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Calibrating Licor-7500

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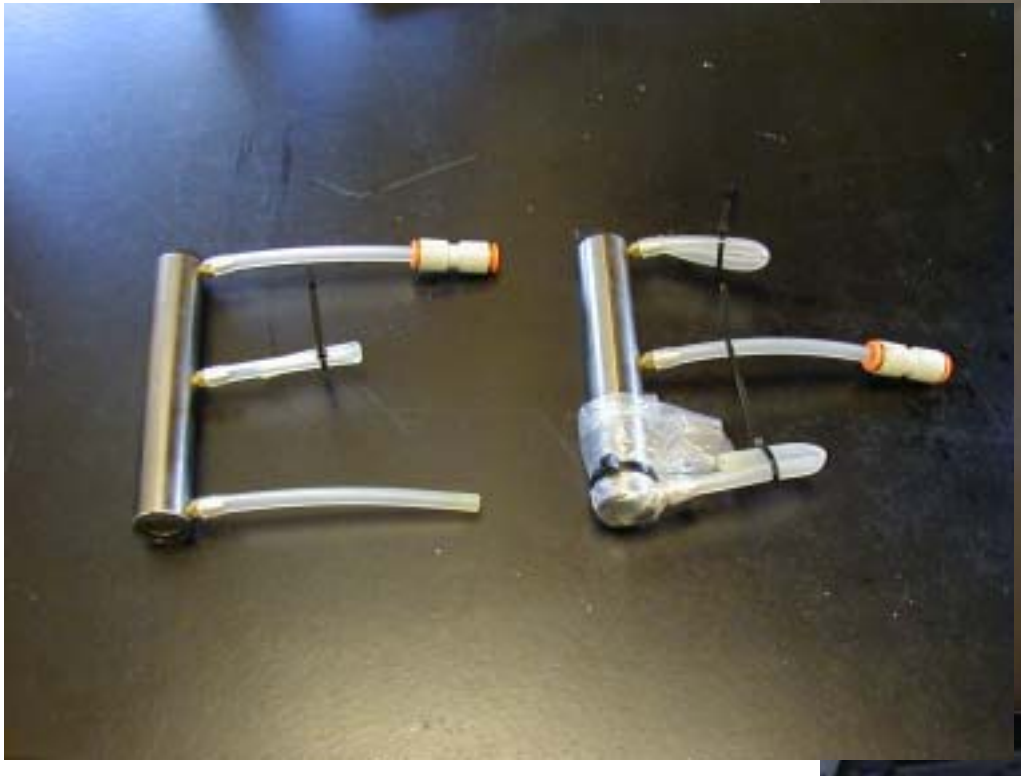
Laboratory Setup for Licor-7500 Calibration

