. If you are not familiar with the EMS421, please read the operation manual prior to filling out this form.

Control Unit:

1. What was the % opacity displaying during normal operation _____
2. Circle if there are any indicators (EW, FAULT, ALARM or INCAL) blinking on the main display?
3. From home screen, press "Faults" button. Do you have any Faults that will not clear by pushing the Fault(s) Acknowledged button? Write all information that apply:

In Maintenance		Span Cal Status	
SM Power		Window Dust	
T2 Lost/Low Signal		Cal Cycle Status	
Negative Opacity		Airflow Status	
Zero Cal Status			

Environmental Monitor Service, Inc.
P.O. Box 4340 Yalesville, CT 06491
Ph. 203.935.0102 Email: service@emsct.com

4. Do you have any Alarms highlighted green from by pushing the Alarms button from home screen? Mark below the highlighted alarms:

Hi Mg Alarm	
Hi Mg Alarm	
Hi Op/ Mg Alarm Silence	
Op Early Warning	
Mg Early Warning	

5. Press "Calibration" button on home screen, press "Manual Cal Initiate" from Calibration Menu. Record the values and PASS or FAIL information shown after full cal cycle(6 min.)

Zero Value	Span Value

6. Press the "About" button on home screen and write the following information:

EMS SN: _____, Date Mfd: _____, O.P.L.R.: _____,

Controller ID #: _____, EMS Version: _____

Go to the sensor location and continue. Make sure you have a good meter such as fluke 87 that can measure both DC Volts & 0-20mA current.

7. Record Sensor s/n _____, Service Module s/n _____, Reflector s/n _____
8. Observe the alignment target and sketch in the ball of light below:



9. Remove the transceiver cover and with your meter using the Orange test point on the Signal Processor PCB 1667 (see last page for location) as ground, measure and record the following on the Power Modulator PCB 1668:

TP4, +15 VDC (Yellow)	TP3, -15 VDC (Orange)	TP-1 (Brown)

10. On the Signal Processor PCB 1667 measure and record the Reference voltage on TP2(Red) DCV _____ and Measurement voltage on TP1(Brown) DCV _____.

11. Replace the cover and place the switches on the service module to the following positions;

Zero	Span	External meter	Meter
Operate	Operate	Normal	Opacity

12. Record the Opacity reading now _____

13. Place Opacity/T2 switch to T2 and record _____.

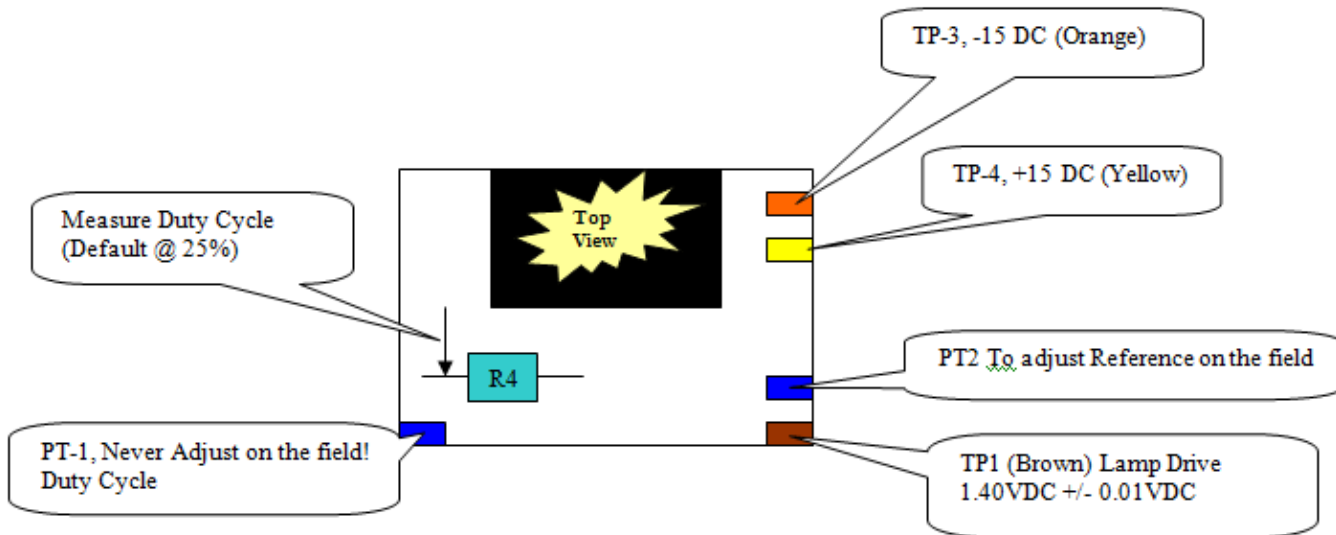
14. Return Opacity/T2 switch to Opacity.

15. Put the zero switch to the zero position wait until the Opacity reading settles and record it _____. Now switch the meter switch to T2 and record the reading _____.
16. Put the span switch to span and record the T2 reading _____. Now switch the meter switch to Opacity and record the reading _____.
17. Return both zero and span back to Operate positions.
18. Swing open the transceiver and clean the transceiver front window. Close the transceiver.
19. Put the zero switch to the zero position wait until the Opacity reading settles and record it _____. Now switch the meter switch to T2 and record the reading _____.
20. Put the span switch to span and record the T2 reading _____. Now switch the meter switch to Opacity and record the reading _____.
21. Return both zero and span back to operate position.

