Installation Guide

Software and Firmware Installation

NOTE: The KMD-5699 part number was changed to HTO-1103 in Aug. 2010.

NOTE: FlexStat firmware is upgraded using the (software) Firmware Upgrade Tool and the (hardware) adapter plate and programming pod in the kit. You will need **Version 2.0.0.7 or later of the Firmware Upgrade Tool**. Download and install the latest FlexStat firmware and the Firmware Upgrade Tool software **before** connecting the FlexStat to the computer.

NOTE: **To use the KMC Firmware Upgrade Tool software, the Windows XP, Vista, or 7 operating system as well as Microsoft .NET Framework (ver. 3.5 or later) must be installed on the computer.** (To verify that the correct version of Microsoft .NET Framework is installed: select *Start > Settings > Control Panel > Add/Remove Programs*. Scroll through the list of programs to locate the versions of Microsoft .NET. If Microsoft .NET 3.5 or later is in the list, close the dialog box. No further action is required.) If .NET 3.5 or later is **not** installed, **it is available as a free download from the Microsoft web site (www.microsoft.com).**

NOTE: Before installing the **KMC Firmware Upgrade Tool**, exit all open programs.

NOTE: Get the latest FlexStat firmware from KMC's web site or through the Firmware Upgrade Tool after it is installed. (See *Downloading New Firmware Versions on page 6*.)

1. To get new firmware directly from the web site, log-in to KMC's Partner Portal web site (*partners. kmccontrols.com*), download the latest **FlexStat firmware (not the tool) from the Downloads section**, double-click the zipped file, extract/copy the files to a convenient place, and double-click the firmware's EXE file. Allow it to install firmware in the default directory. (See *Illustration 1*.)

2. From the Partner Portal web site, download the latest Firmware Upgrade Tool software, double-click the zipped file, extract/copy the files to a convenient place, and double-click the *SETUP* file.

3. Follow the prompts and allow it to install in the default directory. (See *Illustration 2*.)

NOTE: If installing over an older version of the software, you may need to first uninstall the older version using Add or Remove Programs in the Windows Control Panel.

4. Double-click the new icon to open the **Firmware Upgrade Tool** software. (See *Illustration 3*.)

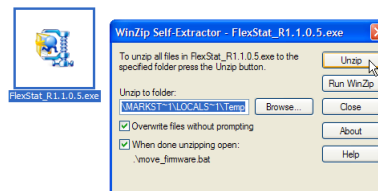5. Connect the FlexStat to the computer. (See *Connections on page 2*.)

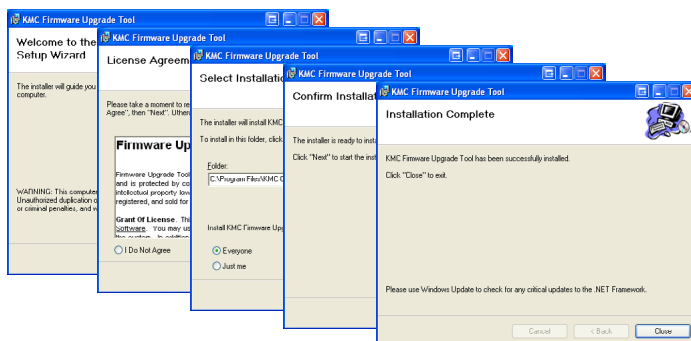Illustration 1—Unzip and Install the FlexStat FIRMWARE

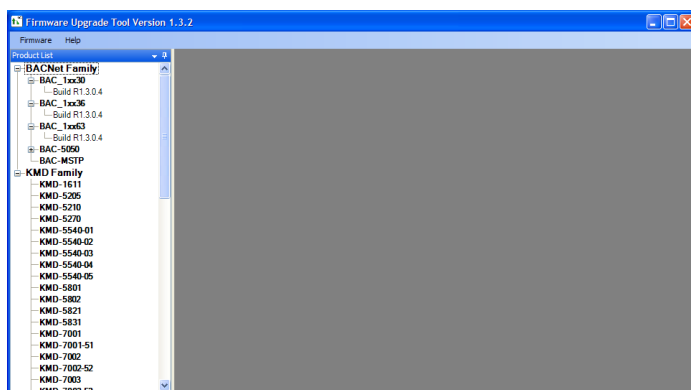Illustration 2—Install the Firmware UPGRADE TOOL

