

# Quick Sheet for E-Sampler GOES Kit

NFES 005840 Kit, Smoke Particulate Monitoring

includes:

- E-Sampler Smoke Particulate Monitor
- Power supply/battery charger
- Gel cell battery
- PM 2.5 Sharp cut cyclone
- TSP inlet (weather cap)
- GOES satellite transmission unit
- Relative humidity sensor
- Wind speed and direction sensor
- Cross arm
- Tripod
- UTC conversion chart
- Smoke Monitor Installation Guide
- Miscellaneous tools

You need to supply:

- Extension cord

## **Charge gel cell for 1 day before deploying to field**

E-Sampler –

- Place and connect gel cell inside the E-Sampler
- Connect power supply/battery charger to bottom of E-Sampler
- Plug power supply/battery charger to line power

**OR**

- Charge gel cell battery with a plug-in charger for 12-volt gel cells

## Siting the E-Sampler GOES Kit

The E-Sampler GOES should be placed in an open area away from obstructions such as trees or buildings, and away from external pollution sources (road dirt, industrial pollution, etc.) The GOES antenna must have a clear view of the Southern horizon.

## Setup in the Field

- Setup tripod. Remove the bolt from the tripod.
- Slide the E-Sampler onto the tripod. Install the bolt through the E-sampler ground wire connector, bottom of the E-Sampler, and the tripod.
- Position the E-Sampler door so it faces true North.
- Attach the PM2.5 cyclone and TSP onto the inlet of the E-Sampler.
- Attach the power supply to the tripod leg. Connect power supply cable to bottom of E-Sampler.
- Attach supplied backing plate to GOES transmission unit. Slide GOES unit onto the tripod. Hand-tighten the U-bolt.
- Slide GOES antenna onto its flange and secure with pushpin. Connect GOES antenna cable to bottom of transmitter.
- Connect GOES communication cable to comm port on bottom of E-Sampler.
- Connect junction T box to bottom of E-Sampler.
- Connect GOES power cable to junction T box.
- Attach cross arm to tripod so it's pointing East and West.
- Install the RH sensor to the West end of the cross arm. Connect cable to junction T box.
- Install the wind sensor to the East end of the cross arm. Attach vane tail and align the sensor with vane tail pointing true North. Connect sensor cable to the bottom of the E-Sampler.
- Install the gel cell in the E-Sampler. Connect the battery leads. **The GOES transmitter will not function without the internal battery installed.**
- Plug power supply into the line power.

**E-Sampler Parameters**  
**(Version R1.19.4 Firmware)**

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

**Verifying SETUP parameters:**

- From the Main Screen

```
14-Apr-2011 08:23:41
CONC: UNIT OFF
FLOW: 0.0 LPM
START SAMPLE
```

- Press the MENU/SELECT button

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

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

```
>CLOCK
AVERAGE PERIOD
CONCENTRATION
SAMPLING MODE
```

```
ALARM CONTACT
RH HEATER CONTROL
SELF TEST
COMMUNICATIONS
STATION ID
ENGINEERING UNIT
```

The following parameters should be set to:

CLOCK – Set to UTC  
AVERAGE PERIOD – Set to 60 MIN  
CONCENTRATION  
RANGE – 0-1 MG/M3  
CONC UNITS – MG/M3  
K-FACTOR – 1.000  
SAMPLING MODE – CONTINUOUS  
ALARM CONTACT – skip  
RH HEATER CONTROL  
RH SETPOINT – 50%

SELF TEST – PERIOD 24 HOURS  
COMMUNICATIONS

DAC RANGE – 1.0 VOLT

BAUD RATE – 9600

STATION ID – skip

ENGINEERING UNITS – METRIC

- Press ESC button twice to get START SAMPLE screen
- Press START SAMPLE at next two screens

**Checking the GOES transmission unit**

There are four indicator lights inside.

- The Sync GPS – illuminates while it acquires a GPS fix and synchronizes its clock to UTS. Light goes off when it is complete.
- Data – will illuminate from 2 minutes past the top of the hour until on minute prior to transmission time while it acquires data from the E-Sampler, then it will turn off.
- The TX (transmit) – will illuminate for about three seconds while it transmits data to the satellite.
- Fault – is used with the Diagnostic button. Hold the diagnostic button for two seconds. The fault indicator will blink once if everything is OK. If it blinks twice, the transmitter is not sending data to the satellite and needs to be returned to FTS for repair.

**Data Web Site**

<http://www.wrcc.dri.edu/smoke>

**Contacts**

General questions: Herb Arnold (208) 387-5363

Technical questions:

MTDC (406) 329-3900

RAWS Help Desk (208) 387-5475

Ordering/Coordination: Mark Barbo (208) 387-5726

When a site selection has been determined, call the Help Desk with a latitude & longitude for the system and you will be given an azimuth/angle to the position of the GOES satellite in order to confirm a clear view for the telemetry and to ACTIVATE the monitor. The RAWS Help Desk will also assist with any system deployment questions.