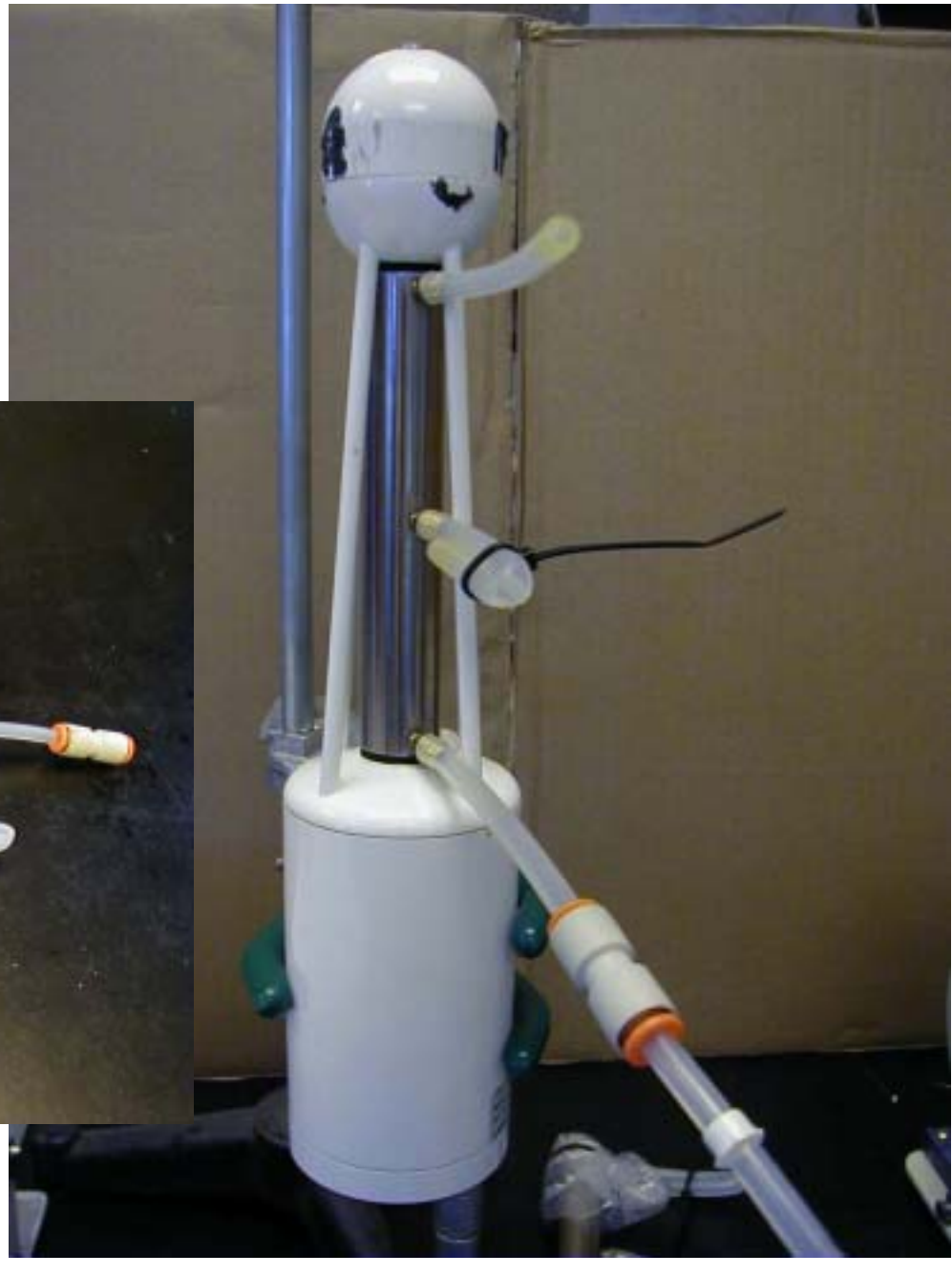
- Standard CO_2 gas tank and regulator
- Standard N_2 gas tank and regulator
- Dew Point generator
- Computer installed LI7500_win-3.0.0 software
- Accessories: calibration tunnels, power generator, power wire, computer connection wire,gas tubes and connectors, filters (soda lime) a temperature and humidity set with high confidence