Illustration 3—Open the Firmware Upgrade Tool

Connections

NOTE: A FlexStat's existing firmware is displayed in the FlexStat's About menu. Before making connections, check to see if the latest firmware is already installed. (See *Illustration 4*.)
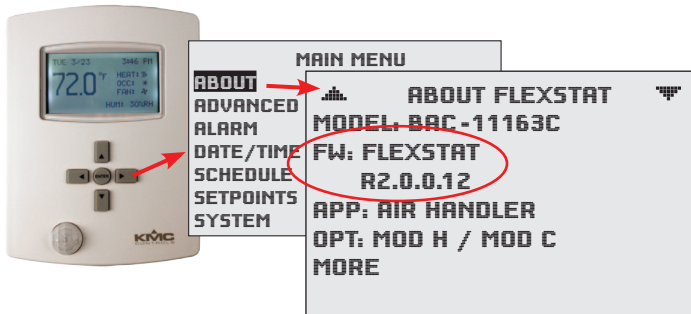

Illustration 4—Check Current Firmware Version

1. Turn the hex screws in the bottom and top of the FlexStat **CLOCKWISE** (only) until they clear the cover. (See *Illustration 5*.)

⚠ CAUTION

To prevent mounting screw heads from touching the circuit board in the thermostat, use only the mounting screws supplied by KMC Controls. Do not turn the screw in farther than necessary to remove the cover.

2. Carefully pull the cover away from the backplate (mounting base).

3. **Temporarily remove—but do not discard—the WD (watchdog) jumper (from the two pins closest to the center of the board—see *Illustration 6 on page 3*).** To avoid losing the jumper, temporarily put the jumper on one pin only.

NOTE: To replace a lost WD jumper, use a standard 2.54 mm computer jumper sourced locally. A KMC HPO-0063 jumper can also be used if the finger tab is cut off to clear the backplate.

4. Attach the appropriate adapter plate to the back of the cover.

⚠ CAUTION

To prevent damage, never plug the programming pod into a FlexStat that is powered. Always attach the power cable last.

5. Attach the programming pod to the FlexStat's flash port. See *Illustration 6* for the proper orientation for the respective model. **The BAC-13xxxx and BAC-14xxxx CO_2 model ports require the 914-001-10 flash pod pin extender card.**

⚠ CAUTION

To prevent damaging the FlexStat or programming pod, be sure all the pins align properly with the sockets!

6. Plug the USB cable into the pod and then the other end into the USB port of the computer.

⚠ CAUTION

To prevent the possibility of damage caused by a ground loop between the FlexStat transformer and the computer power supply, using an optically isolated USB hub or using a laptop operating on batteries only is recommended.

7. When the Found New Hardware Wizard pops up on the screen, let it install the required drivers.

8. After the Wizard is finished, remove the protective rubber cap and insert the power adaptor cable's two pins into the power section of the wall-mounted terminal blocks. See *Illustration 6* for the proper terminals for the respective model. (Keep the cap on the pins when not in use.)