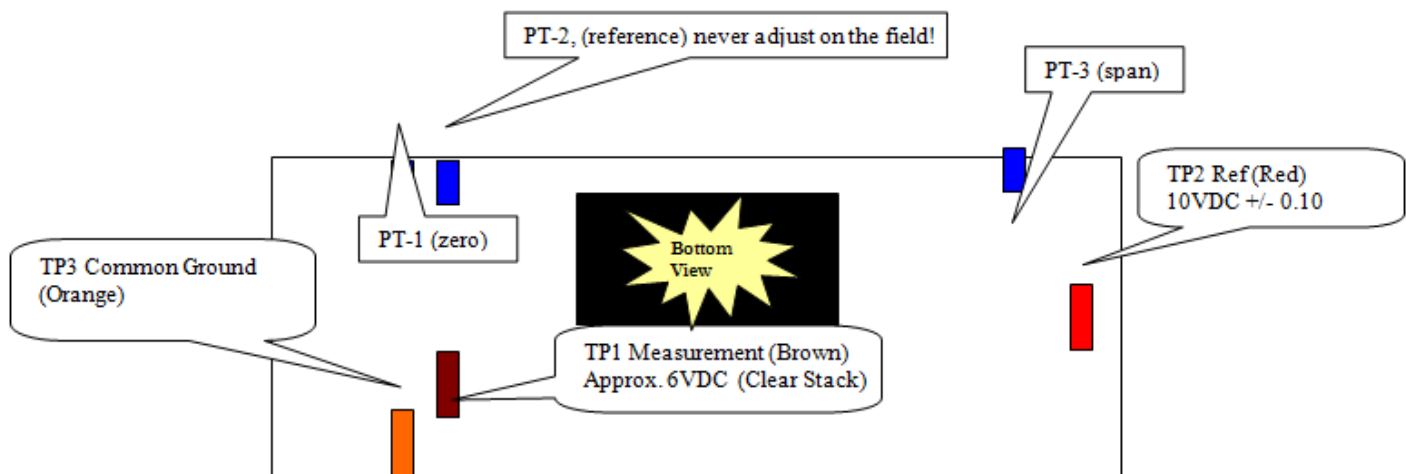
What did you adjust?

To the best of your knowledge, please tell us what potentiometers on which PCB you turned:

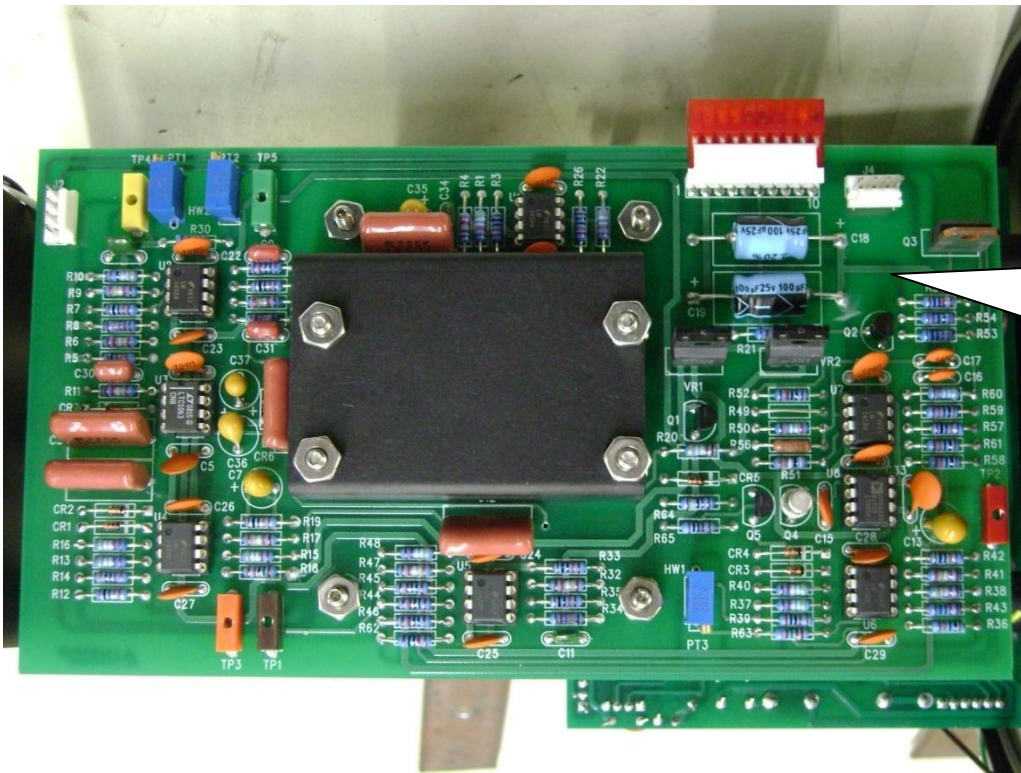
Power Modulator PCB 222-1668
Top View



Signal Processor PCB 222-1667
Bottom View



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Signal Processor
PCB 222-1667
Bottom view



Power Modulator
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Top view

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