Gas Tanks and Regulators

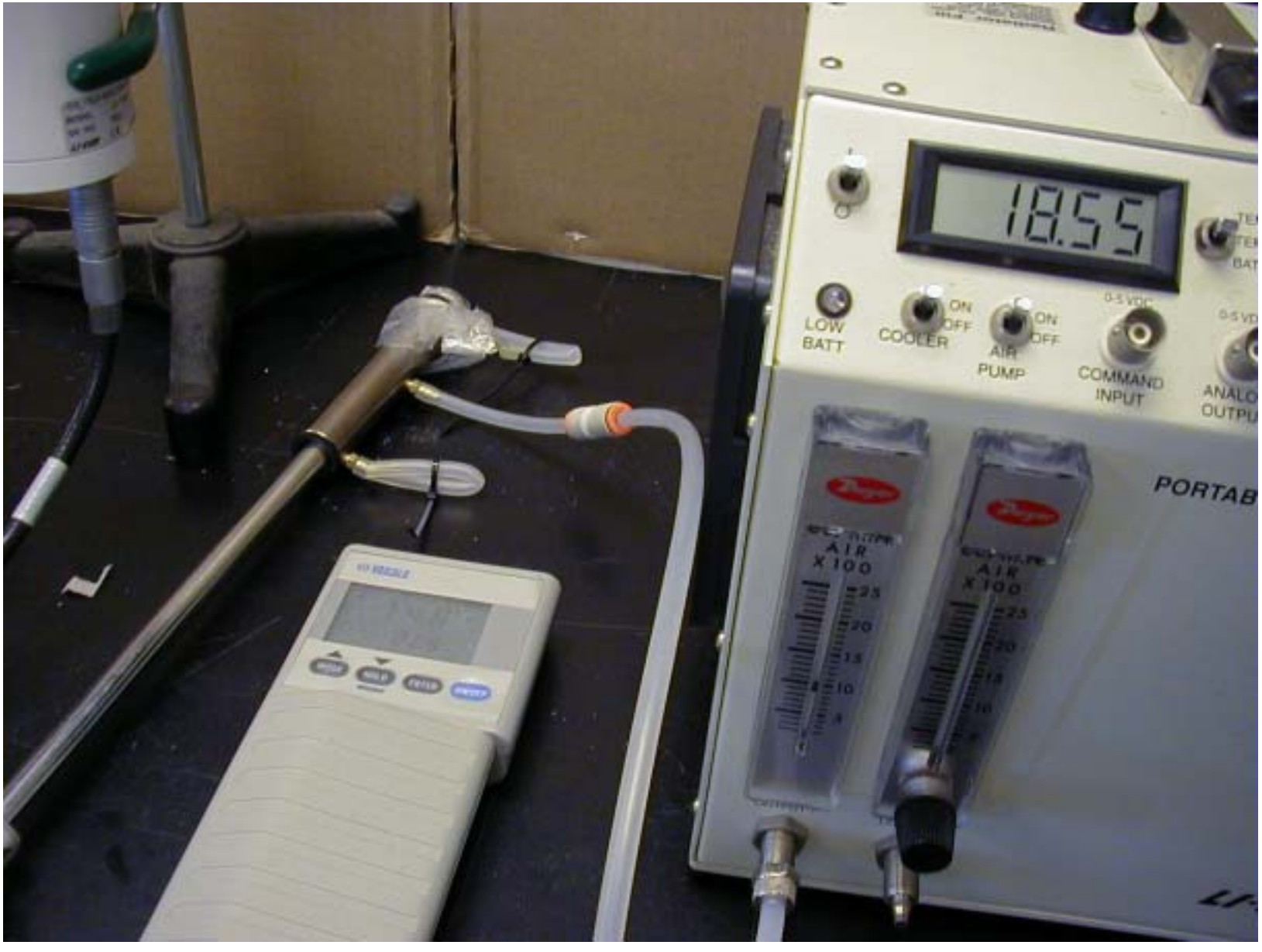
- Higher CO_2 concentration, lower accuracy. e.g. ±2%
- Recommend [CO_2] 500 – 1000 ppm

