**Licor**

The Licor 7500DS is an open path optical gas analyzer that measures atmospheric concentrations of CO2 and H2O at 20 Hz for eddy covariance applications. The system consists of a sensor head, an electronics box that controls the sensor head, and a SmartFlux computer that mostly just causes trouble. The SmartFlux is the intermediary device and is the device with which we communicate directly.

**Turning the system on/off:**

 Connect/disconnect power source.

**Communications & Settings:**

 TCP/IP on port 7200

 To configure the system it is most convenient to use the manufacturer’s software, li7500ds\_win-8.8.19.exe (see “Things to Consider”, below). It is possible to communicate with the device remotely over the radio using this software.

To connect:

1) Connect cables, power device, including SmartFlux

2) Install/open LI-7x00 A RS DS 8.8.19 software.

3) Software automatically detects SmartFlux. Should be firmware 8.8.15. Highlight the device and Connect.

4) Set IP: Settings -> Network tab

 IP: 192.168.202.34 (or whatever the Licor is being assigned)

 Subnet: 255.255.255.0

 Gateway: 192.168.202.254

5) Press Apply then Reboot then OK buttons. When it is finished, reconnect.

6) Connect to LI-7500DS. You should see numbers appear on the right.

7) Site Setup -> Sonic Anemometer tab -> check "No Anemometer Connected", Apply, OK

8) LI-7500DS -> Outputs

 Setup tab: Set ouput bandwidth to 10

 Ethernet tab:

 a) Set Update Rate to 20Hz

 b) uncheck "Use labels in data records"

 c) Under Data Output click "Select None". All boxes will uncheck. Now check the following:

 CO2 (mg/m3)

 H2O (mg/m3)

 Temperature (degC)

 Pressure (kPa)

 Diagnostic Value

 CO2 Signal Strength

 Click Apply then OK then OK again to exit dialog box. The click Disconnect. Exit.

9) Open Hypterminal and start a new connection as follows

 TCP/IP Winsock

 Host address = 192.168.202.34 (or whatever is the Licor's IP)

 Port = 7200

 Messages should be streaming at 20 Hz. You are done with the setup stage.

**Variables:**

CO2 (mg/m3)

H2O (g/m3)

Temperature (C)

Pressure (kPa)

Diagnostic Value (code)

CO2 Signal Strength (%)

**Post Processing:**

* Intensive.

**Daily Data Checks:**

* Check that data is coming in and that it is complete.
* Are there missing values?
* Check the diagnostic values.

**ASFS Visit Checks:**

* (1) Inspect instrument cables.
* (2) Clean snow/ice from the sensor head windows and clear snow/ice from around the sensor head. Take a photo of the condition of the instrument before cleaning.

**Things to consider:**

* If you open li7500ds\_win-8.8.19 and connect to the instrument, it will reset some of the settings. You have to go to the Ethernet table of the Outputs window in the LI-7500DS dropdown menu and make sure that all of the variables listed in Variables, above, are checked and that NO OTHER variables are also checked. You also need to make sure that it is set to 20 Hz update rate and the Verbose Mode is unchecked. In the Setup tab you should select 10 Hz.
* We are currently in “Summer mode”. If you want to change to winter mode you will need to do a zero and dual span calibration. See 7-11 of the 7500DS manual.