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SPRUCE Project

Li-7500 Calibration Procedure

(Rev. 0, June 1, 2015)

Set Up	
1)	Run the LI-7500A Windows interface program. Click the Calibration button in the main window.
2)	Disconnect the temperature thirmistor at the Sensor connector on the LI-7550 front panel.
3)	Connect the thermistor cable from the Calibration Accessory to the sensor connector on the LI-7550 front panel.
4)	Note the initial AGC value (under Diagnostics) button
5)	Insert the Calibration Accessory into the LI-7500A and check the AGC value to ensure it is close to the initial value. Re-position the Accessory until the post insertion and initial AGC values are close.
6)	Verify reasonable readings for temperature and barometric pressure.
Zero CO2	1) Flow CO2-Free air through the Calibration Accessory at 0.5-1.0 lpm. 2) Click the Manual tab and view the Zco value. Record once reading is stable. 3) Click Zero CO2 to set the CO2 Zero. New Zco value should be between 0.85-1.1.
Zero H2O	1) Flow CO2-Free air through the Calibration Accessory at 0.5-1.0 lpm. 2) Click the Manual tab and view the Zwo value. Record once reading is stable. 3) Click Zero H2O to set the H2O Zero. New Zwo value should be between 0.65-0.85.
Span CO2	1) Flow CO2 Span gas of known concentration through the claibration accessory at a rate of 0.5-1.0 lpm 2) Click the Span tab and enter the concentration in the Span Gas Concentration field. 3) When stable, click Span CO2. Check the new CO2 Span value Sc under the manual tab. This value is typically between 0.9-1.1.
Span H2O	1) Flow air of known dewpoint through the calibration accessory at a rate of 0.5-1.0 lpm. To avoid condensation use a dewpoint several degrees below ambient temperature. 2) Click the Manual tab and record the H2O span value (Sw). Click the Span tab and enter the span gas dewpoint temperature in the Dew Point Temperature field. 3) Observe the H2O dewpoint in the main window and allow it to stabilize (15-20 mins or more). Once stable, click the Span H2O button. Refer back to the Manual tab and note the Sw value. Sw should typically be between 0.9-1.1.

END

Li-7700 Calibration

Set Up	
1)	Connect the LI-7700 to a power supply and a computer running the LI-7700 interface software.
2)	Connect to the instrument.
3)	Remove the radiation shield and install the calibration shroud. Ensure good seal.
Zero CH4	1) Flow CH4-Free air through the Calibration Accessory at 0.5-1.0 lpm.
	2) Allow 10-30 minutes for Equilibration. Record CH4 reading once stabilized.
	3) Click the Zero CH4 button. Once the instrument zeros, accept the changes, record the final CH4 reading.
Span CH4	1) Flow gas of known CH4 concentration through the Calibration Accessory at 0.5-1.0 lpm.
	2) Allow 10-30 minutes for Equilibration. Record CH4 reading once stabilized.
	3) Click the Zero CH4 button. Once the instrument spans, accept the changes, record the final CH4 reading.
END	

Li-7550 System Calibration

Instrument: Li-7550 _____

Serial #: _____

Inventory #: _____

Acc 1: Li-7500a _____

Serial #: _____

Inventory #: _____ Pass/Fail

Acc 2: Li-7700 _____

Serial #: _____

Inventory #: _____ Pass/Fail

Name: _____

Date: _____

Zero Gas Tank Number: _____
Span Gas CO2 Tank Number: _____
Span Gas CH4 Tank Number: _____
Span Gas CO2 Concentration (ppm): _____
Span Gas CH4 Concentration (ppm): _____
Ambient Room Temperature: _____
Dewpoint Temperature Setting: _____

Internal Chemical Change Li-7500? _____
Internal Chemical Change Li-7700? _____

Zero CO2

Zco initial: _____ (umol/mol⁻¹)
Zco final: _____ (umol/mol⁻¹)

Notes:

2 scfh = 1 lpm

Zero H2O

Zwo initial: _____ (mmol/m³)
Zwo final: _____ (mmol/m³)

Span CO2

Sco initial: _____ (umol/mol⁻¹)
Sco final: _____ (umol/mol⁻¹)

Span H2O

Sw initial: _____ (mmol/m³)
Sw final: _____ (mmol/m³)

Zero CH4

Zch initial: _____ (umol/mol⁻¹)
Zch final: _____ (umol/mol⁻¹)

Span CH4

Sch initial: _____ (umol/mol⁻¹)
Sch final: _____ (umol/mol⁻¹)

Calibration Check

Zero CO₂

Zco initial: _____ (umol/mol⁻¹)

Zco final: _____ (umol/mol⁻¹)

Zero H₂O

Zwo initial: _____ (mmol/m³)

Zwo final: _____ (mmol/m³)

Span CO₂

Sco initial: _____ (umol/mol⁻¹)

Sco final: _____ (umol/mol⁻¹)

Span H₂O

Sw initial: _____ (mmol/m³)

Sw final: _____ (mmol/m³)

Zero CH₄

Zch initial: _____ (umol/mol⁻¹)

Zch final: _____ (umol/mol⁻¹)

Span CH₄

Sch initial: _____ (umol/mol⁻¹)

Sch final: _____ (umol/mol⁻¹)

END

* For additional info contact Robert Nettles or Jeff Riggs