

Quick Sheet for Operating the E-Sampler Smoke Monitor and Airsis Satellite Telemetry System

To see a video about setting up the-Sampler, go to <http://www.airsis.com/usfs/flash/fla09252F01/index.html>.

BEFORE GOING TO THE FIELD

Equipment List

- E-Sampler Smoke Monitor
- Tripod
- Weatherproof Power Supply/Battery Charger
- PM2.5 Sharp Cut Cyclone Inlet
- TSP inlet (weather cap)
- Airsis Telemetry System
 - Antenna
 - Serial Communications Cable
 - Mounting Hardware
- Three Connection Extension Cord (if using line power)
- Laptop (if downloading data)
- Met One serial communications cable (if downloading data)
- Miscellaneous Tools.

Charging Batteries

Charge the batteries for at least one day prior to use.

- E-Sampler –
 - Remove the battery cover plate inside the E-sampler and ensure the battery is attached to both the RED and BLACK wires of the internal battery cable.
 - Connect the plug from the Weather Proof Power Supply/Battery Charger to the appropriate connector on the bottom of the E-Sampler.
 - Connect the Power Supply to line power. Charge the E-Sampler for at least 24 hours.
 - Unplug the power supply.
 - Disconnect either the BLACK or RED connector from the battery to prevent discharging.
- The Telemetry system can be charged by plugging the power cord from the system to line power.

SITING THE E-SAMPLER AND TELEMETRY SYSTEM

The E-Sampler and Telemetry system should be placed in an open area away from obstructions such as trees or buildings, and away from external pollution sources (road dust, industrial pollution, and so forth). A clear view of the sky is necessary for the telemetry system to effectively transmit data.

SETUP IN THE FIELD

- Remove the three pins from the tripod and unfold the legs until they are fully extended. Re-insert the pins through the holes in the leg flanges.

- Attach the E-Sampler to the tripod by sliding the slot on the back of the E-Sampler over the mounting tab on the tripod.
- Attach the bottom of the E-Sampler to the tripod by sliding the ¼ inch bolt through the bottom flange and through the tripod. Hand tighten the nut on the bolt.
- Attach the PM2.5 Sharp Cut Inlet to the inlet of the E-Sampler.
- Attach the TSP (weather cap) to the PM2.5 inlet.
- Attach the Telemetry system to the tripod with the supplied hardware.
- Screw the antenna to the top of the Telemetry box and ensure it is fully seated.
- Plug the communications cable from telemetry system to the appropriate connector on the bottom of the E-Sampler.
- Inside the E-Sampler, remove the battery cover plate and attach the RED and BLACK wires of the battery cable to the battery.
- Attach the connector from the power supply to the bottom of the E-Sampler.
- Attach the power cord from the power supply and Telemetry system to the extension cord and plug the extension cord to line power.

CHECKING SETTINGS ON E-SAMPLER

The MENU/SELECT, ESC, left, right, up, and down arrows are used to traverse through the screen on the E-Sampler. The blank white buttons under the screen are used to save and exit settings. Settings on the E-Sampler should have been already been set and the instrument stores these settings.

Verifying *SETUP* settings:

- From the Main Screen:

```
08-JUL-2001 08:23:41
CONC:      UNIT OFF
FLOW:      0.0LPM
TURN ON
```

- Press the **MENU/SELECT** button.

```
OPERATE
>SETUP
CALIBRATE
ALARM LOG
```

- Use the arrow buttons to and move the cursor to **SETUP**. Press **MENU/SELECT**.

```
>CLOCK
AVERAGE PERIOD
CONCENTRATION
SAMPLING MODE

FLOW CONTROL
ALARM CONTACT
RH HEATER CONTROL
ZERO MODE
```

SPAN MODE
 BAUD RATE
 STATION ID
 ENGR UNITS

- Use the up and down arrow buttons to move cursor to desired setting and press **MENU/SELECT**. The following settings should be set:

