

# UPGRADING FIRMWARE ON RAE SYSTEMS INSTRUMENTS

This document explains how to upgrade the firmware in a RAE Systems gas monitor. New firmware upgrades become available on the RAE Systems website, [www.raesystems.com](http://www.raesystems.com), on a frequent basis as we continually improve our instrument performance. The requirements for this are a Windows OS personal computer with a COM port, the computer interface cable and internet access (or the proper download files on disc).

## APPLICABILITY

The firmware can be upgraded by the user on most RAE Systems instruments including MiniRAE 2000, ppbRAE, UltraRAE, MultiRAE Plus, MultiRAE IR, VRAE, QRAE, QRAE Plus, AreaRAE, IAQRAE, and most other related products. Instruments that cannot be upgraded by the user include ToxiRAE (all models), BadgeRAE, RAEGuard, NeutronRAE, and GammaRAE (all models). Users that purchased the unit without datalogging will need to order the communications cable to access the firmware downloads.

## Obtain ProRAE Suite

The ProRAE Suite Software must be installed on the PC to allow firmware downloads and to transfer data and configuration files between the instrument and the computer. Install ProRAE Suite from the diskette or obtain the latest version from the RAE Systems website.

1. Enter the main website and click on the Technical menu.
2. Under the Self Service tab, click on Download Firmware and Software.
3. Find ProRAE Suite either by scrolling through the list or using the search engine in the upper right.
4. Click on Software – ProRAE Suite V.X.XX.
5. Click Save on the File Download pop-up window.
6. Enter a file name and location and click Save in the Save As window. The default folder name is RAE Systems Inc/ProRAE Suite, and the software should load itself into the computers Program Files folder.

## Obtain the Instrument Firmware

Copy the instrument firmware either from a diskette or download it from the RAE website.

1. From [www.raesystems.com](http://www.raesystems.com), click Support and then Downloads.
2. Find the instrument firmware either by scrolling through the list or using the search engine in the upper right.
3. Click on Firmware – Instrument Name V.X.XX.
4. Click Save on the File Download pop-up window.
5. Enter a file name and location and click Save in the Save As window. Preferably save it in the RAE Systems Inc or ProRAE Suite folder, which should be in the Program Files folder.
6. Extract the zipped file using the computer's extraction software (such as WinZip) and store the file into the same folder.

## Load the Firmware into the Instrument

1. Launch ProRAE Suite.
2. Under the Option menu, click on Load Firmware
3. Exit other Windows programs as necessary and click OK.
4. Select the desired firmware with extension .A07 from the Open browser.
5. Turn on the instrument and connect the computer interface cable between the instrument and the computer.
6. Put the instrument into PC Communication Mode. This is typically done by toggling the main menu with the MODE key until a menu like "Communicate with PC?" appears and pressing the [Y/+] button. The instrument should display "Ready..." or a similar message.
7. Click OK on the computer ProRAE Suite window. The download will take a few minutes.
8. In some cases, the instrument automatically turns off after the download is complete.
9. If communication fails, check the cable and the Communication/ Setup Port window in ProRAE Suite to make sure that the correct COM Port is selected (usually COM 1). Also check that the instrument is still in PC Comm "Ready..." mode.

**Note:** Use The Proper File Name. To avoid loading the wrong firmware into a unit, ProRAE Suite checks filename of the selected firmware against the model number read from the unit.

The following is the list of filename prefixes that are accepted by ProRAE Suite. If the prefix does not match the model number in the unit, a firmware download will be aborted. The proper file name must contain the prefix, a version number, and the extension.A07. For example, "MultiRAE(PGM50-4)\_V311D.A07" is a legal filename, whereas "MultiRAE\_V311D.A07" is not. Therefore, if the firmware was obtained from the RAE Website, the user should not modify the file name. If the firmware is obtained from some other source, it should be checked to have the correct name.

- MultiRAE(PGM50-4)
- MultiRAE(PGM50-4P)
- MultiRAE(PGM50-5P)
- MultiRAE-IR
- QRAE(PGM50)
- UltraRAE
- MiniRAE2000
- VRAE7800
- VRAE7840
- ppbRAE
- QRAE+(PGM2000)
- QRAE+(PGM2020)
- SentryRAE
- AreaRAE
- AreaRAE Gamma
- IAQRAE(PGM5210)
- AreaRAE-IAQ(PGM5220)
- AreaRAE-IAQ(PGM5230)
- AreaRAE-IAQ(PGM5240)
- AreaCom(PGM5020)
- AreaAlarm(PGM5020)

## CONFIGURE THE INSTRUMENT

There are two circumstances that warrant reconfiguring the instrument after new firmware has been loaded:

**1.** When new firmware is loaded, the operating parameters may be reset to some default values. It may be desirable to re-adjust the parameters through a regular reconfiguration procedure via the PC or on the instrument directly. To reconfigure via the PC:

- a.** Open a configuration file stored in the computer or download the configuration from the instrument by clicking on Receive Configuration in the Communication menu.
  - b.** Once a configuration file is open, click on the CONF button to open the Edit Configuration File window.
  - c.** Edit the configuration as desired, and click OK.
  - d.** Under Communication, select Send configuration or simply click on the Send button.
- 2.** The Read Me file associated with the new firmware may instruct you that a new configuration file is required because the previous version is incompatible. In this case a Config All procedure must be performed:
- a.** Open the Read-Me file that is downloaded with the new firmware and check if it requires a new configuration.
  - b.** Open the configuration file that was downloaded with the new firmware.
  - c.** Under the Option menu click on Config All...
  - d.** All calibration data will be lost and parameters will be reset to default values. Customize the configuration parameters as described in number 1 above and then re-calibrate the meter before use.

## DOS UPGRADES AND BOOTLOADS

Contact the factory for information on upgrades for users running on DOS.

If the microprocessor hangs up (a display freeze), the PC Communication mode is not accessible, and it is necessary to perform a bootload of the firmware. This typically requires the unit to be returned to the factory. In special circumstances it may be possible for the user to perform a bootload. Call the RAE Systems Service Department (877-723-2878) for assistance.