

Flow Sensor Calibration

Sentinel F-21 Instrument

APPLICATION BULLETIN #127A

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The mass flow sensor supplied with the Sentinel F-21 instrument is NIST traceable. To meet ISO9000, QS9000, and other quality assurance programs, this sensor needs to be periodically re-calibrated. Cincinnati Test Systems has an excellent calibration facility with NIST traceable equipment for calibration and re-calibration services. The typical turnaround time for new sensors or re-calibration is under one week. To re-calibrate flow sensors, the sensor or the entire Sentinel F-21 instrument must be returned to Cincinnati Test Systems. To return just the flow sensor without losing production will require that a spare flow sensor be installed in the instrument in place of the existing sensor. The calibration data for the sensor must be installed into the instrument memory for accurate measurement.

The information below details the procedure for loading the sensor's calibration data into the Sentinel F-21 instrument.

Required equipment

- Computer (accessible to the Sentinel F-21 instrument) with Windows 3.1 or 95
(Because the Uploader software is 16-bit, it may not work on all Windows 98 or 2000 systems.)
- 9 pin female-to-female null cable
- Floppy disk with "Uploader" software and flow sensor calibration data

Upload procedure

- Connect the computer's 9 pin serial port to the Sentinel F-21 instrument (RS232 port) via the 9 pin null cable.
- Via the COMM button on the Sentinel F-21's operator panel, set for "RS232 only" communication.
- Check the sensor ID# on the disk to make sure that it is the same as the ID# on sensor (or calibration papers)..
- Place floppy disk into the A drive of computer.
- Click on START and then RUN
- Type in "a:\uploader\setup.exe".
- The Uploader software screen will appear. Click "Continue".
- The Uploader software will be copied onto the C drive of the computer. A finished uploading message will appear. Click "OK".



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- Click on the “F21 Sensor Uploader” icon or select the Uploader program from the START, PROGRAM menu.
- The Uploader software initializes and a “Calibration Data” table screen appears with no calibration data.
- Click on “File” and “Open”. Select “a” under Drive.
- Verify that the “.dat” file number is the same as the sensor ID# on the sensor.
- Select the one “.dat” file which appears and then click OK.
- Data will transfer to the “Calibration Data” screen. Default values appear for one sensor range and actual calibration values appear for the calibrated sensor range.
- Click on “Connect” and “Set com port”. Set the appropriate port number - probably 2 and click OK.
- Click on “Connect” and “Transmit”. Select the sensor range - 1000 or 6000 and then OK.
(The sensor data file number is 1xxx for 1000 sccm sensors and 6xxx for 6000 sccm sensors.)
- The screen will question about overwriting files in the memory of the Sentinel F-21, click OK.
- “Transmission Complete” screen appears.
- The Sentinel F-21 instrument now has the new calibration data for the sensor.