



# Firmware Upgrade Tool

Instructions for upgrading the firmware in  
KMD and BACnet controllers



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# Section 1: Getting started with the Firmware Upgrade Tool

This section describes the procedures for installing the Firmware Upgrade Tool and firmware images prior to updating a controller. It also lists computer software requirements and additional equipment needed to update the firmware in KMC controllers.

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The Firmware Upgrade Tool is a program that authorized controls technicians use to upgrade the firmware in BACnet or KMD series controllers. The program is available from the KMC Controls partners web site.

In addition to the program, you will need the correct flash programming pod from one of the following kits:

- HTO-1101
- HTO-1102
- HTO-1103
- HTO-1104
- HTO-1105 (See **Note** below.)

The exact programming pod will depend on the model of controller that will be upgraded. For FlexStat models, you will also need an adapter and extender card from either an HTO-1103 or HTO-1104 kit.

**Note:** The flash pod in the HTO-1105 kit does not support firmware upgrades to FlexStat or SimplyVAV devices. This includes BAC-12xx36C/CE, BAC-12xx63C/CE, BAC-13xx36C/CE, BAC-13xx63C/CE, BAC-14xx36C/CE, 1 and BAC-4xx63C/CE FlexStat legacy models, BAC-19xxx series FlexStats, and BAC-8xxx SimplyVAV devices.

**Note:** USB flash programming pods previously supplied with earlier kits are compatible with the Firmware Upgrade Tool.

## Applicable models

These instructions cover most models of KMD and BACnet controllers manufactured by KMC Controls, Inc. except the BAC-A1616BC BACnet Building Controller. See the manual *The BAC-A1616BC BACnet Building Controller Installation and Operation Guide* to upgrade firmware in that model.

See the following topics for model specific requirements and procedures.

- [Updating BAC-5050 and KMD Tier 1 controller firmware on page 15](#)
- [Updating KMD-5800 series controller firmware on page 19](#)
- [Updating KMD-7000 series controller firmware on page 27](#)
- [Updating KMD-5540 CommTalk firmware on page 23](#)
- [Updating BACnet advanced application controller firmware on page 31](#)
- [Updating the BAC-5051E and KMD-5551E on page 41](#)
- [Updating the FlexStat on page 35](#)
- [Updating KMC Conquest controllers on page 45](#)
- [Updating STE-9000 series NetSensors on page 49](#)

## Before you install

Before you begin installing the Firmware Upgrade Tool, prepare the computer by doing the following:

- Disconnect any programming pods connected to the computer.
- Turn off screen savers and hibernation modes. As an alternative, set screen savers and hibernation to 30 minutes or longer.
- Close all open files and exit from all open programs.
- Verify that Microsoft .NET Framework version 4.0 or later is installed. See the topic [Requirements for Microsoft.Net on page 6](#).

## Requirements for Microsoft.Net

Microsoft .NET Framework version 4.0 or later is required for the Firmware Upgrade Tool. The installation program will automatically check for Microsoft.NET. If it is not installed, a dialog opens during installation with a link to Microsoft.NET on the Microsoft web site. Follow the link and choose version 4.0. If you choose Microsoft.NET version 4.0, you will also have to install Silverlight.

## Install the Firmware Upgrade Tool

The Firmware Upgrade Tool is available only from the partner portal on the KMC Control web site.

[partners.kmccontrols.com](https://partners.kmccontrols.com)

**Note:** You must be logged in to access all files on the Partner Portal site..

**Note:** No model-specific firmware images are installed with the Firmware Upgrade Tool. After the tool is installed, add model specific images as described in the topic [Adding model-specific firmware images on page 12](#).

To install the Firmware Upgrade Tool, do the following:

- 1 Download the Firmware Upgrade Tool from the KMC Controls partners web site.
- 2 Extract the tool from the .zip file.
- 3 Use Windows Explorer to open the Firmware Upgrade Tool folder.
- 4 Double-click the **SETUP** icon inside of the folder.
- 5 Follow the on-screen installation instructions.
- 6 If prompted to install Microsoft .NET, choose version 4.0 or later.
- 7 When prompted, choose a location for the program. KMC Controls recommends the default location.
- 8 When the installation is complete, restart the computer.
- 9 Add model specific firmware images as described in the topic [Adding model-specific firmware images on page 12](#).





## Section 2: Menu reference for the Firmware Upgrade Tool

The section is a reference guide for the options and features in the Firmware Upgrade Tool.

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The Firmware Upgrade Tool is a software program supplied by KMC Controls to update the firmware in KMD and BACnet controllers. This section covers details for each of the tabs and menus that an operator will use to flash a controller.

Topics in this section cover the following features:

- [Applicable models on page 6](#)
- [Firmware menu on page 9](#)
- [Flash Programming tab on page 10](#)
- [Image file locations on page 13](#)
- [Advanced features on page 14](#)
- [Adding model-specific firmware images on page 12](#)
- [Deleting firmware from the tool on page 13](#)

### Related topics

- [Updating BAC-5050 and KMD Tier 1 controller firmware on page 15](#)
- [Updating KMD-5800 series controller firmware on page 19](#)
- [Updating KMD-7000 series controller firmware on page 27](#)
- [Updating KMD-5540 CommTalk firmware on page 23](#)
- [Updating BACnet advanced application controller firmware on page 31](#)
- [Updating the FlexStat on page 35](#)
- [Updating the BAC-5051E and KMD-5551E on page 41](#)
- [Updating KMC Conquest controllers on page 45](#)
- [Getting started with the Firmware Upgrade Tool on page 5](#)

## Firmware menu

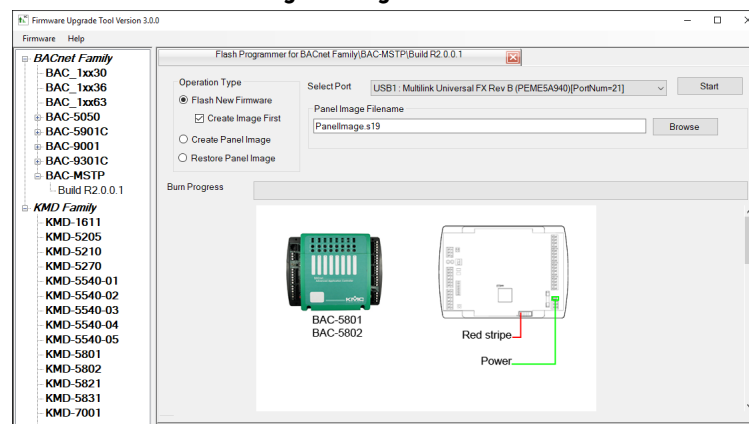
**Note:** As of October 2015, the features in the Firmware Menu are no longer supported. Firmware images cannot be added with a direct Internet connection and must be downloaded from the KMC Controls partners site. See the topic [Adding model-specific firmware images on page 12](#).

## Flash Programming tab

Use the Flash Programming tab to update the firmware image in a controller. The Flash Programming tab opens automatically when a specific firmware image is selected from the Product List.

- The graphic image in the Flash Programming tab is specific for the selected controller and firmware build.
- To open the instruction manual, right-click the graphic image and choose **Open IO Manual** from the shortcut menu.
- To add the advanced options to the tab, Press **Ctrl+Shift+A**. See the topic [Advanced features on page 14](#) for details.

**Illustration 2–1 Flash Programming tab**



**Select Port** Select the port that is correct for the programming pod in use. Typically only the USB port is used.

**Operation Type** These options set the tool to do the following:

- Update the controller's flash memory. The tool can be set to store a backup file of the controllers configuration before flashing the memory.
- Make a backup file of the controller's configuration without flashing the controller's memory.
- Restore the controller's configuration from a stored backup file.

**Flash New Firmware** Select this option to flash the controller with the firmware version selected from the Products List.

- When the Create Image First check box is selected, the Firmware Upgrade Tool creates a backup file of the controller's configuration and flash memory before flashing the controller.
- When the Create Image First check box is clear, the Firmware Upgrade Tool updates the flash memory in the controller but does not make a backup file.
- When the Create Image First check box is selected, the Firmware Upgrade Tool creates a backup file of the controller's configuration and flash memory before flashing the controller.
- When the Create Image First check box is clear, the Firmware Upgrade Tool updates the flash memory in the controller but does not make a backup file.

**Create Panel Image** When selected, the Firmware Upgrade tool creates a backup file of the controller's configuration and flash memory. The controller is not flashed at the end of the process.

**Restore Panel Image** The tool flashes the controller with the configuration properties and flash memory from the configuration file selected in Panel Image Filename text box.

**Burn/Upload Progress indicator** The Burn/Upload Progress indicator is a progress bar that shows that status of the current process. When flashing the controller and the Create Image First check box is selected, the backup process is shown first. The progress bar may bounce back and forth the first few times the tool is used, but it will do so less as it measures and stores the approximate time updates take on that computer.

**Panel Image Filename** Use this text box for either of the following purposes.

- When flashing a controller, enter a name for the backup configuration file. Browse to the location to store the file. For the default location, see the topic [Image file locations on page 13](#).
- When restoring a panel image, browse to the location of the image backup file.

#### *Related topics*

- [Applicable models on page 6](#)
- [Flash Programming tab on page 10](#)
- [Image file locations on page 13](#)
- [Advanced features on page 14](#)
- [Adding model-specific firmware images on page 12](#)
- [Deleting firmware from the tool on page 13](#)

## Adding model-specific firmware images

A firmware image is a file that the Firmware Upgrade Tool will use to update the firmware in a controller. Image files are not installed at the time the program is installed. Before starting the procedures in this topic, install the Firmware Upgrade Tool as described in the section [Install the Firmware Upgrade Tool on page 7](#).

Individual, model specific firmware image files are available for downloading from the KMC Controls partners web site.

[partners.kmccontrols.com](http://partners.kmccontrols.com)

**Note:** As of October 2015, adding firmware images with an Internet connection is no longer supported. Firmware images can only be added by downloading them from the KMC Controls partners site as described in the following procedure.

The images are available either from individual product pages or from the Downloads area. Each image file is stored in a .zip file, which may also include release notes.

To add firmware from a file, do the following:

- 1 Download the required image file from of the KMC Controls web site. The image files are available from the web site from either of two locations:
  - From a link on each individual product page.
  - From the *Downloads* area.
- 2 Store the downloaded .zip file in a safe location.
- 3 Extract the .exe file from the .zip file.
- 4 Double-click the .exe file to install the firmware image file. Allow it to install in the default location.

Once firmware images are added to the Firmware Upgrade Tool, the tool can be used to upgrade the firmware in either BACnet or KMD controllers. Specific procedures for each model of controller are covered in the following topics.