9. Use the Firmware Upgrade Tool to update the firmware. (See *Updating the Firmware on page 4*.)

1 & 2. Turn cover hex screws CLOCKWISE and remove cover

3–5. Remove WD jumper and attach adapter plate and "pod" to back

6. Connect USB cable between pod and PC

7. Install drivers
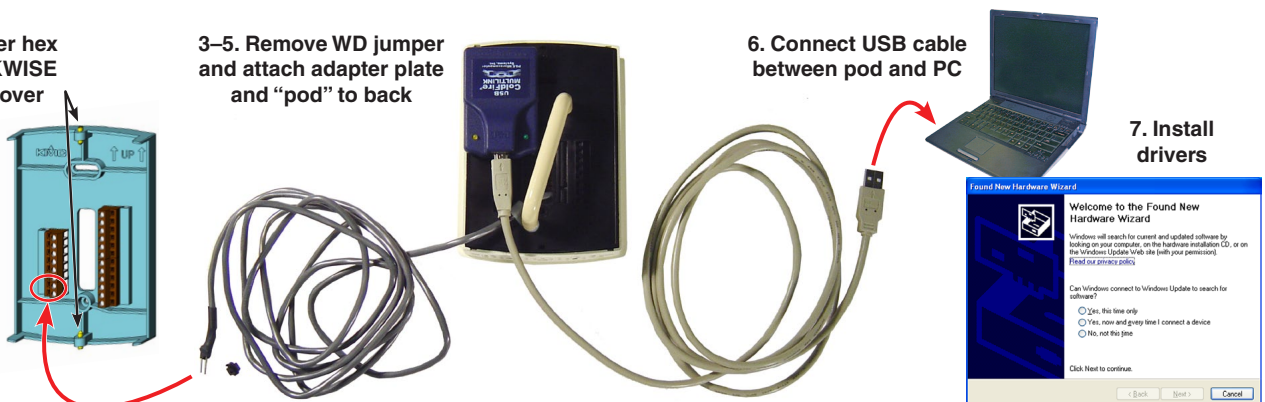
8. Connect cable's two pins to the power terminals (LAST)

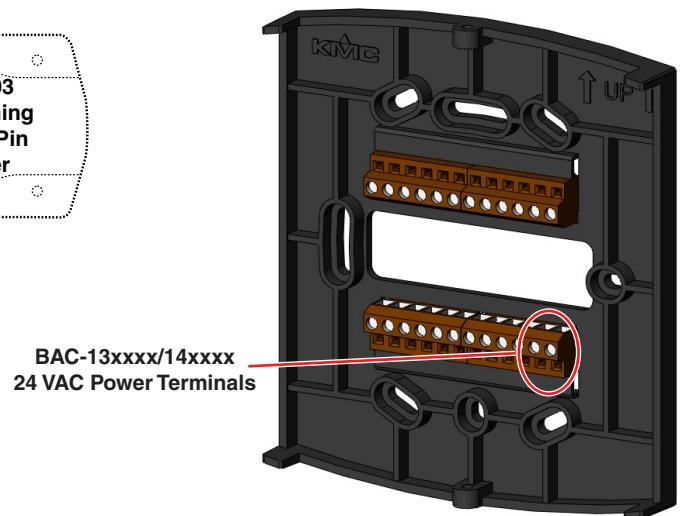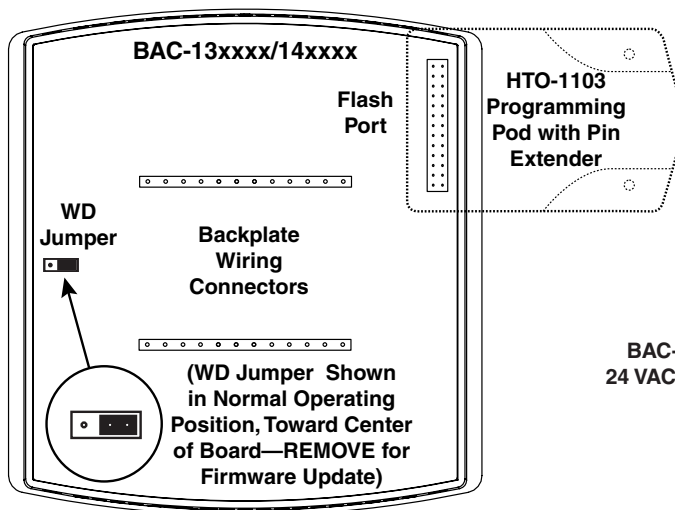Illustration 5—Make Kit Connections (BAC-10000 Series Shown)

Flash Port

HTO-1103 Programming Pod

BAC-10000 Series

(WD Jumper Shown in Normal Operating Position, Toward Center of Board— REMOVE for Firmware Update)