Calibration Tunnel





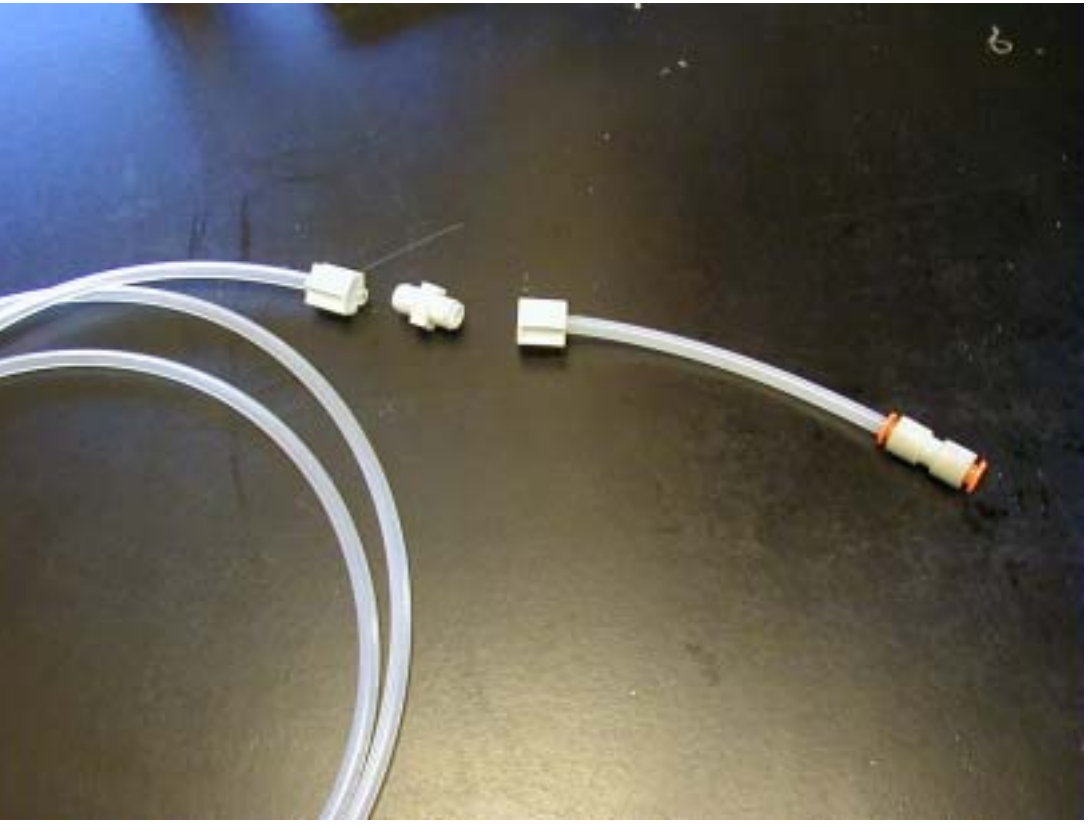
Dew Point Generator

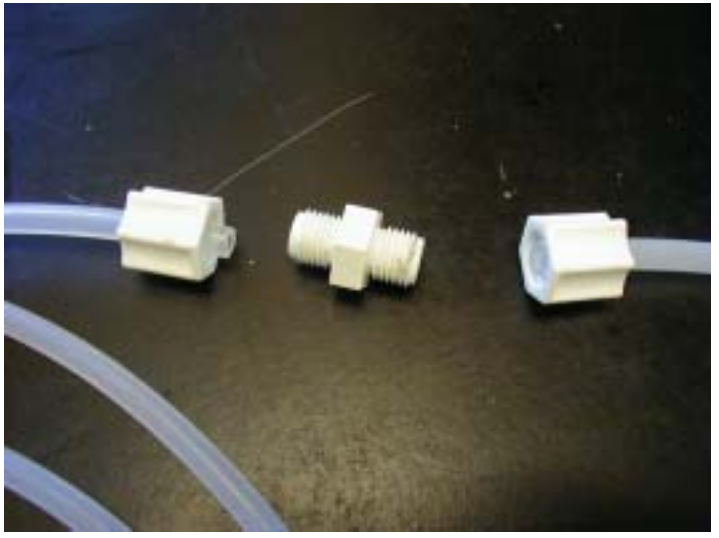

18.55
LOW BATT
COOLER
ON
OFF
AIR PUMP
ON
OFF
COMMAND INPUT
AIR X100
AIR X100

Set up Dew Point Temperature

For the water vapor span, a convenient standard to use is a dew point generator such as the LI-COR LI-610. To avoid condensation problems choose a dew point temperature that is about 3 to 5 °C below the ambient temperature. Also, since water vapor sorbs and desorbs from surfaces, allow plenty of time for the reading to stabilize. It is important not to rush through the water vapor calibration. If it is more convenient, CO_2 and water vapor zero and span