- [Updating BAC-5050 and KMD Tier 1 controller firmware on page 15](#)
- [Updating KMD-5800 series controller firmware on page 19](#)
- [Updating KMD-7000 series controller firmware on page 27](#)
- [Updating KMD-5540 CommTalk firmware on page 23](#)
- [Updating BACnet advanced application controller firmware on page 31](#)
- [Updating the FlexStat on page 35](#)
- [Updating the BAC-5051E and KMD-5551E on page 41](#)
- [Updating KMC Conquest controllers on page 45](#)
- [Updating STE-9000 series NetSensors on page 49](#)

## Image file locations

Firmware image files are automatically installed in the following locations:

Windows XP image folder location:

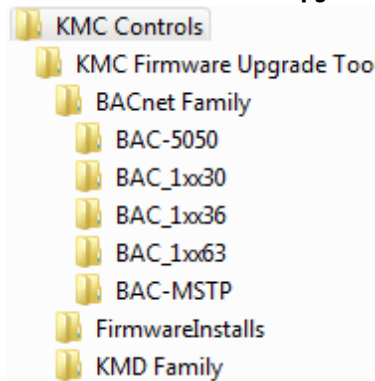
C:\Documents and Settings\All Users\Application Data\  
KMC Controls\KMC Firmware Upgrade Tool

Windows Vista, Windows 7, Windows 8, and Windows 10 image folder location:

C:\ProgramData\KMC Controls\KMC Firmware Upgrade Tool

The default location for storing an image file is in the folder with the model name of the controller.

### Illustration 2–2 Firmware Upgrade Tool folders




#### Related topics

- [Applicable models on page 6](#)
- [Flash Programming tab on page 10](#)
- [Advanced features on page 14](#)
- [Adding model-specific firmware images on page 12](#)
- [Deleting firmware from the tool on page 13](#)

## Deleting firmware from the tool

To delete unwanted firmware from the Product List, do the following:

- 1 In the Firmware Updates tab, locate the model of the controller in the Product List.
- 2 Click  next to the model number to reveal the available firmware builds.
- 3 Right-click on the firmware to remove and choose **Delete Firmware** from the shortcut menu.

#### Related topics

- [Applicable models on page 6](#)
- [Flash Programming tab on page 10](#)
- [Image file locations on page 13](#)
- [Adding model-specific firmware images on page 12](#)

- [Advanced features on page 14](#)

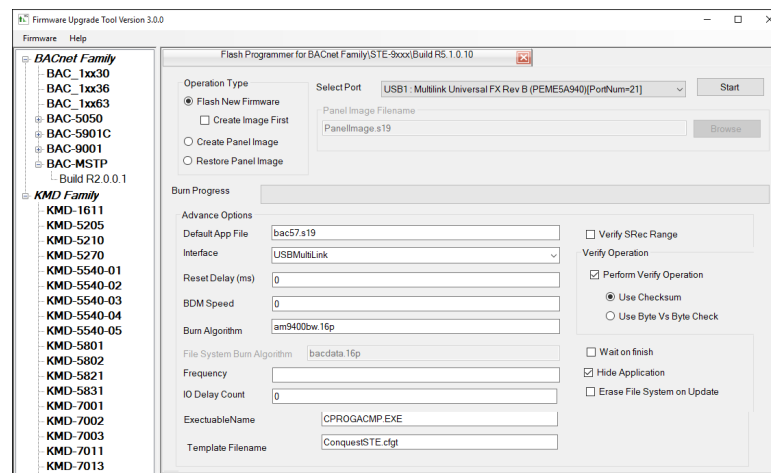
## Advanced features

The options in the Advanced Features area are configuration settings that usually do not need to be changed. Change these items only when following instructions from KMC Controls, Inc.

To add the advanced features to the Flash Programming tab, do the following.

- 1 Open the Flash Programming tab by clicking on the software version in the product list.
- 2 Click either the **Select Port** or **Panel Image Filename** text boxes.
- 3 Press **Ctrl+Shift+A**. The options are added to the Flash Programming tab.

### Illustration 2–3 Advanced Features menu



### Related topics

- [Applicable models on page 6](#)
- [Flash Programming tab on page 10](#)
- [Image file locations on page 13](#)
- [Adding model-specific firmware images on page 12](#)
- [Deleting firmware from the tool on page 13](#)

## Section 3: Updating BAC-5050 and KMD Tier 1 controller firmware

This section describes the procedure for flashing a KMD Tier 1 controller or the BACnet router controller with new firmware.

---

Topics in this section cover the following information and procedures.

- [Prepare to upgrade on page 15](#)
- [Flashing the controller on page 16](#)
- [Return to service on page 18](#)

The procedures in this section apply only to the following models of KMC controllers:

BAC-5050	KMD-5205
KMD-5210	KMD-5270

### Prepare to upgrade

Before updating the firmware in a controller, set up the computer as follows:

- Turn off screen savers and hibernation modes. As an alternative, set screen savers and hibernation to 30 minutes or longer.
- Close all open files and exit from all open programs.
- Download the Firmware Upgrade Tool from the KMC Controls partner web site. Follow the instructions in the topic [Getting started with the Firmware Upgrade Tool on page 5](#).
- Add the model specific firmware image or images. Follow the instructions in the topic [Adding model-specific firmware images on page 12](#).

In addition to the Firmware Upgrade Tool you will need the following items.

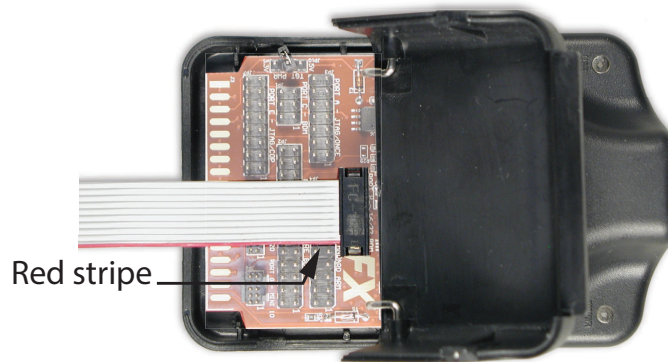
- A USB-A to USB-B cable.
- A programming pod with a wide 10-conductor ribbon cable from an HTO-1104 upgrade kit or the pod from an HTO-1102 upgrade kit.

If the wide 10-conductor cable is not connected to the pod, do the following to prepare the programming pod from the HTO-1104 upgrade kit.

- 1 Open the cover of the pod.
- 2 Remove any installed ribbon cables.
- 3 Position the red stripe of the cable over Pin 1 as shown in the following illustration.
- 4 Push the cable down over the group of pins.

- 5 Close the cover.

**Illustration 3-1 Programming pod with 10-conductor cable installed.**



When the computer and pod are ready, prepare the controller by doing the following.

- 1 Save the programming in the controller or router:
  - For KMD controllers use TotalControl, WinControl or HCM to save the controller programming to a panel file.
  - For the BAC-5050 use BACnet Router Tools.
- 2 Connect the USB cable to a USB port on your computer.
- 3 Connect the other end of the USB cable into the programming pod. The blue LED illuminates to indicate a good connection.

**Note:** The first time you plug the USB Flash upgrade interface into a computer, you will see a prompt that new hardware has been found. Choose the install option and allow the system to proceed.

## Flashing the controller

You must follow these instructions exactly and in the order listed for this procedure to be successful.

**Note:** If you are adding a BACnet or other license to a KMD controller, the license file must be stored on a drive that is accessible from computer.




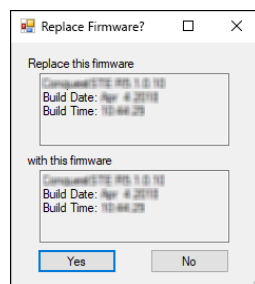
**Caution**

The flash process will take several minutes. *Do not* click **Cancel** in the Flash Programmer tab after clicking **Yes** in the Replace Firmware dialog.

- 1 Disconnect power from the controller.
- 2 Disconnect all outputs from the controller.

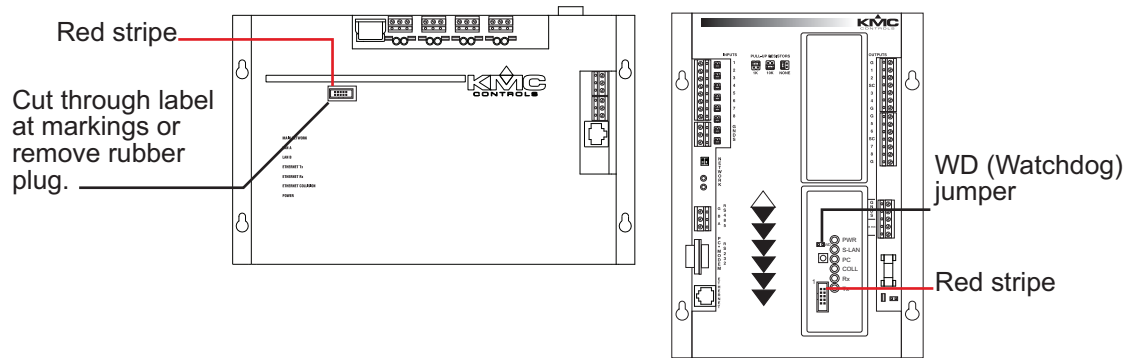


- 3 Plug the flat ribbon cable into the flash port of the controller. For flash port locations see the illustration [Flash ports in BAC-5050 and KMD-5200 series controllers on page 18](#). Note the orientation of the red stripe.
- 4 On models KMD-5205 and KMD-5270 remove the WD (watchdog) jumper. Jumper locations are listed in the illustration [Flash ports in BAC-5050 and KMD-5200 series controllers on page 18](#).
- 5 Reconnect power.
- 6 Start the Firmware Upgrade Tool.
- 7 Locate the model of the controller in the Product List.
- 8 Click  next to the model number to reveal the firmware builds.
- 9 Double-click the build number under the model number.
- 10 If you are not adding a BACnet or other license to the controller, skip this step. If you are adding a license, do the following.
  - a. Press **Ctrl+Shift+L**. The license area is added to the Flash Programming tab.
  - b. Select the **Use local license file** check box.
  - c. Click **Browse** and locate the license file on your computer.
- 11 Select or clear the **Create Image First** check box.
  - If the check box is selected, the Firmware Upgrade Tool will save a copy of the existing firmware and configuration.
  - If the check box is not selected, the existing firmware and configuration will not be saved.
- 12 Click **Start** and follow the on-screen instructions.
- 13 When the Replace Firmware dialog opens, click **Yes** to continue or **No** to cancel.



The Upload Progress bar will indicate the status of the upload. Do not click **Cancel** during the upload or the firmware may become corrupt.

- 14 When the process is complete, return the controller to service as described in the next topic.

**Illustration 3-2 Flash ports in BAC-5050 and KMD-5200 series controllers**

## Return to service

Once the new firmware is loaded, return the controller to service.

- 1 Remove power from the controller.
- 2 Remove the ribbon connector from the flash port of the controller.
- 3 On models KMD-5205 and KMD-5270, replace the WD jumper. See the illustration [Flash ports in BAC-5050 and KMD-5200 series controllers on page 18](#).
- 4 Reconnect the outputs.
- 5 Reconnect power to the controller.

The programming process is now complete. The ready LED on the controller should be blinking at this point. If it is not blinking, cycle power to the controller.

## Section 4: Updating KMD-5800 series controller firmware

This section describes the procedure for flashing the firmware in a KMD-5800 series controller.

---

Topics in this section cover the following information and procedures for upgrading KMD-5800 series controllers.

- [Prepare to upgrade on page 19](#)
- [Flashing the controller on page 20](#)
- [Return to service on page 22](#)

The procedures in this section apply only to the following KMD models of controllers:

KMD-5801	KMD-5802
KMD-5821	KMD-5831

### Prepare to upgrade

Before updating the firmware in a controller, set up the computer as follows:

- Turn off screen savers and hibernation modes. As an alternative, set screen savers and hibernation to 30 minutes or longer.
- Close all open files and exit from all open programs.
- Download the Firmware Upgrade Tool from the KMC Controls partner web site. Follow the instructions in the topic [Getting started with the Firmware Upgrade Tool on page 5](#).
- Add the model specific firmware image or images. Follow the instructions in the topic [Adding model-specific firmware images on page 12](#).