Backplate Wiring Connectors

WD Jumper

BAC-10000 Series 24 VAC Power Terminals

WD Jumper

(WD Jumper Shown in Normal Operating Position, Toward Center of Board— REMOVE for Firmware Update)

HTO-1103 Programming Pod

Flash Port

Backplate Wiring Connectors

BAC-12xxxx

BAC-12xxxx 24 VAC Power Terminals

BAC-13xxxx/14xxxx

Flash Port

HTO-1103 Programming Pod with Pin Extender

WD Jumper

Backplate Wiring Connectors

(WD Jumper Shown in Normal Operating Position, Toward Center of Board—REMOVE for Firmware Update)

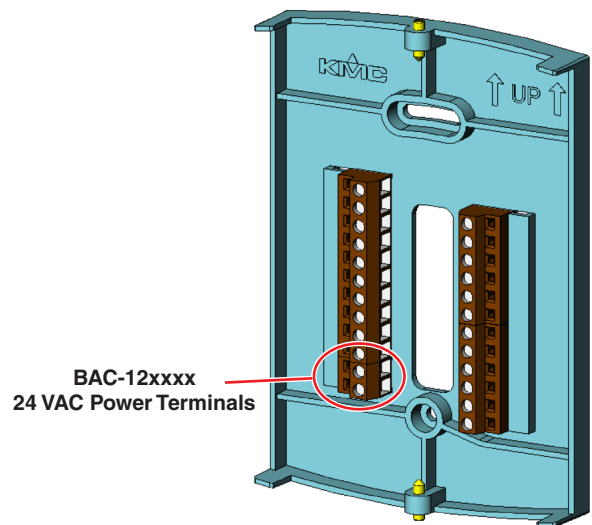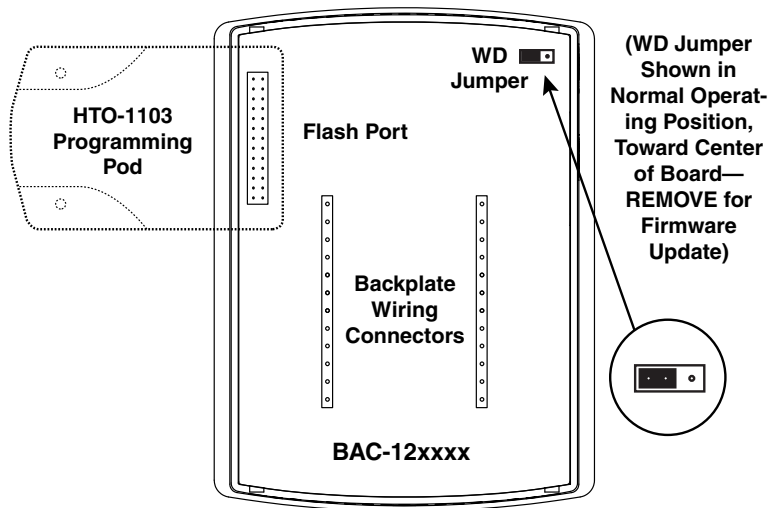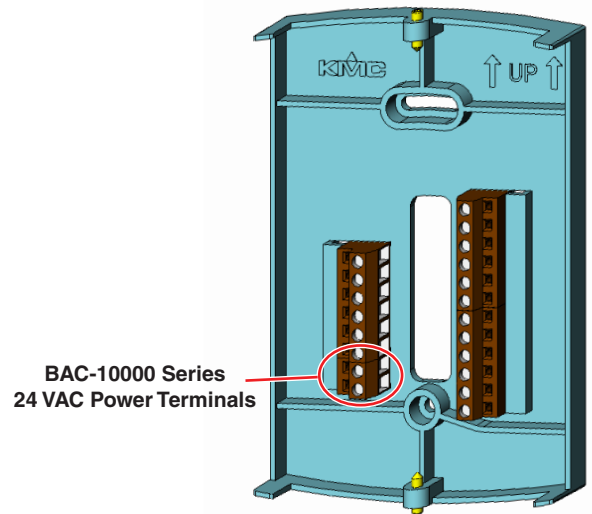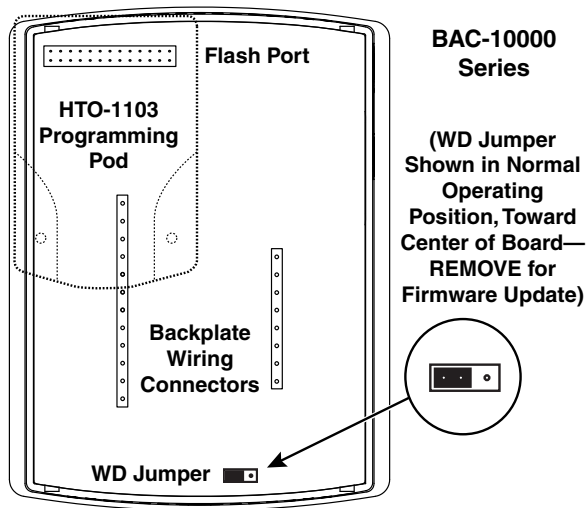**BAC-13xxxx/14xxxx 24 VAC Power Terminals**