calibrations can be done separately. *In general, if reliable calibration standards are not available or if there is not enough time to do the job properly, it is better to leave the zero and span settings alone than to rush through the procedure and make incorrect settings.*

Tubes and Connectors






Camera Cleaner Kit


Power and connection wires


LOT NO. 995447

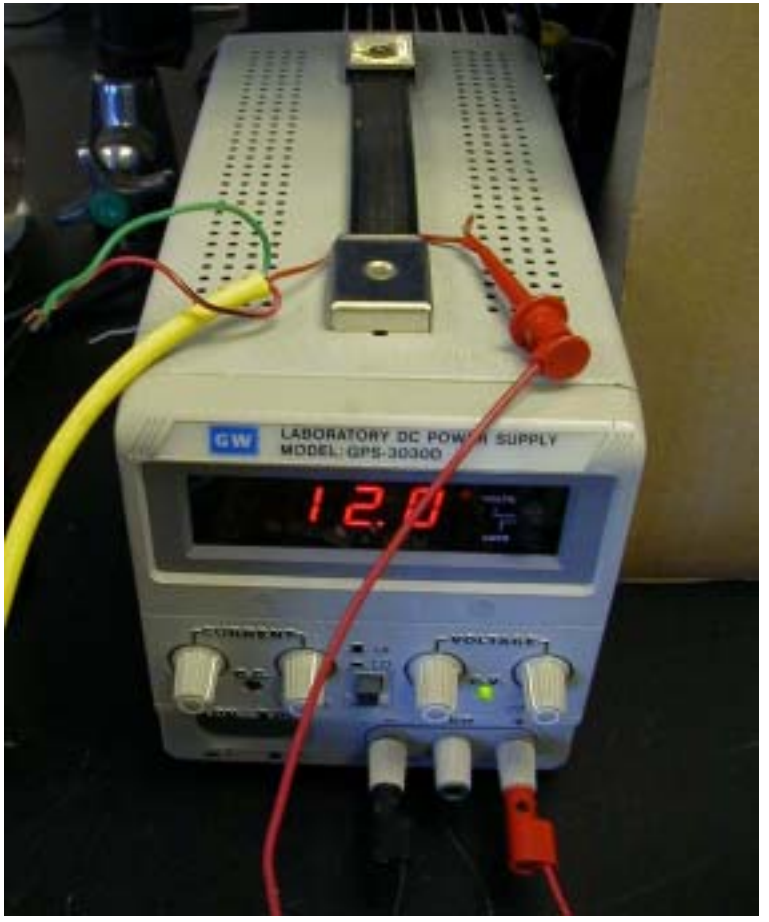

DRIERITE
DRIERITE
MOLECULAR
SIEVE
5A

Licor H_2O Dew Point generator

- Set up Dew Point temperature = humidity < 85%
- An independent temperature and humidity set
- Dew Point Generator needs half hour to warm up.
- Check the water lever, keep it in the middle (read the manuals)