In addition to the Firmware Upgrade Tool you will need the following items.

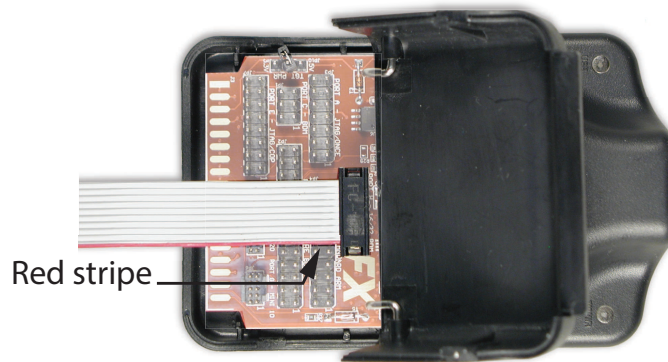
- A USB-A to USB-B cable.
- A programming pod with a wide 10-conductor ribbon cable from an HTO-1104 upgrade kit or the pod from an HTO-1102 upgrade kit.

If the wide 10-conductor cable is not connected to the pod, do the following to prepare the programming pod from the HTO-1104 upgrade kit.

- 1 Open the cover of the pod.
- 2 Remove any installed ribbon cables.
- 3 Position the red stripe of the cable over Pin 1 as shown in the following illustration.
- 4 Push the cable down over the group of pins.

- 5 Close the cover.

**Illustration 4-1 Programming pod with 10-conductor cable installed.**



When the computer and pod are ready, prepare the controller:

- 1 Use WinControl or HCM to save the controller programming to a panel file.
- 2 Connect the USB cable to a USB port on your computer.
- 3 Connect the other end of the USB cable into the programming pod. The blue LED illuminates to indicate a good connection.

**Note:** The first time you plug the USB Flash upgrade interface into a computer, you will see a prompt that new hardware has been found. Choose the install option and allow the system to proceed.

## Flashing the controller


You must follow these instructions exactly and in the order listed to successfully upgrade firmware in a controller.

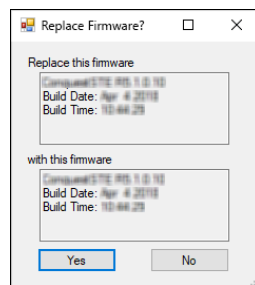


**Caution**

The flash process will take several minutes. *Do not* click **Cancel** in the Flash Programmer tab after clicking **Yes** in the Replace Firmware dialog.

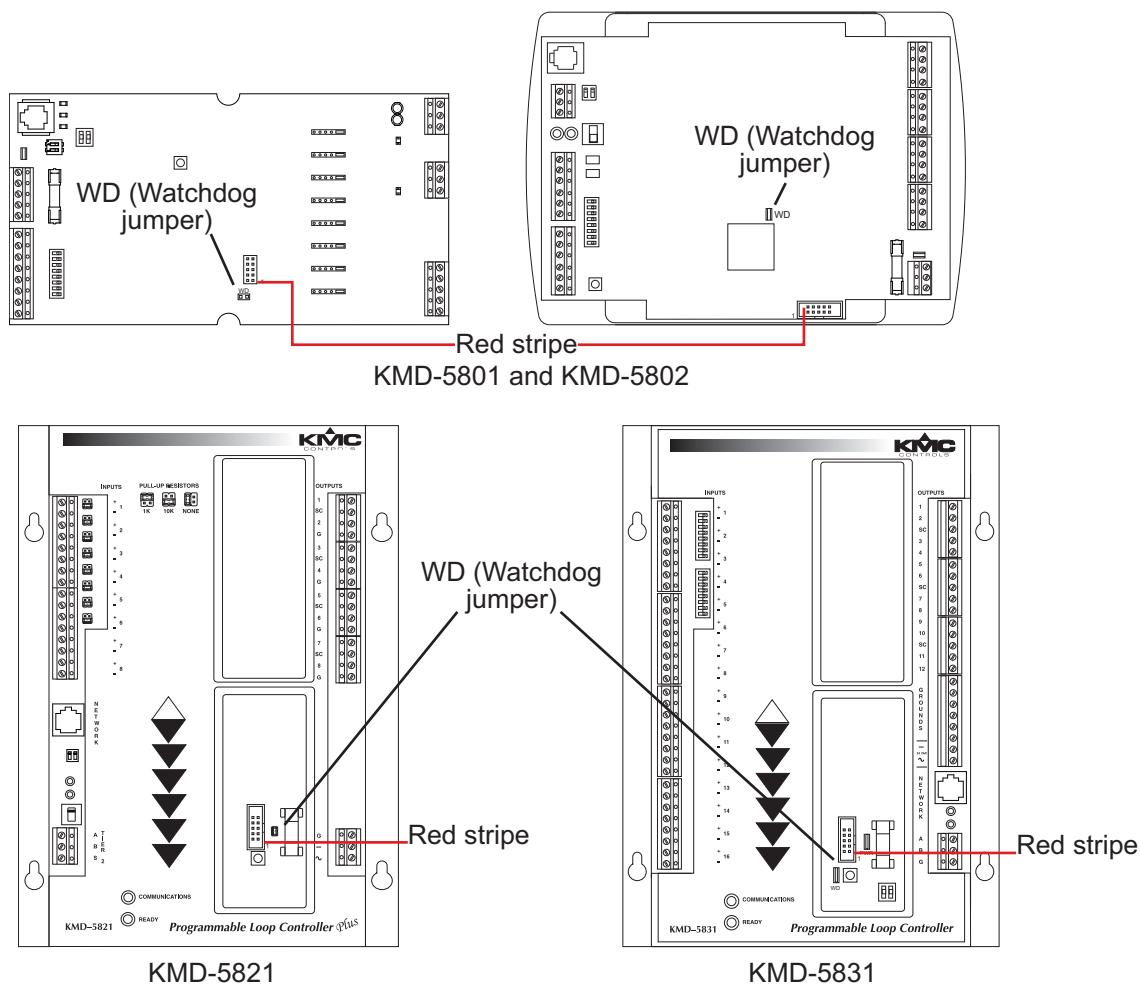
- 1 Disconnect power from the controller.
- 2 Disconnect all outputs from the controller.
- 3 Plug the flat ribbon cable into the flash port of the controller. For flash port locations see the illustration [Flash ports in KMD-5800 series controllers on page 22](#). Note the orientation of the red stripe.
- 4 Remove the WD (Watchdog) jumper. Jumper locations are listed in the illustration [Flash ports in KMD-5800 series controllers on page 22](#).
- 5 Reconnect power.

- 6 Start the Firmware Upgrade Tool.
- 7 Locate the model of the controller in the Product List.
- 8 Click  next to the model number to reveal the firmware builds.
- 9 Double-click the build number under the model number.
- 10 Select or clear the **Create Image First** check box.
  - If the check box is selected, the Firmware Upgrade Tool will save a copy of the existing firmware and configuration.
  - If the check box is not selected, the existing firmware and configuration will not be saved.
- 11 Click **Start** and follow the on-screen instructions.
- 12 When the Replace Firmware dialog opens, click **Yes** to continue or **No** to cancel.



The Upload Progress bar will indicate the status of the upload. Do not click **Cancel** during the upload or the firmware may become corrupt.

- 13 When the process is complete, return the controller to service as described in the next topic.

**Illustration 4-2 Flash ports in KMD-5800 series controllers**

## Return to service

Once the new firmware is loaded, return the controller to service.

- 1 Remove power from the controller.
- 2 Replace the WD jumper. See the illustration [Flash ports in KMD-5800 series controllers on page 22](#).
- 3 Remove the ribbon connector from the flash port of the controller.
- 4 Reconnect the outputs.
- 5 Reconnect power to the controller.

The programming process is now complete. The ready LED on the controller should be blinking at this point. If it is not blinking, cycle power to the controller.

## Section 5: Updating KMD-5540 CommTalk firmware

This section describes the procedure for flashing a KMD-5540 CommTalk Protocol Interface with new firmware.

---

Topics in this section cover the following information and procedures.

- [Prepare to upgrade on page 23](#)
- [Flashing the controller on page 24](#)
- [Return to service on page 26](#)

The procedures in this section apply only to the following models:

KMD-5540-001	KMD-5540-004
KMD-5540-002	KMD-5540-005
KMD-5540-003	

### Prepare to upgrade

Before updating the firmware in a KMD-5540 CommTalk, set up the computer as follows:

- Turn off screen savers and hibernation modes. As an alternative, set screen savers and hibernation to 30 minutes or longer.
- Close all open files and exit from all open programs.
- Download the Firmware Upgrade Tool from the KMC Controls partner web site. Follow the instructions in the topic [Getting started with the Firmware Upgrade Tool on page 5](#).
- Add the model specific firmware image or images. Follow the instructions in the topic [Adding model-specific firmware images on page 12](#).

In addition to the Firmware Upgrade Tool you will need the following items:

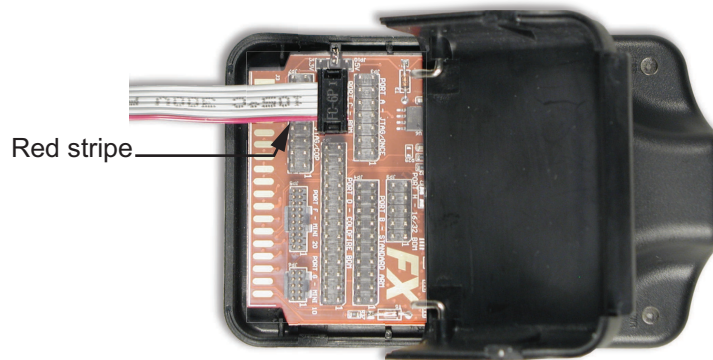
- A USB-A to USB-B cable.
- A programming pod and 6-pin ribbon cable from an HTO-1104 upgrade kit or the pod from an HTO-1101 upgrade kit.

If a 6-pin cable is not connected to the pod from the HTO-1104 kit, do the following to prepare the programming pod.

- 1 Open the cover of the pod.
- 2 Remove any installed ribbon cables.
- 3 Position the cable with the red stripe over Pin 1 as shown in the following illustration.
- 4 Push the cable down over the group of pins.

- 5 Close the cover.

**Illustration 5-1 HTO-1104 programming pod with 6-pin cable installed**



When the computer and pod are ready, prepare the controller:

- 1 Use WinControl or HCM to save the KMD-5540 programming to a panel file.
- 2 Connect the USB cable to a USB port on your computer.
- 3 Connect the other end of the USB cable into the programming pod. The blue LED illuminates to indicate a good connection.

**Note:** The first time you plug the USB Flash upgrade interface into a computer, you will see a prompt that new hardware has been found. Choose the install option and allow the system to proceed.

## Flashing the controller

You must follow these instructions exactly and in the order listed to successfully upgrade the firmware in model KMD-5540.



