

Technical Note No. 025

Procedure for Programming Version DBNOx Circuit Boards with GPS

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Requirements

Programming the ozone monitor requires a computer running the "Analog Devices Serial Downloader" program to download the firmware from the computer to the ozone monitor, and the rs232 serial cable provided by 2B Technologies. The computer must have a serial port or a USB port with a USB to Serial converter cable to connect to the rs232 serial cable provided by 2B Technologies.

Procedure

1. Disconnect external GPS from instrument.
2. Remove tape from loose brown wire connected to D9 serial connector on back of instrument and insert loose brown wire into J26 between yellow and black wire.
3. Install the Windows Serial Downloader (WSD) by starting the executable file you have just unzipped.
4. Start the Windows Serial Downloader program that you just installed.
5. Connect one end of the serial cable provided by 2B Technologies to serial connection on rear side of ozone monitor and the other end to the computer. Or if the computer does not have a serial port, connect the other end to the USB to Serial converter cable.
6. Remove the top cover of the ozone monitor. Instructions for removal are located in the ozone monitor manual.
7. Locate the small buttons labeled "**sw1**" and "**sw2**" on the circuit board inside the ozone monitor.
8. Turn on the ozone monitor.
9. Press and hold the switch labeled "**sw2**". While holding "**sw2**" down, press and depress the switch labeled "**sw1**". Now release "**sw2**". This will enter the board into "Serial Download Mode".

10. On the computer running the Windows Serial Downloader, locate the “**Reset**” button on the program’s window. Press the “**Reset**” button. If the board is connected correctly and in “Serial Download Mode”, you will see this message:
“**Configuration: COM1, 9600 baud**

RESETTING PART: OK”

*If you do not see this message, repeat steps 8 through 10 until you see the correct message

11. Press the “**Download**” button located on the Windows Serial Downloader. This will bring up a window prompting you to choose the file with a .hex extension to be downloaded. Find the .hex file that was provided by 2B Technologies and select it. A bar will appear showing the status of the download and the download should only take a few seconds.
12. The Board is programmed! Turn the ozone monitor off and on again to start the new program.
13. Enter the menu of the ozone monitor and re-enter all of the parameters (Averaging time, Calibration parameters, External, Baud Rate, Units). You must do this because the internal eeprom memory is cleared when the microcontroller is reprogrammed.
14. Remove the brown wire from J26 located on the circuit board and place electrical tape around it to protect it from touching the chassis ground.

Note: If step 10 is unsuccessful, please contact Craig Williford at 2B Technologies for further assistance.

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