Power generator: 12 V DC

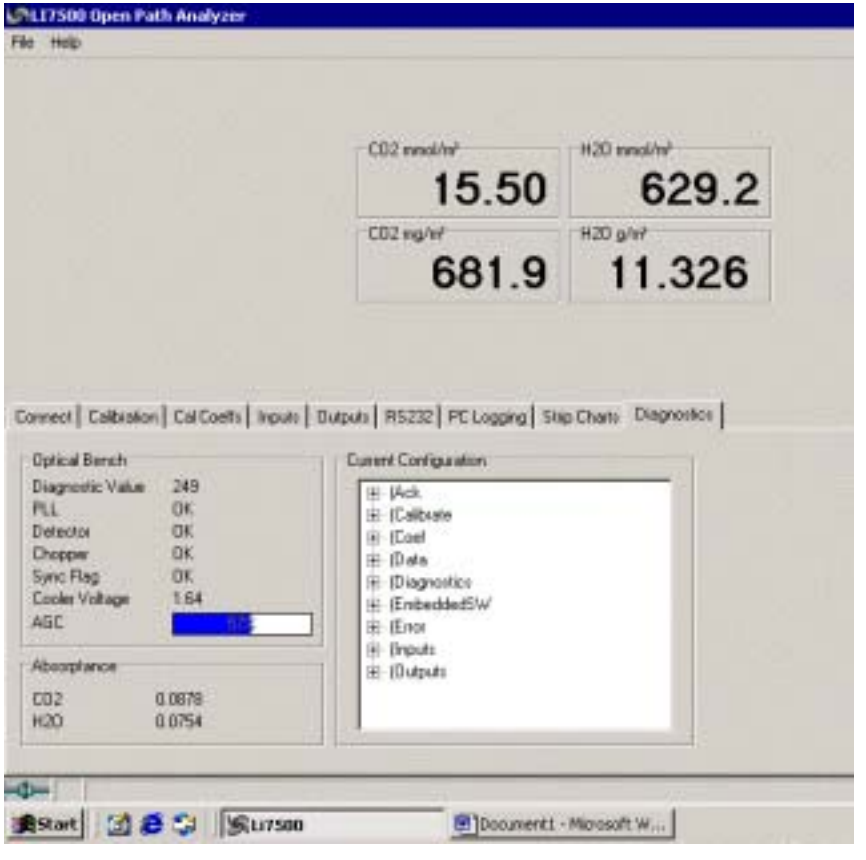
- Check and separate the two connectors before turn on the power
- Red and white: + (positive); Green: - (negative)



Computer software Li-7500 v3.0.0

Output->Bandwidth->5Hz (save as it!!!)

Check Diagnostic. AGC should be 65%. If 100%, something must be wrong. Check the reading right after swapping tubes every time.



Zero and Span

Zero before Span!!!

Flow rate should not too large!!!

- CO_2 and H_2O filter connected with N_2 tank
- Connect to N_2 tank and zero CO_2 and H_2O channel, respectively.
- Make sure flow through the calibration hood is adequate. Air in the CO_2 tank is dry, if the dew point is above –30 C something may be wrong.