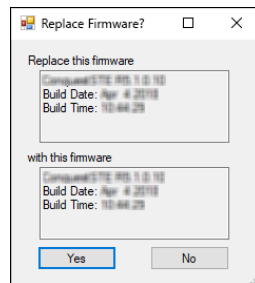
### Caution

The flash process will take several minutes. *Do not* click **Cancel** in the Flash Programmer tab after clicking **Yes** in the Replace Firmware dialog.

- 1 Disconnect power from the KMD-5540.
- 2 Disconnect the KMD-5540 from all networks.
- 3 Plug the flat ribbon cable into the flash port of the KMD-5540. For the flash port location see the illustration [Flash port in a KMD-5540 on page 25](#). Note the orientation of the red stripe.
- 4 Remove the jumper from the WD (Watchdog) pin. Jumper locations are listed in the illustration [Flash port in a KMD-5540 on page 25](#).
- 5 Add a jumper to the MA pins.



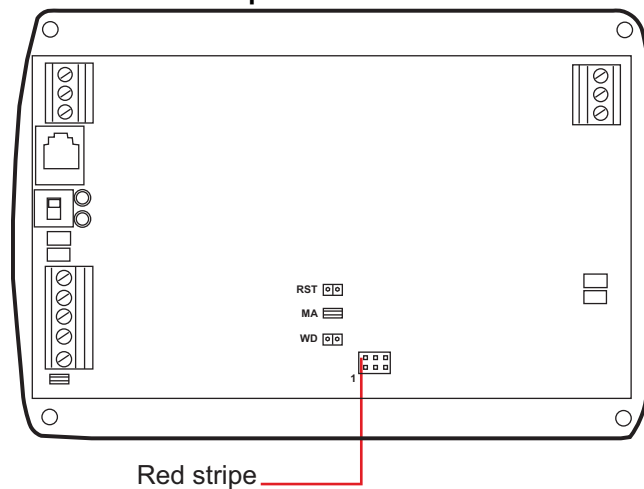
- 6 Reconnect power.
- 7 Start the Firmware Upgrade Tool.
- 8 Locate the model of the controller in the Product List.
- 9 Click **+** next to the model number to reveal the firmware builds.
- 10 Double-click the build number under the model number.
- 11 Select or clear the **Create Image First** check box.
  - If the check box is selected, the Firmware Upgrade Tool will save a copy of the existing firmware and configuration.
  - If the check box is not selected, the existing firmware and configuration will not be saved.
- 12 Click **Start** and follow the on-screen instructions.
- 13 When the Replace Firmware dialog opens, click **Yes** to continue or **No** to cancel.



The Upload Progress bar will indicate the status of the upload. Do not click **Cancel** during the upload or the firmware may become corrupt.

- 14 When the process is complete, return the controller to service as described in the next topic.

**Illustration 5–2 Flash port in a KMD-5540**



## Return to service

To return the KMD-5540 to service do the following:

- 1** Remove power from the KMD-5540.
- 2** Remove the jumper from the MA pins.
- 3** Replace the WD jumper.
- 4** Remove the ribbon connector from the flash port of the KMD-5540.
- 5** Reconnect the networks.
- 6** Reconnect power to the KMD-5540.

The programming process is now complete. The ready LED should be blinking at this point, if it does not then cycle power to the KMD-5540.

## Section 6: Updating KMD-7000 series controller firmware

This section describes the procedure for flashing a KMD-7000 series controllers with new firmware.

---

Topics in this section cover the following information and procedures.

- [Prepare to upgrade on page 27](#)
- [Flashing the controller on page 28](#)
- [Return to service on page 30](#)

The procedures in this section apply only to the following models:

KMD-7001	KMD-7011	KMD-7101	KMD-7301
KMD-7002	KMD-7013	KMD-7102	KMD-7302
KMD-7003			KMD-7401
KMD-7051			
KMD-7052			
KMD-7053			

### Prepare to upgrade

Before updating the firmware in a controller, set up the computer as follows:

- Turn off screen savers and hibernation modes. As an alternative, set screen savers and hibernation to 30 minutes or longer.
- Close all open files and exit from all open programs.
- Download the Firmware Upgrade Tool from the KMC Controls partner web site. Follow the instructions in the topic [Getting started with the Firmware Upgrade Tool on page 5](#).
- Add the model specific firmware image or images. Follow the instructions in the topic [Adding model-specific firmware images on page 12](#).

In addition to the Firmware Upgrade Tool you will need the following items:

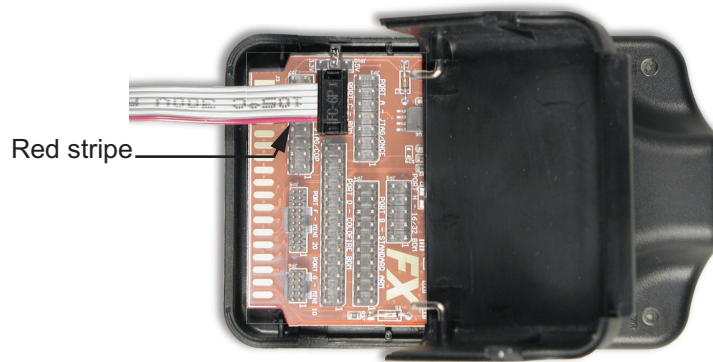
- A USB-A to USB-B cable.
- A programming pod and 6-pin ribbon cable from an HTO-1104 upgrade kit or the pod from an HTO-1101 upgrade kit.

If a 6-pin cable is not connected to the pod from the HTO-1104 kit, do the following to prepare the programming pod.

- 1 Open the cover of the pod.
- 2 Remove any installed ribbon cables.
- 3 Position the cable with the red stripe over Pin 1 as shown in the following illustration.

- 4 Push the cable down over the group of pins.
- 5 Close the cover.

**Illustration 6-1 HTO-1104 programming pod with 6-pin cable installed**



When the computer and pod are ready, prepare the controller:

- 1 Use TotalControl, WinControl, or HCM to save the controller programming to a panel file.
- 2 Connect the USB cable to a USB port on your computer.
- 3 Connect the other end of the USB cable into the programming pod. The blue LED illuminates to indicate a good connection.

**Note:** The first time you plug the USB Flash upgrade interface into a computer, you will see a prompt that new hardware has been found. Choose the install option and allow the system to proceed.

## Flashing the controller

You must follow these instructions exactly and in the order listed to successfully upgrade firmware in a controller.

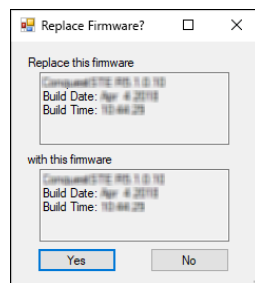


**Caution**

The flash process will take several minutes. *Do not* click **Cancel** in the Flash Programmer tab after clicking **Yes** in the Replace Firmware dialog.

- 1 Disconnect power from the controller.
- 2 Disconnect all outputs from the controller.
- 3 Plug the flat ribbon cable into the flash port of the controller. Flash port locations are listed in the illustrations [Flash ports in KMD-7000 series controllers on page 29](#) or [Flash ports in KMD-7000 VAV controllers on page 30](#). Note the orientation of the red stripe.

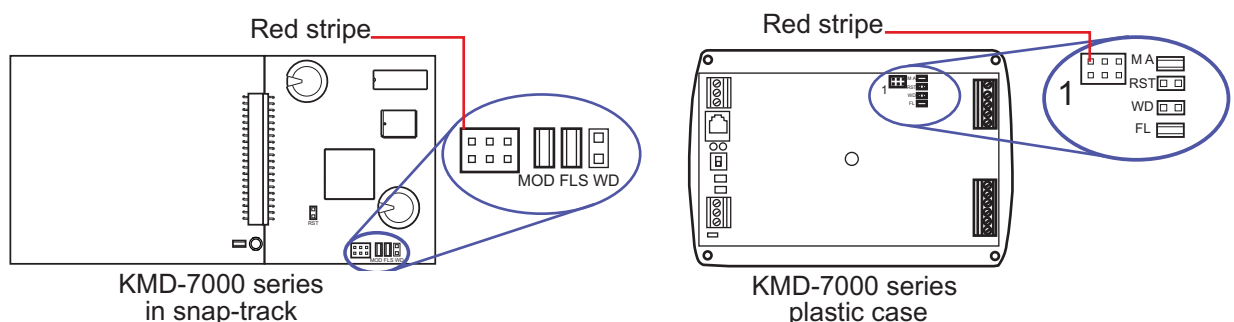
- 4 Remove the WD (Watchdog) jumper. Jumper locations are listed in the illustration [Flash ports in KMD-7000 series controllers on page 29](#) or [Flash ports in KMD-7000 VAV controllers on page 30](#).
- 5 Do the following:
  - Add a jumper to the FL pins.
  - Add a jumper to the MOD, A or M A pins. The exact pin label will depend upon the model of the controller.
- 6 Reconnect power.
- 7 Start the Firmware Upgrade Tool.
- 8 Locate the model of the controller in the Product List.
- 9 Click **+** next to the model number to reveal the firmware builds.
- 10 Double-click the build number under the model number.
- 11 Select or clear the **Create Image First** check box.
  - If the check box is selected, the Firmware Upgrade Tool will save a copy of the existing firmware and configuration.
  - If the check box is not selected, the existing firmware and configuration will not be saved.
- 12 Click **Start** and follow the on-screen instructions.
- 13 When the Replace Firmware dialog opens, click **Yes** to continue or **No** to cancel.

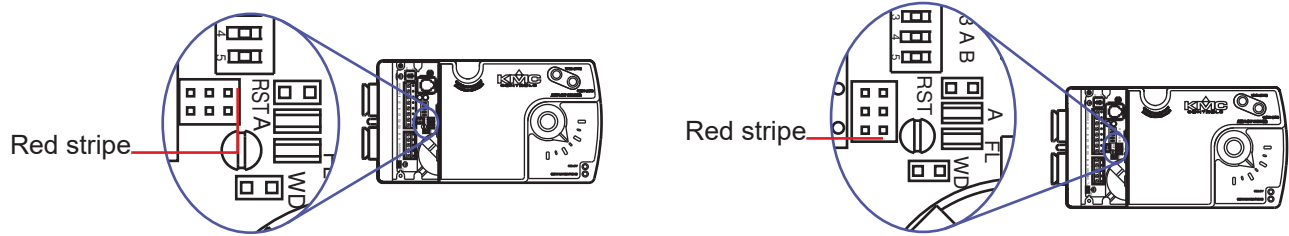


The Upload Progress bar will indicate the status of the upload. Do not click **Cancel** during the upload or the firmware may become corrupt.

- 14 When the process is complete, return the controller to service as described in the next topic.

**Illustration 6-2 Flash ports in KMD-7000 series controllers**



**Illustration 6-3 Flash ports in KMD-7000 VAV controllers**

## Return to service

To return the controller to service, do the following:

- 1 Remove power from the controller.
- 2 Replace the WD jumper.
- 3 Remove jumpers from the FL and MOD, A or M A pins. See the illustration [Flash ports in KMD-7000 series controllers on page 29](#) or [Flash ports in KMD-7000 VAV controllers on page 30](#).
- 4 Remove the ribbon connector from the flash port of the controller.
- 5 Reconnect the outputs.
- 6 Reconnect power to the controller.