Illustration 6—Flash Port, WD Jumper, Programming Pod, and Power Terminals in Each Series

Updating the Firmware

⚠ CAUTION

Before updating a FlexStat's firmware for the first time, back up the FlexStat (using the Firmware Upgrade Tool, TotalControl, or BACstage).

If your FlexStat has CUSTOM or PRE-RELEASE firmware (Ex.x.x.x instead of Rx.x.x.x), options and points may have changed in the released versions. See *Updating Nonreleased Firmware on page 6* before proceeding!

1. Under BACnet Family > BAC-1xxxxx (desired FlexStat model) in the left panel of the Firmware Upgrade Tool, **double-click the firmware version you wish to install**. (See *Illustration 7*.) Ensure firmware for the correct model is selected.

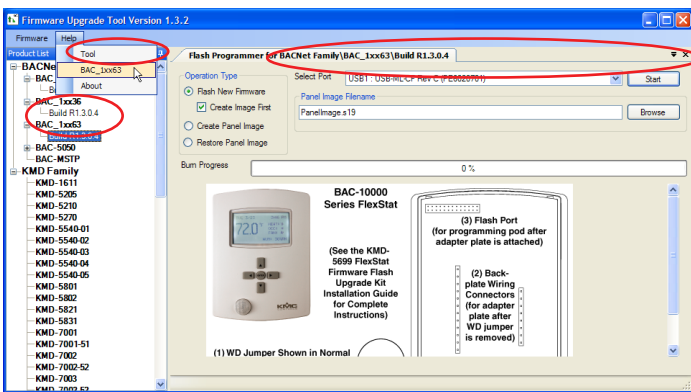NOTE: Click the + signs to expand the tree.

Illustration 7—Double-Click Desired Firmware

NOTE: A PDF version of this document can be accessed by clicking *Help* and then the model number. Clicking *Tool* launches the Help system that contains general information about the Firmware Upgrade Tool as well as information about updating KMC devices other than the FlexStat.

NOTE: If *Create Image First* is left selected (recommended), this backs up the FlexStat's existing firmware and configuration before installing the new version. **The firmware and configuration can be backed up separately (*Create Panel Image*) or restored (*Restore Panel Image*).** Change the default backup image file name as desired, and ensure the correct backup file is selected when restoring.

2. In Select Port, select the USB port to which the programming pod is attached (if not already selected).

NOTE: If the USB port does not appear in the drop-down list or an error message appears after clicking Start, see *Troubleshooting on page 5*.

3. Click *Start* and *OK*.

NOTE: Burn Progress will show the back-up first (if selected) and then show (after clicking Yes) the upgrade progress. The progress bar may bounce back and forth the first few times the kit is used, but it will do so less as it "learns" the approximate time updates take on that computer.