Tips

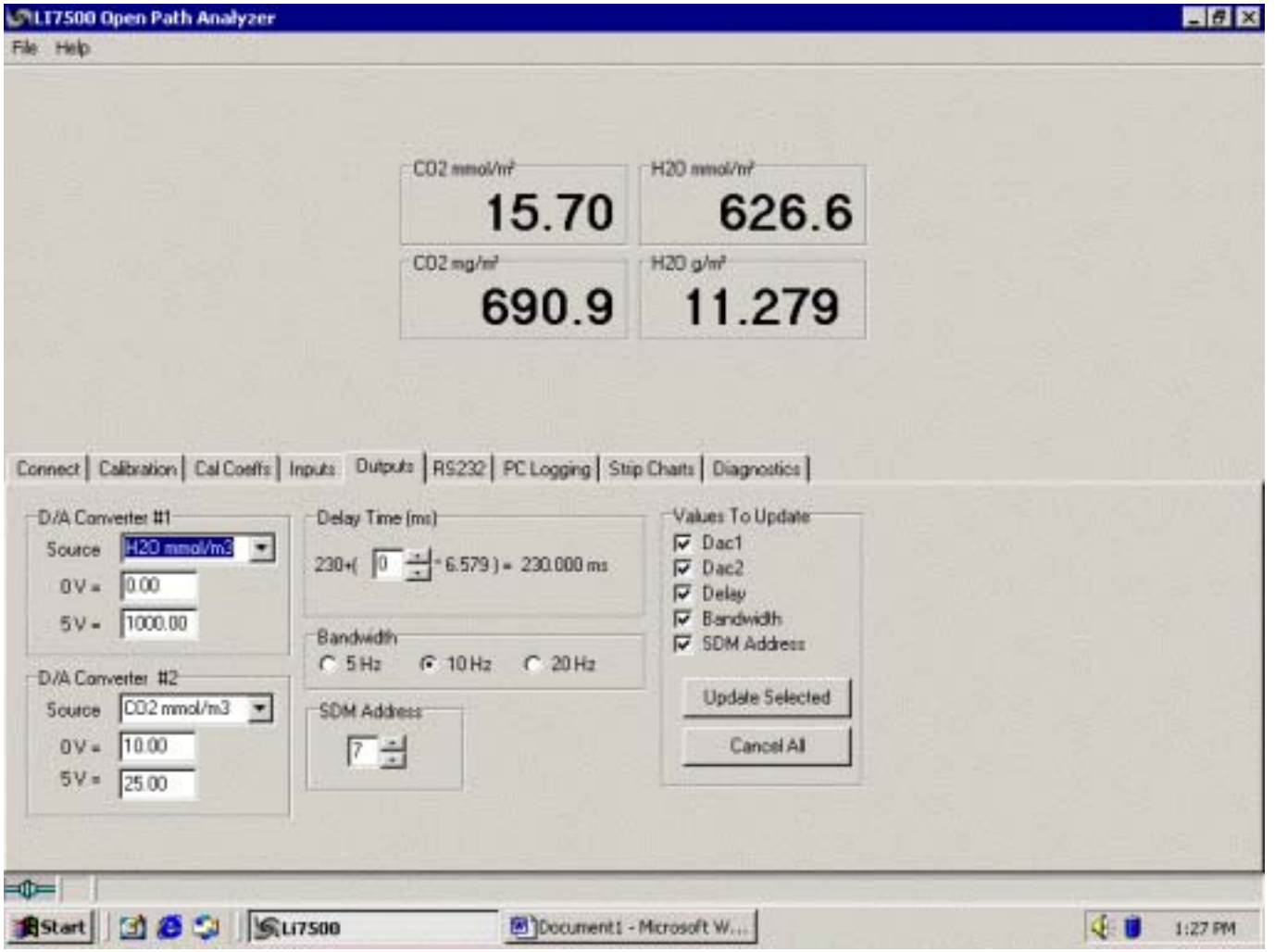
!!! clean up the sensors of Li-7500 first of all (using Camera care kit).

!!! Never unscrew the top screw of Li-7500. It may cause the alignment problem. Air inside of Li-7500 should be CO_2- and H_2O-free, by two bottles of chemicals.

!!! Zero before Span

!!! Flow rate should not too large

Output – 5 Hz


LI7500 Open Path Analyzer
File Help
CO2 mmol/m³
15.70
H2O mmol/m³
626.6
CO2 mg/m³
690.9
H2O g/m³
11.279
Connect Calibration Cal Coeffs Inputs Outputs RS232 PC Logging Strip Charts Diagnostics
D/A Converter #1
Source H2O mmol/m3
0 V = 0.00
5 V = 1000.00
D/A Converter #2
Source CO2 mmol/m3
0 V = 10.00
5 V = 25.00
Delay Time (ms)
230+(0 * 6.579) = 230.000 ms
Bandwidth
5 Hz 10 Hz 20 Hz
SDM Address
7
Values To Update
Dac1
Dac2
Delay
Bandwidth
SDM Address
Update Selected
Cancel All
Start
LI7500
Document1 - Microsoft W...
1:27 PM