The programming process is now complete. The ready LED on the controller should be blinking at this point. If it is not blinking, cycle power to the controller.

## Section 7: Updating BACnet advanced application controller firmware

This section describes the procedure for flashing BACnet Advanced Applications controllers with new firmware.

---

Topics in this section cover the following information and procedures.

- [Prepare to upgrade on page 31](#)
- [Flashing the controller on page 32](#)
- [Return to service on page 34](#)

The procedures in this section apply only to the following models:

BAC-5801	BAC-7001	BAC-7301
BAC-5802	BAC-7051	BAC-7302
BAC-5831	BAC-7001	BAC-7303
	BAC-7053	BAC-7401

### Prepare to upgrade

Before updating the firmware in a controller, set up the computer as follows:

- Disable all drivers for both serial and parallel infrared (IR) devices.
- Turn off screen savers and hibernation modes. As an alternative, set screen savers and hibernation to 30 minutes or longer.
- Close all open files and exit from all open programs.
- Download the Firmware Upgrade Tool from the KMC Controls partner web site. Follow the instructions in the section [Getting started with the Firmware Upgrade Tool on page 5](#).
- Add the model specific firmware image or images. Follow the instructions in the section [Adding model-specific firmware images on page 12](#).

In addition to the Firmware Upgrade Tool you will need the following items.

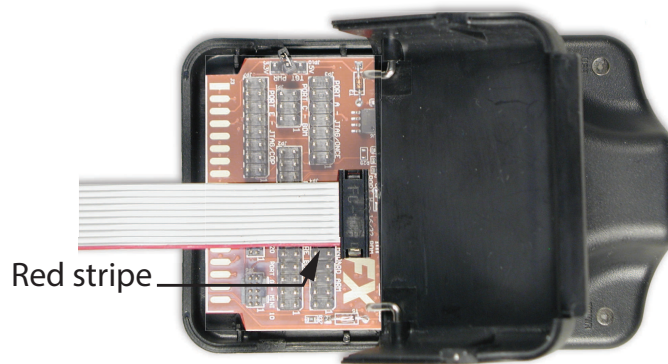
- A USB-A to USB-B cable.
- A programming pod with a wide 10-conductor ribbon cable from an HTO-1104upgrade kit or the pod from an HTO-1102 upgrade kit.

If the wide 10-conductor cable is not connected to the pod, do the following to prepare the programming pod from the HTO-1104upgrade kit.

- 1 Open the cover of the pod.
- 2 Remove any installed ribbon cables.
- 3 Position the red stripe of the cable over Pin 1 as shown in the following illustration.

- 4 Push the cable down over the group of pins.
- 5 Close the cover.

**Illustration 7-1 Programming pod with 10-conductor cable installed.**



When the computer is ready, prepare the controller:

- 1 Use TotalControl, KMC Connect , or BACstage to save the controller programming to a backup file.
- 2 Connect the USB cable from the programming pod to a USB port on your computer.
- 3 Connect the other end of the USB cable into the programming pod. The blue LED illuminates to indicate a good connection.

**Note:** The first time you plug the USB Flash upgrade interface into a computer, you will see a prompt that new hardware has been found. Choose the install option and allow the system to proceed.

## Flashing the controller

You must follow these instructions exactly and in the order listed to successfully upgrade firmware in a controller.



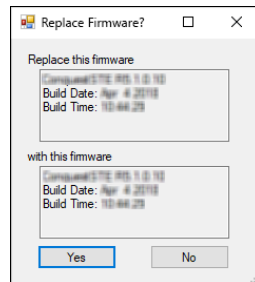
**Caution**

The flash process will take several minutes. *Do not* click **Cancel** in the Flash Programmer tab after clicking **Yes** in the Replace Firmware dialog.

- 1 Disconnect power from the controller.
- 2 Disconnect all outputs from the controller.
- 3 Plug the flat ribbon cable into the flash port of the controller. For flash port locations see the illustration [Flash ports in BACnet controllers on page 34](#). Note the orientation of the red stripe.

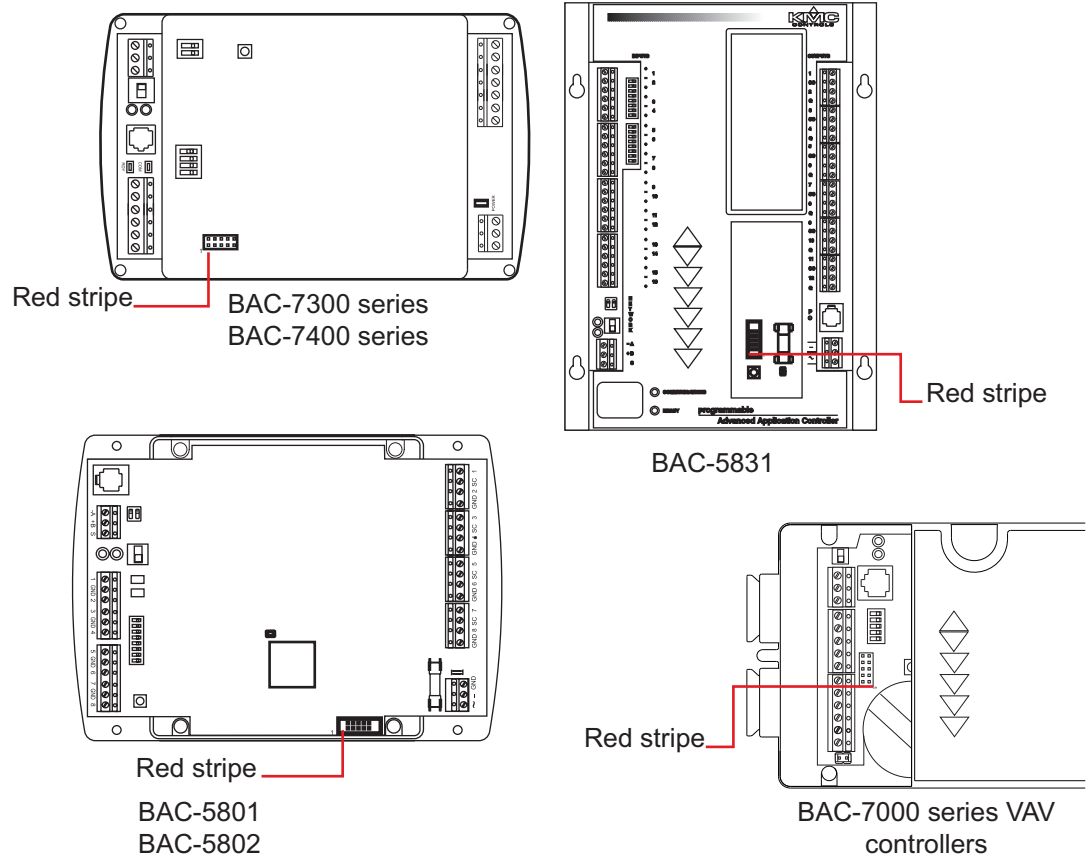


- 4 Reconnect power.
- 5 Start the Firmware Upgrade Tool.
- 6 Locate the model of the controller in the Product List.
- 7 Click **+** next to the model number to reveal the firmware builds.
- 8 Double-click the build number under the model number.
- 9 Follow the on-screen instructions and then click **Ok**.
- 10 Select or clear the **Create Image First** check box.
  - If the check box is selected, the Firmware Upgrade Tool will save a copy of the existing firmware and configuration.
  - If the check box is not selected, the existing firmware and configuration will not be saved.
- 11 Click **Start** and follow the on-screen instructions.
- 12 When the Replace Firmware dialog opens, click **Yes** to continue or **No** to cancel.



The Upload Progress bar will indicate the status of the upload. Do not click **Cancel** during the upload or the firmware may become corrupt.

- 13 When the process is complete, return the controller to service as described in the next topic.
- 14 When the process is complete, return the controller to service as described in the next section.

**Illustration 7-2 Flash ports in BACnet controllers****Return to service**

To return the controller to service, do the following:

- 1 Remove power from the controller.
- 2 Remove the ribbon connector from the flash port of the controller.
- 3 Reconnect the outputs.
- 4 Reconnect power to the controller.

The programming process is now complete. The ready LED should be blinking at this point, if it does not then cycle power to the controller.

## Section 8: Updating the FlexStat

This section describes the procedure for flashing BACnet FlexStat controllers with new firmware.

---

Topics in this section cover the following information and procedures.

- [Prepare to upgrade on page 35](#)
- [Connecting to the FlexStat on page 36](#)
- [Flashing the FlexStat on page 39](#)
- [Return to service on page 40](#)

The procedures in this section apply only to the following FlexStat models.

- BAC-10000 series
- BAC-120000 series
- BAC-130000 series
- BAC-140000 series

### Prepare to upgrade

Before updating the firmware in a controller, set up the computer as follows:

- Turn off screen savers and hibernation modes. As an alternative, set screen savers and hibernation to 30 minutes or longer.
- Close all open files and exit from all open programs.
- Download the Firmware Upgrade Tool from the KMC Controls partner web site. Follow the instructions in the topic [Getting started with the Firmware Upgrade Tool on page 5](#).
- Add the model specific firmware image or images. Follow the instructions in the topic [Adding model-specific firmware images on page 12](#).

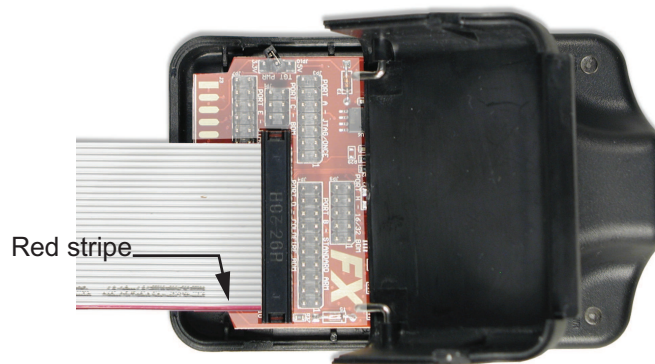
In addition to the Firmware Upgrade Tool you will need the following items from either an HTO-1103 or HTO-1104 upgrade kit.

- A USB-A to USB-B cable.
- A programming pod with a 26-conductor ribbon cable from an HTO-1104 upgrade kit or the pod from an HTO-1103 upgrade kit.
- A FlexStat adapter backplate with power cable
- An extender card
- An optically isolated USB hub if the upgrade is not performed from a laptop operating on battery power.

If a 26-conductor cable is not connected to the pod, do the following to prepare the programming pod from the HTO-1104 upgrade kit.

- 1 Open the cover of the pod.
- 2 Remove any installed ribbon cables.
- 3 Position the red stripe of the cable over Pin 1 as shown in the following illustration.
- 4 Push the cable down over the group of 26 pins.
- 5 Close the cover.

**Illustration 8-1 Programming pod with 26-conductor cable installed.**



## Connecting to the FlexStat

To upgrade the FlexStat, remove it from the wall-mounted backplate and connect it to a programming pod and computer. If the computer is not a laptop operating on batteries, use an optically isolated USB hub between the computer and programming pod.



### Caution

To prevent damage caused by a ground loop between the FlexStat transformer and the computer power supply, use an optically isolated USB hub or use a laptop computer operating on batteries when flashing a FlexStat.