⚠ CAUTION

During the upgrade process, if you wish to cancel, click the *Cancel* button and then *Yes* to stop the upgrade process after the current stage (which may take up to several minutes). (See *Illustration 8*.) Clicking the *No* button will allow the process to continue. Clicking *Yes* and then *Cancel* again will allow you to stop the process immediately but may also corrupt the firmware, requiring that the FlexStat's firmware and configuration be reinstalled before it will operate properly.
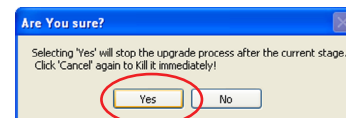

Illustration 8—If Needed, Cancel (Stop After Current Stage)

4. In the Replace Firmware box, ensure that the firmware versions are correct and click *Yes*. (See *Illustration 9*.) (Replacing the firmware takes significantly less time than backing-up the FlexStat.)
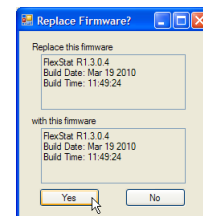

Illustration 9—Replace Firmware

5. When finished, close the software and unplug power to the FlexStat.

> ⚠ **CAUTION**
>
> **Remove the power, then the USB cable, then the pod, and then the backplate. Do not remove the backplate with the pod still attached. Do not remove either while power is still applied.**

6. Remove the USB cable (before the pod).

7. Remove the pod.

8. Carefully remove the adapter plate **and reinstall the WD jumper on the proper pins.** (See *Illustration 6 on page 3*.)

9. **Carefully** reinstall the FlexStat on the backplate **while being careful not to pinch or dislodge any wiring**.

10. Back the hex screws (counterclockwise) out of the brackets until they engage the FlexStat cover and hold it in place.

Troubleshooting

NOTE: See the cautions on pages 2 and 4!

- If a message appears that the operation has failed, **ensure the WD (watch dog) jumper is TEMPORARILY removed during the upgrade process!** (See *Illustration 6 on page 3*.) **Reinstall the jumper after the upgrade process is complete!** After the update, a FlexStat with a missing jumper may seem to be operating correctly, but it may lock up at a later time.

NOTE: To replace a lost WD jumper, use a standard 2.54 mm computer jumper sourced locally. A KMC HPO-0063 jumper can also be used if the finger tab is cut off to clear the backplate.

- After the update process is over, if the FlexStat **display remains blank but the backlight is on or the display locks up at a later time, check that the WD jumper is reinstalled on the CORRECT pins**. (See *Illustration 6 on page 3*.)

- If the **USB port does not appear in the drop-down list**, close the tool, remove power to the FlexStat, disconnect the FlexStat from the USB port, reconnect the FlexStat to the USB port, restore power to the FlexStat, and restart the tool.

- For any **communication error** (such as an "Operation has failed!" message) check all connections and restart the Firmware Upgrade Tool. If the HTO-1103 kit was received prior to Feb. 7, 2012 and has Rev. D on the silver label of the programming pod, see the FlexStat Programming Pod Jumper Position Service Bulletin SB0212A to check for the correct jumper position within the pod.

- For **display/interface issues** in the Firmware Upgrade Tool, right-click in the firmware panel (on the right) and select *Restore Defaults*.

- To view and download **firmware updates** from within the tool or from KMC's Partner Portal web site (*partners.kmccontrols.com*), you must log-in with a valid user name and password.

- **Ensure firmware for the correct model is selected** in the Firmware Upgrade Tool. If firmware for the wrong model is accidentally installed, the outputs will not match the applications/configuration on the display.

NOTE: **Backing up** the existing settings and firmware image **before or during the upgrade process** (using the Firmware Upgrade Tool, TotalControl, or BACstage) is recommended practice.

NOTE: **If custom Contol Basic programs are installed, see** *Custom Control Basic Issues on page 7*.

Updating Nonreleased Firmware

If your FlexStat has CUSTOM or PRE-RELEASE firmware (Ex.x.x.x instead of Rx.x.x.x), options and points may have changed in the released versions. You may need to reconfigure the FlexStat and even rewire terminals.