CLOCK – set to GMT time

AVERAGE PERIOD – set to 5 MIN
 CONCENTRATION – set to AUTO, DAC to 1.0 V, K-FAC to 1.00.
 SAMPLING MODE – set to CONTINUOUS
 FLOW CONTROL – Set FLOW MODE to PM2.5, FLOW RATE to 2.0 LPM
 ALARM CONTACT – does not apply
 RH HEATER CONTROL – set RH SETPOINT to 50%
 ZERO MODE – set ZERO MODE to AUTO, ZERO PERIOD to 24 HR
 SPAN MODE – set SPAN MODE to AUTO, SPAN PERIOD to 24 HR, RESTORE DEFAULT to NO
BAUD RATE – set BAUD RATE to 9600
 STATION ID – does not apply
 ENGR UNITS – set to METRIC

- Press the **ESC** two times to get to main screen.

STARTING A RUN

- From the Main Screen, press the **white button** under **TURN ON**.

```
08-JUL-2001 08:23:41
CONC:    UNIT OFF
FLOW:    0.0LPM
TURN ON
```

- Press the **white button** under **TURN ON**

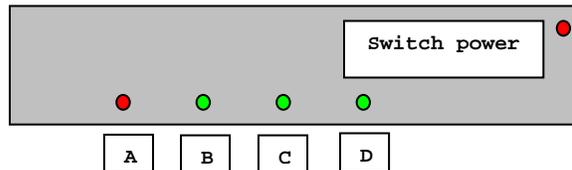
```
>>>>>CAUTION<<<<<<
ALTER E-SAMPLER
OPERATION
CANCEL      TURN ON
```

The E-Sampler will go through a ZERO and SPAN check and then begin to sample. After several minutes the screen will go blank to conserve power. Press the **ESC** button to turn the display back on.

STARTING SATELLITE TELEMETRY SYSTEM AND VERIFYING COMMUNICATIONS

- Open the front cover to the telemetry system and turn the system on by pressing the power switch.
- The upper right light should illuminate.

- The following diagram shows the various states of the satellite modem and corresponds to the LED indicators located on the monitor. LED indicators verify that the satellite modem has power, the modem is receiving information from the E-BAM, and the antenna is properly placed for the modem to “see” the satellites.



- A. Modem initialized light is on.
- B. Serial Data measurement Digital 0 from E-BAM light is on.
- C. Serial Data measurement Digital 1 from E-BAM light is on.
- D. Light is ON when satellite is in view and OFF between satellite passes. (If this green LED light does not illuminate within 30 minutes, reposition the antenna to a higher and unobstructed position.)

STOPPING THE E-SAMPLER

- To stop the E-Sampler, press the **ESC** button to turn the display back on.
- Press the **white button** under the “TURN OFF” text on the next two screens.

08-JUL-2001 08:23:41 CONC: 0.022 MG/M3 FLOW: 2.0 LPM TURN OFF	>>>>>CAUTION<<<<<< ALTER E-SAMPLER OPERATION CANCEL TURN OFF
--	---

TRANSFERRING DATA FROM THE E-SAMPLER TO A LAPTOP USING HYPERTERMINAL

- Disconnect the satellite telemetry serial communications cable from the E-Sampler.
- Connect the supplied serial communications cable to the appropriate connector on the bottom of the E-Sampler and to the serial connector on the laptop.
- On the Laptop, click the HyperTerminal icon. Connected should display on the bottom of the screen.
- On the top menu bar, click “Transfer>Capture Text”.
- On the Laptop, press the return key several times. The “>” symbol should appear on the screen.
- Press the number “2” button. Data should begin to scroll across the screen.
- When data stops scrolling, stop the “Capture Text” by clicking on “Transfer > Capture Text > Stop”.
- Close the HyperTerminal program.

WEB SITES AND PHONE NUMBERS

Missoula Tech & Development Center
<http://www.fs.fed.us/eng/techdev/mtdc.htm>
Phone Andy Trent: 406-329-3912

Met One Instruments
<http://www.metone.com>
Phone: 541-471-7111

Airsis Telemetry System
<http://www.satguard.com/usfs>
Phone Jim Drewett: 619-585-0435 ext 130