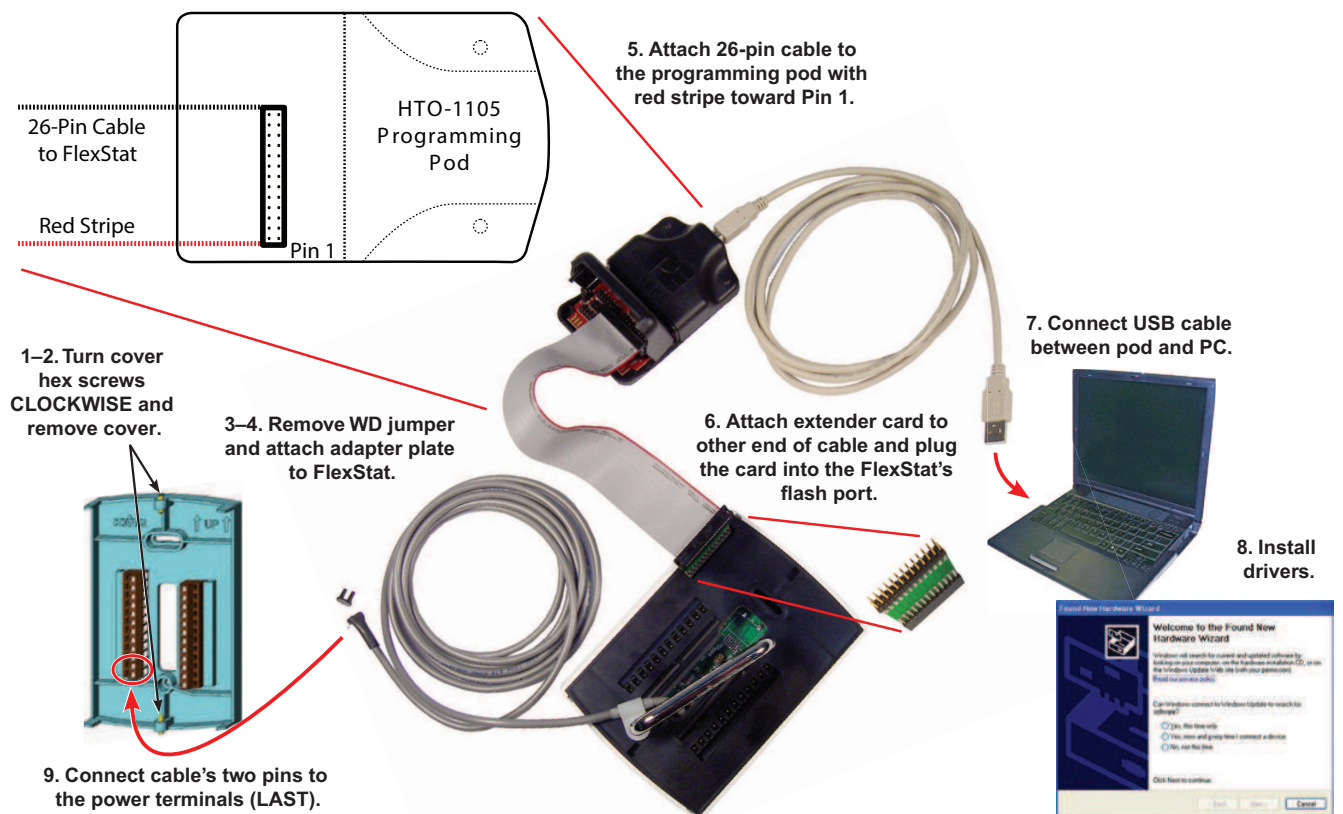
To connect to a FlexStat for firmware upgrade, perform the following steps.

- 1 Turn the hex screws in the bottom and top of the FlexStat clockwise until they clear the FlexStat case.
- 2 Carefully pull the FlexStat away from the wall-mounted backplate.
- 3 Temporarily remove, but do not discard, the WD (watchdog) jumper from the two pins closest to the center of the board. See the illustration [FlexStat jumpers and terminals on page 38](#). To avoid losing the jumper, temporarily plug the jumper onto one pin only.
- 4 Attach the appropriate adapter plate to the back of the FlexStat. To prevent damaging the FlexStat or programming pod, be sure all of the pins align properly with the sockets.

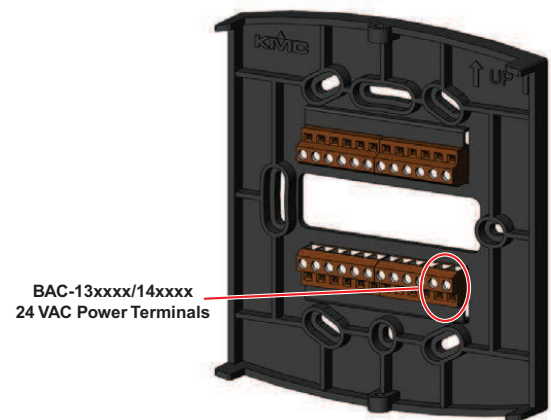
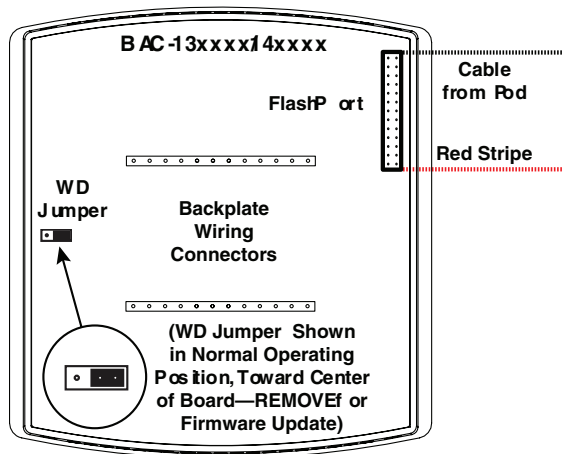
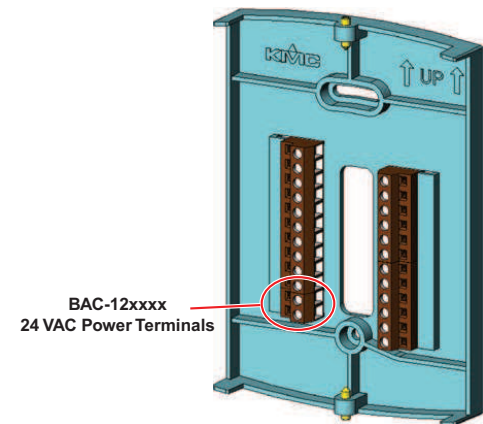
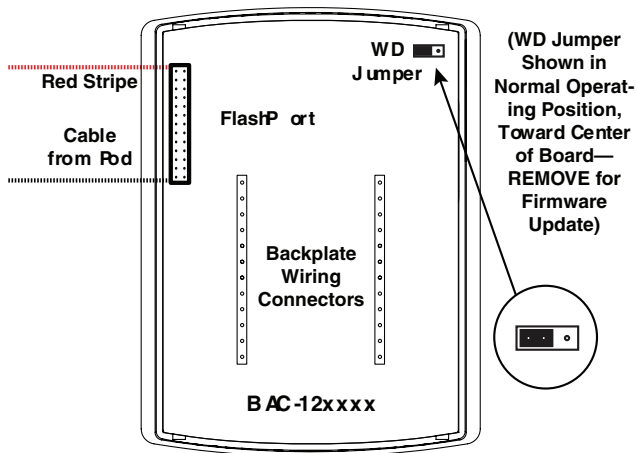
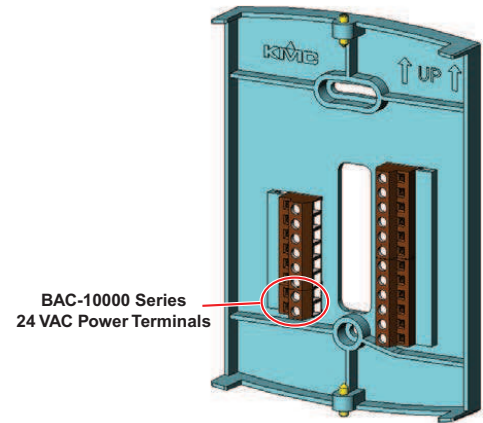
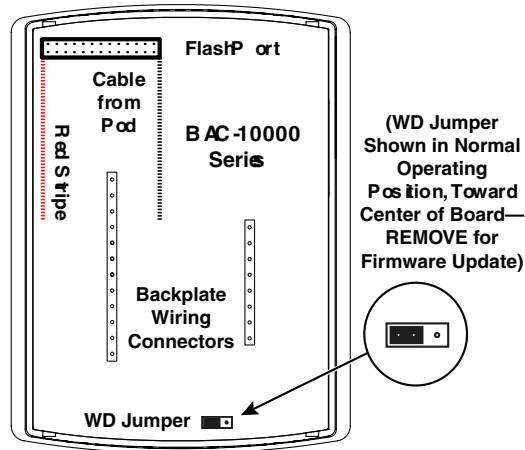
- 5 Attach the free end of the ribbon cable connected to the programming pod to the pin extender card.
- 6 Plug the extender card into the flash port of the FlexStat. See the illustration [FlexStat jumpers and terminals on page 38](#) for the proper orientation for the respective model.
- 7 Plug the USB cable into the pod and then the other end into the USB port of the laptop or USB hub.
- 8 When the Found New Hardware Wizard pops up on the screen, let it install the required drivers.
- 9 After the wizard is finished, remove the protective rubber cap from the adapter cable's two pins and insert the power into the power section of the wall-mounted terminal blocks. See the illustration [FlexStat jumpers and terminals on page 38](#) for the proper terminals for the respective model. Save the cap to protect the pins when not in use.

Continue with the topic [Flashing the FlexStat on page 39](#) to use the Firmware Upgrade Tool to upgrade the FlexStat.

**Illustration 8–2 FlexStat connections**



**Illustration 8-3 FlexStat jumpers and terminals**




## Flashing the FlexStat

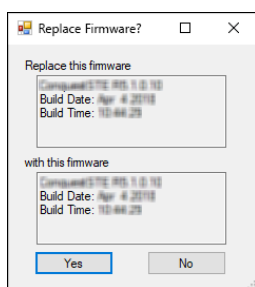
You must follow these instructions exactly and in the order listed to successfully upgrade firmware in a controller.

- If you have not installed the Firmware Upgrade Tool, see the topic [Install the Firmware Upgrade Tool on page 7](#).
- For details on using the Firmware Upgrade Tool, see [Menu reference for the Firmware Upgrade Tool on page 9](#).
- To add firmware images, see [Adding model-specific firmware images on page 12](#).
- If you have difficulty, see [Troubleshooting on page 55](#).



The flash process will take several minutes. *Do not* click **Cancel** in the Flash Programmer tab after clicking **Yes** in the Replace Firmware dialog.

- 1 Connect the FlexStat as described in the topic, [Connecting to the FlexStat on page 36](#).
- 2 Start the Firmware Upgrade Tool.
- 3 Locate the model of the controller in the Product List.
- 4 Click  next to the model number to reveal the firmware builds.
- 5 Double-click the build version number under the model number.
- 6 Select or clear the **Create Image First** check box.
  - If the check box is selected, the Firmware Upgrade Tool will save a copy of the existing firmware and configuration.
  - If the check box is not selected, the existing firmware and configuration will not be saved.
- 7 Click **Start** and follow the on-screen instructions.
- 8 When the Replace Firmware dialog opens, click **Yes** to continue or **No** to cancel.