1. **BACK UP YOUR FLEXSTAT BEFORE PROCEEDING!** Use the back-up function in the Firmware Upgrade Tool, TotalControl, or BACstage.
2. Before the update, capture the object list of the old firmware with your selected application.

NOTE: The easiest way to compare the before-and-after object lists is to open **BACstage's Object List** (F11 and select the appropriate FlexStat from the list), do a series of screen captures (Alt Print Screen), and paste each screen capture into Microsoft Word. (See *Illustration 10*.)

3. Perform the update.
4. **Ensure the same application is still selected** and capture the object list of the new firmware.
5. **Compare the two object lists BEFORE using the FlexStat to control equipment.**
6. Reconfigure and rewire the FlexStat as needed to use the new released firmware. See the FlexStat Application Guide and/or relevant (according to model) Installation Guide.
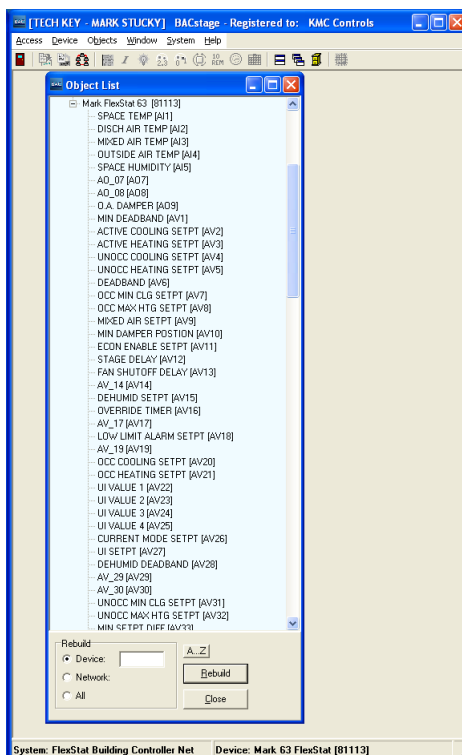

Illustration 10—Object List in BACstage

Tips and Additional Information

Downloading New Firmware Versions

KMC periodically releases new firmware for its various BACnet and KMDigital devices. The latest available firmware can be downloaded by following these steps (after the Firmware Upgrade Tool is installed):

1. From the menu, select *Firmware > Check for New Firmware*. (See *Illustration 11*.)
2. Select the desired FlexStat firmware.
3. Enter your log-in information (which is the same log-in information used to access the KMC Partner Portal web site).
4. Click *Download Selected* and *OK*.
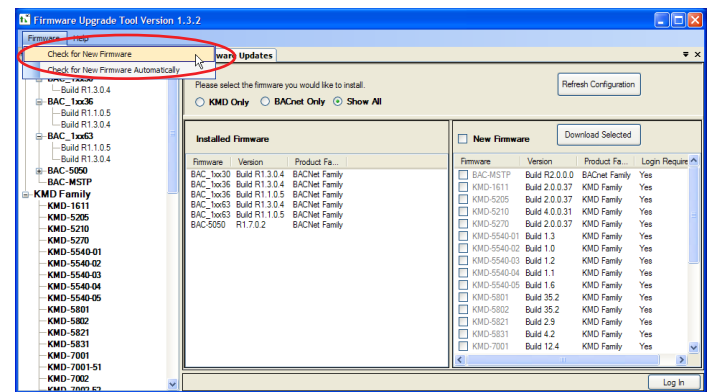5. The new firmware will show up in the Product List (left panel).

Illustration 11—Available New KMC Firmware Versions

Deleting Old Firmware Versions

Unneeded versions of older firmware can be deleted from the Firmware Upgrade Tool list by right-clicking the old version and selecting Delete Firmware from the menu. (See *Illustration 12*.) (Keeping at least one version of older firmware is recommended in case of file corruption.)