The Upload Progress bar will indicate the status of the upload. Do not click **Cancel** during the upload or the firmware may become corrupt.

- 9 When the process is complete, return the controller to service as described in the next topic.

## Return to service

To return the controller to service, perform the following procedure to return the controller to service.



### 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.

---

- 1 Unplug the power cable from the wall-mounted backplate and replace the rubber cover on the pins of the power cable.
- 2 Remove the programming pod ribbon cable and extender card from the Flexstat.
- 3 Carefully remove the adapter plate from the FlexStat.
- 4 Reinstall the WD jumper on the proper pins. See [FlexStat jumpers and terminals on page 38](#).
- 5 Reinstall the FlexStat on the wall-mounted backplate. Avoid pinching or dislodging any wiring.
- 6 Turn the hex screws counterclockwise to back them out of the brackets until they engage the FlexStat cover and hold it in place.

The programming process is now complete.

**Note:** 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 the illustration [FlexStat jumpers and terminals on page 38](#).



## Section 9: Updating the BAC-5051E and KMD-5551E

This section describes the procedure for flashing a BAC-5051E and KMD-5551E with new firmware.

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Topics in this section cover the following information and procedures.

- [Prepare to upgrade on page 41](#)
- [Flashing the router or translator on page 42](#)
- [Return to service on page 44](#)

The procedures in this section apply only to the following models.

BAC-5051E    KMD-5551E

### Prepare to upgrade

Before updating the firmware in router or translator, set up the computer as follows:

- Turn off screen savers and hibernation modes. As an alternative, set screen savers and hibernation to 30 minutes or longer.
- Close all open files and exit from all open programs.
- Download the Firmware Upgrade Tool from the KMC Controls partner web site. Follow the instructions in the topic [Getting started with the Firmware Upgrade Tool on page 5](#).
- Add the model specific firmware image or images. Follow the instructions in the topic [Adding model-specific firmware images on page 12](#).

In addition to the Firmware Upgrade Tool you will need the following items.

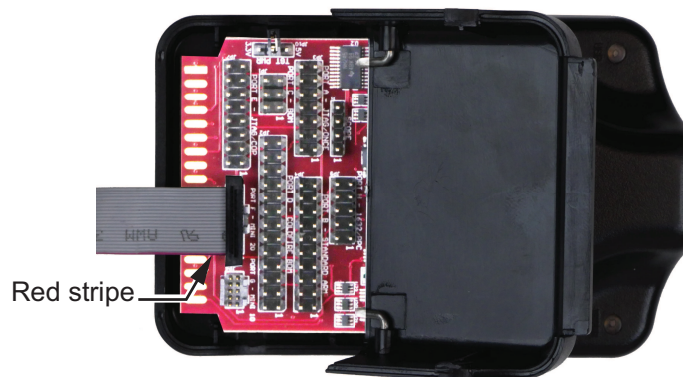
- A USB-A to USB-B cable.
- A programming pod and the 20-conductor ribbon cable from an HTO-1104 upgrade kit.

If a 20-conductor cable is not connected to the pod, do the following to prepare the programming pod from the HTO-1104 upgrade kit.

- 1 Open the cover of the pod.
- 2 Remove any installed ribbon cables.
- 3 Position the red stripe of the cable over Pin 1 as shown in the following illustration.
- 4 Push the cable down over the group of pins.

- 5 Close the cover.

**Illustration 9-1 Programming pod with 20-conductor cable installed.**



When the computer and pod are ready, prepare the controller by doing the following.

- 1 Connect the USB cable to a USB port on your computer.
- 2 Connect the other end of the USB cable into the programming pod. The blue LED illuminates to indicate a good connection.

**Note:** The first time you plug the USB Flash upgrade interface into a computer, you will see a prompt that new hardware has been found. Choose the install option and allow the system to proceed.

## Flashing the router or translator

You must follow these instructions exactly and in the order listed for this procedure to be successful.



**Caution**


Perform the following procedure in a static free work area. The device can be permanently damaged from static electricity.

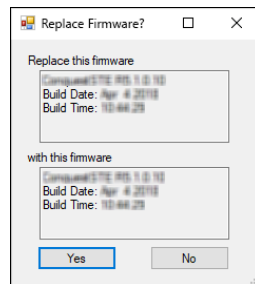


**Caution**

The flash process will take several minutes. *Do not* click **Cancel** in the Flash Programmer tab after clicking **Yes** in the Replace Firmware dialog.

- 1 Disconnect power from the router.
- 2 Disconnect all network connections from the controller.

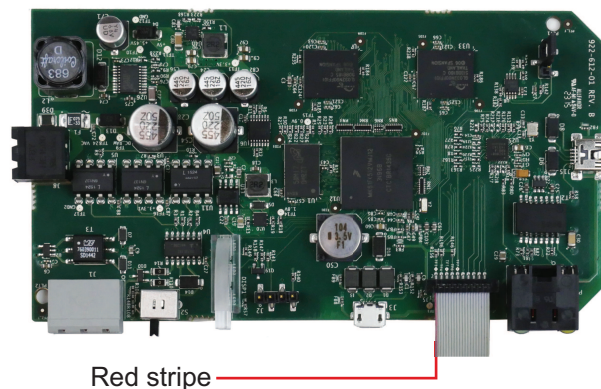
- 3 Squeeze the green sides of the router, pull the case apart and then remove the circuit board from the router.
- 4 Plug the flat ribbon cable into the flash pins of the router. For the flash pin location, see the illustration *Flash pins in the router and translator on page 43*. Note the orientation of the red stripe.
- 5 Reconnect power.
- 6 Start the Firmware Upgrade Tool.
- 7 Locate the model of the controller in the Product List.
- 8 Click  next to the model number to reveal the firmware builds.
- 9 Double-click the build number under the model number.
- 10 Select or clear the **Create Image First** check box.
  - If the check box is selected, the Firmware Upgrade Tool will save a copy of the existing firmware and configuration.
  - If the check box is not selected, the existing firmware and configuration will not be saved.
- 11 Click **Start** and follow the on-screen instructions.
- 12 When the Replace Firmware dialog opens, click **Yes** to continue or **No** to cancel.



The Upload Progress bar will indicate the status of the upload. Do not click **Cancel** during the upload or the firmware may become corrupt.

- 13 When the process is complete, return the controller to service as described in the next topic.

**Illustration 9-2** Flash pins in the router and translator



## Return to service

Once the new firmware is loaded, return the router or translator to service.

- 1** Remove power from the device.
- 2** Remove the ribbon connector from the flash port of the device.
- 3** Place the circuit board in the case and snap the two halves together.
- 4** Reconnect power to the router.
- 5** Reconnect the network connections.

The programming process is now complete. The ready LED on the router should be blinking at this point. If it is not blinking, cycle power to the device.

## Section 10: Updating KMC Conquest controllers

This section describes the procedure for flashing a KMC Conquest controller with new firmware.

---

Topics in this section cover the following information and procedures.

- [Prepare to upgrade on page 45](#)
- [Flashing the controllers on page 46](#)
- [Return to service on page 47](#)

The procedures in this section apply only to the following models of KMC Conquest controllers.

BAC-5901	BAC-9301	BAC-9001
	BAC-9311	BAC-9021

### Prepare to upgrade

Before updating the firmware in a controller, set up the computer as follows:

- Turn off screen savers and hibernation modes. As an alternative, set screen savers and hibernation to 30 minutes or longer.
- Close all open files and exit from all open programs.
- Download the Firmware Upgrade Tool from the KMC Controls partner web site. Follow the instructions in the topic [Getting started with the Firmware Upgrade Tool on page 5](#).
- Add the model specific firmware image or images. Follow the instructions in the topic [Adding model-specific firmware images on page 12](#).

In addition to the Firmware Upgrade Tool you will need the following items.

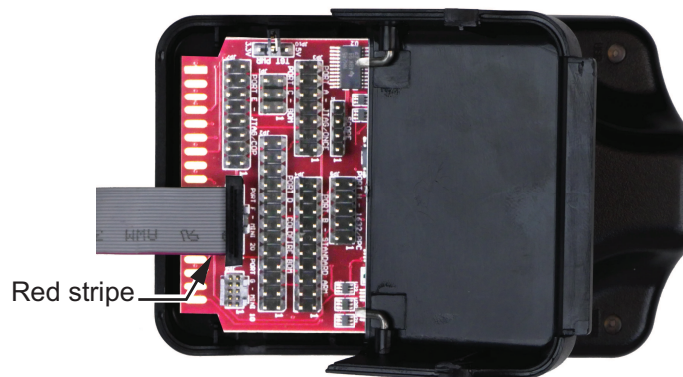
- A USB-A to USB-B cable.
- A programming pod with a 20-conductor ribbon cable from an HTO-1104 upgrade kit.

If a 20-conductor cable is not connected to the pod, do the following to prepare the programming pod from the HTO-1104 upgrade kit.

- 1 Open the cover of the pod.
- 2 Remove any installed ribbon cables.
- 3 Position the red stripe of the cable over Pin 1 as shown in the following illustration.
- 4 Push the cable down over the group of pins.

- 5 Close the cover.

**Illustration 10–1 Programming pod with 20-conductor cable installed.**



When the computer and pod are ready, prepare the controller by doing the following.

- 1 Connect the USB cable to a USB port on your computer.
- 2 Connect the other end of the USB cable into the programming pod. The blue LED illuminates to indicate a good connection.

**Note:** The first time you plug the USB Flash upgrade interface into a computer, you will see a prompt that new hardware has been found. Choose the install option and allow the system to proceed.

## Flashing the controllers


You must follow these instructions exactly and in the order listed for this procedure to be successful.

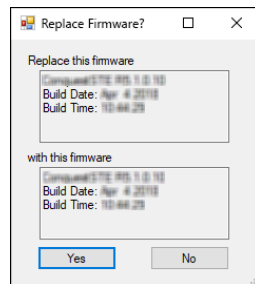


### Caution

The flash process will take several minutes. *Do not* click **Cancel** in the Flash Programmer tab after clicking **Yes** in the Replace Firmware dialog.

- 1 Disconnect power from the controller.
- 2 Disconnect all network connections from the controller.
- 3 If the controller is a BAC-5900 or BAC-9300 series controller, remove the cover.
- 4 Plug the flat ribbon cable into the flash pins of the controller. For the flash pin location, see the illustration [Flash pins in the Conquest controllers on page 47](#). Note the orientation of the red stripe.
- 5 Reconnect power.
- 6 Start the Firmware Upgrade Tool.