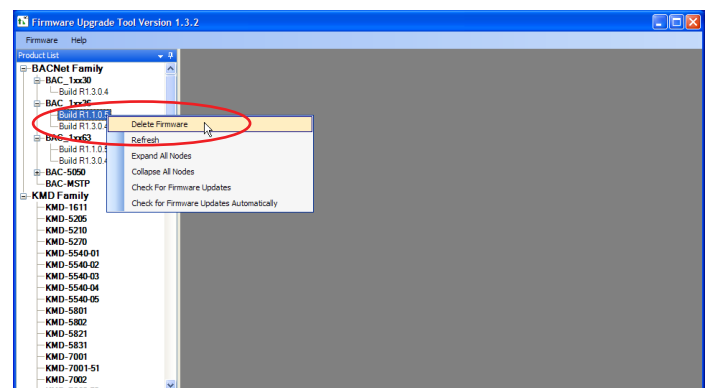Illustration 12—Deleting Old Firmware Versions

Custom Control Basic Issues

If **custom** Control Basic programs are installed **and set to autorun**, whenever the **firmware is updated**, **ALL (factory and custom) programs are halted.** If **custom** Control Basic programs are installed **but NOT set to autorun, whenever the firmware is updated, factory programs are restarted but any (manual) running custom programs are halted at restart.**

Change the state of each custom program by using the Update Manager (see *Illustration 13*) or loading/running each program from the CB Programs menu (or BACstage or TotalControl).

```
     UPDATE MANAGER
PROGRAM CONFIG ERROR

ENABLE FACTORY: NO
ENABLE CUSTOM: NO
EDIT CB PROGRAMS
DONE
```

Illustration 13—Update Manager

CO$_2$ Calibration Adapters

Illustration 14—CO$_2$ Calibration Tubing Adapter

See the FlexStat Operation Guide for the complete calibration procedure!

To calibrate the CO$_2$ sensor in BAC-14xxxx FlexStats, the **201-403-03 clear plastic tubing adapter** from this kit will be needed. The 3.5"-long clear tubing is needed to connect the FlexStat to the larger diameter tubing that typically comes with calibration gas kits. One end fits **over** one of the FlexStat calibration tube fittings (after the protective caps are removed). The other end fits **inside** the standard 1/4" OD tubing that comes from the regulator. (See *Illustration 14*.)

The **BAC-13xxxx/14xxxx backplate adapter** (with attached power cable) is also needed to provide power to the FlexStat during the calibration procedure. (See *Illustration 5 on page 2* and *Illustration 6 on page 3*.)

NOTE: It may be easier to attach the adapter tubing to the fitting **before** attaching the backplate to the FlexStat.

NOTE: The programming pod and USB cable are **not** used during CO$_2$ calibration. The BAC-13xxxx/14xxxx backplate adapter is used for **both** CO$_2$ calibration and firmware upgrading for those models.

NOTE: A GE Telaire 2075 (or equivalent) calibration kit and gas must also be purchased separately elsewhere.
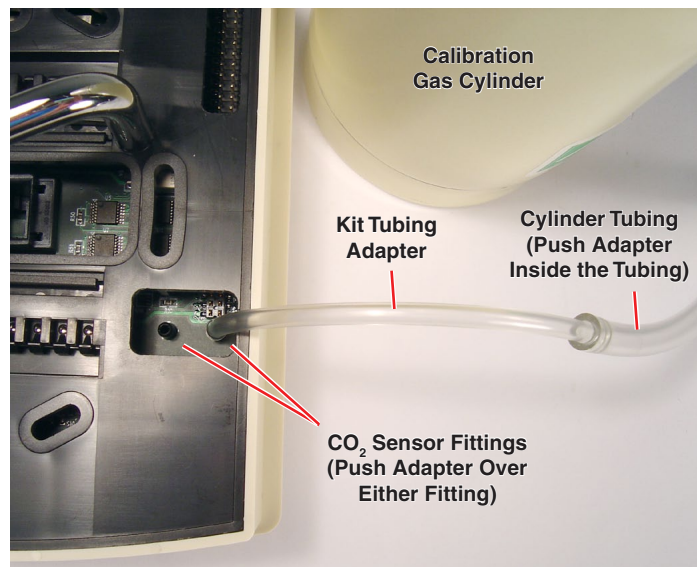
Important Notices

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