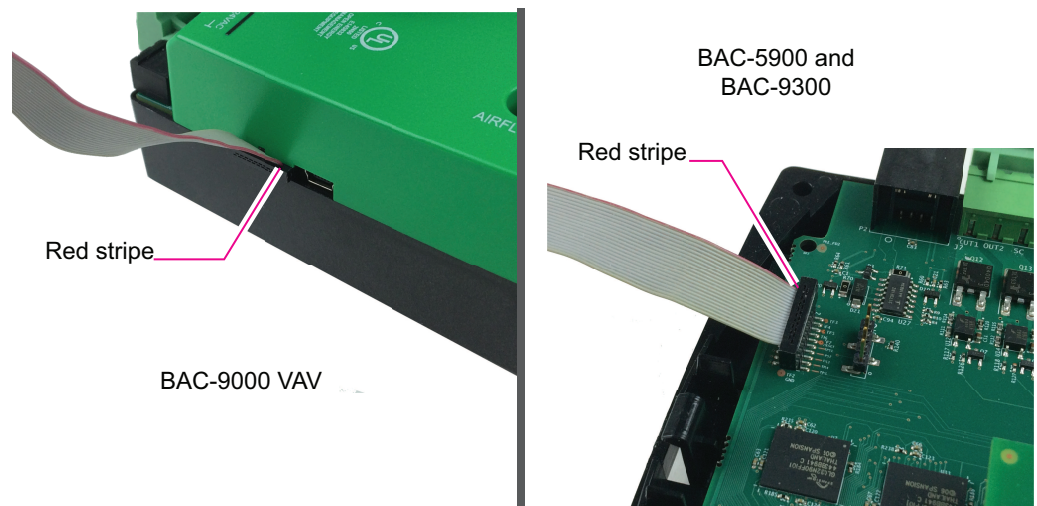
- 7 Locate the model of the controller in the Product List.
- 8 Click  next to the model number to reveal the firmware builds.
- 9 Double-click the build number under the model number.
- 10 Select or clear the **Create Image First** check box.
  - If the check box is selected, the Firmware Upgrade Tool will save a copy of the existing firmware and configuration.
  - If the check box is not selected, the existing firmware and configuration will not be saved.
- 11 Click **Start** and follow the on-screen instructions.
- 12 When the Replace Firmware dialog opens, click **Yes** to continue or **No** to cancel.



The Upload Progress bar will indicate the status of the upload. Do not click **Cancel** during the upload or the firmware may become corrupt.

- 13 When the process is complete, return the controller to service as described in the next topic.

**Illustration 10-2 Flash pins in the Conquest controllers**



## Return to service

Once the new firmware is loaded, return the controller to service.

- 1 Remove power from the controller.

- 2** Remove the ribbon connector from the flash port of the controller.
- 3** Snap the top cover back in place on the controller.
- 4** Reconnect the network connections.
- 5** Reconnect power to the controller.

The programming process is now complete. The ready LED on the controller should be blinking at this point. If it is not blinking, cycle power to the controller.



# Section 11: Updating STE-9000 series NetSensors

This section describes the procedure for flashing STE-9000 series NetSensors with new firmware.

---

Topics in this section cover the following information and procedures.

- [Prepare to upgrade on page 49](#)
- [Flashing the STE-9000 series NetSensor on page 51](#)
- [Return to service on page 53](#)

The procedures in this section apply only to the STE-9000 series NetSensors.

## Prepare to upgrade

Before updating the firmware in a NetSensor, set up the computer as follows:

- Disable all drivers for both serial and parallel infrared (IR) devices.
- Turn off screen savers and hibernation modes. As an alternative, set screen savers and hibernation to 30 minutes or longer.
- Close all open files and exit from all open programs.
- Download the Firmware Upgrade Tool from the KMC Controls partner web site. Follow the instructions in the section [Getting started with the Firmware Upgrade Tool on page 5](#).
- Add the model specific firmware image or images. Follow the instructions in the section [Adding model-specific firmware images on page 12](#).

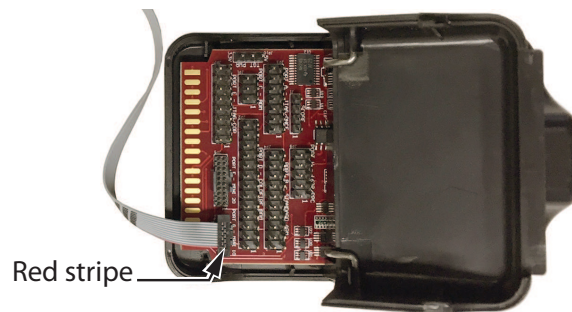
In addition to the Firmware Upgrade Tool you will need the following items.

- A USB-A to USB-B cable.
- A programming pod with the narrow 10-conductor ribbon cable from an HTO-1104 upgrade kit.

If a 10-conductor cable is not connected to the pod, do the following to prepare the programming pod from the HTO-1104 upgrade kit.

- 1 Open the cover of the pod.
- 2 Remove any installed ribbon cables.

- 3 Position the red stripe of the cable over Pin 1.



- 4 Push the cable down over the group of pins.
- 5 Close the cover.
- 6 Connect the USB cable from the programming pod to a USB port on your computer.
- 7 Connect the other end of the USB cable into the programming pod. The blue LED illuminates to indicate a good connection.

**Note:** The first time you plug the USB Flash upgrade interface into a computer, you will see a prompt that new hardware has been found. Choose the install option and allow the system to proceed.

- 8 Disconnect the USB cable from the computer.

## Flashing the STE-9000 series NetSensor

You must follow these instructions exactly and in the order listed to successfully upgrade firmware an STE-9000 series NetSensor.



### Caution

The flash process will take several minutes. *Do not* click **Cancel** in the Flash Programmer tab after clicking **Yes** in the Replace Firmware dialog.

**Note:** During the upgrade process, the NetSensor must be connected to the ROOM SENSOR jack of a powered Conquest series controller. This can be the installed controller to which the NetSensor is permanently connected or any powered Conquest series controller.

To upgrade the NetSensor, do the following:

- 1 Turn the hex screw clockwise into the sensor until the head of the screw clears the cover.

**Note:** The screw should remain in the backplate.

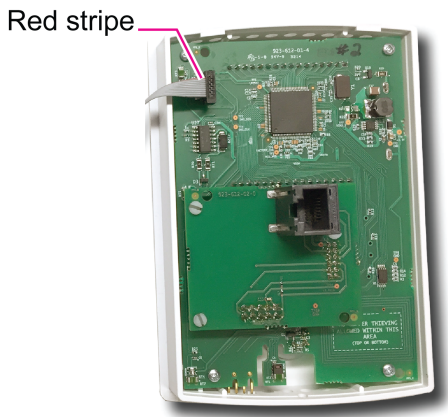


- 2 Pull the cover off of the backplate.
- 3 If the NetSensor is already mounted, disconnect the Ethernet cable coming from the Conquest controller.

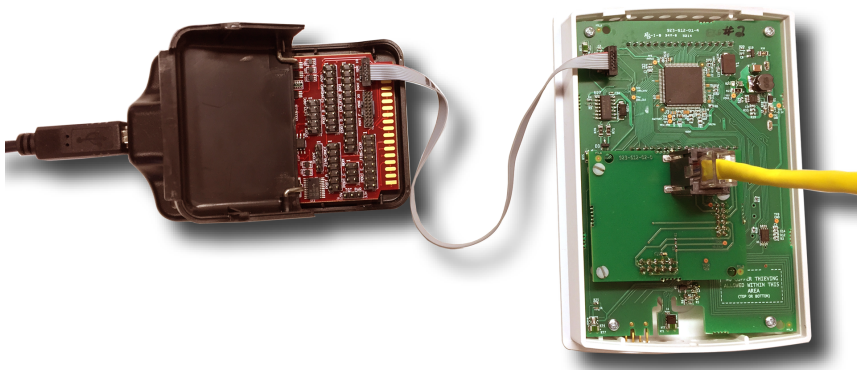


- 4 Unplug or verify that the USB cable for the pod is unplugged from the computer.

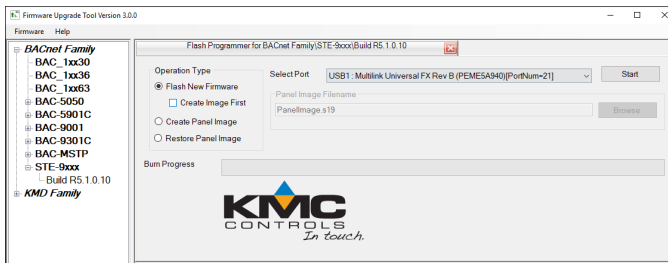
- 5 Connect the 10-pin ribbon cable from the pod to the NetSensor. Position the red stripe toward the top of the NetSensor.



- 6 Plug the USB cable into the computer.
- 7 Plug the Ethernet cable from a powered Conquest controller into the modular jack of the sensor. Both the blue and yellow LEDs on the pod will illuminate to show a good connection.



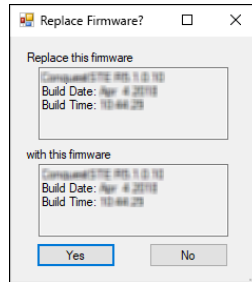
- 8 Start the Firmware Upgrade Tool.
- 9 In the Product List on the left side of the window, locate the **STE-9xxx** model number.
- 10 Click **+** next to the model number to reveal the firmware builds.
- 11 Double-click the build number under the model number.



- 12 Select or clear the **Create Image First** check box.
  - If the check box is selected, the Firmware Upgrade Tool will save a copy of the existing firmware and configuration.
  - If the check box is not selected, the existing firmware and configuration will not be saved.

**13** Click **Start** and follow the on-screen instructions.

**14** When the Replace Firmware dialog opens, click **Yes** to continue or **No** to cancel.



**Note:** The Upload Progress bar will indicate the status of the upload. Do not click **Cancel** during the upload or the firmware may become corrupt.

**15** When the process is complete, unplug the ribbon and Ethernet cables from the NetSensor and then do one of the following:

- Upgrade another NetSensor beginning at Step 4.
- Return the NetSensor to service as described in the topic [Return to service on page 53](#).

## Return to service

To return the NetSensor to service, do the following:

- 1** Reconnect the Ethernet cable from the controller to the NetSensor.
- 2** Place the NetSensor cover over the top of the backplate and swing it down.

**NOTE:** Be careful not to pinch the Ethernet cable.



- 3** Turn the hex screw counterclockwise until it engages the cover.





## Section 12: Troubleshooting

Topics in this section cover basic troubleshooting steps for the Firmware Upgrade Tool.

---

The following topics are troubleshooting tips for the Firmware Upgrade Tool.

- [Communications error on page 55](#)
- [Errors in controller operation on page 55](#)
- [FlexStat-specific issues on page 56](#)
- [Missing jumpers on page 56](#)
- [Operation failed on page 56](#)
- [USB port not available on page 56](#)
- [User interface problems on page 57](#)

### If you encounter difficulty

If you experience difficulty that is not covered in this section the troubleshooting topics, navigate to the *Products & Tools* section of the KMC Controls partners web site for the latest information about the Firmware Upgrade Tool.

[partners.kmccontrols.com](http://partners.kmccontrols.com)

Our distribution partners have unlimited and free access to our team of Technical Support representatives. We provide coast-to-coast, and toll-free, support from 8:00 AM to 5:00 PM.

Toll-Free Technical Support: 866.303.4562

### Communications error

For any communication errors, do the following.

- Restart the Firmware Upgrade Tool.
- Open the Advanced features area and change the BDM Speed setting. Values up to 7 may be entered to improve performance. A value of zero is the default value. See the topic [Advanced features on page 14](#).

### Errors in controller operation

If a controller is not functioning properly after flashing, verify that the WD (Watchdog) and other jumpers have been replaced in the correct locations.

## FlexStat-specific issues

The following troubleshooting tips apply to the FlexStat series of controllers.

**FlexStat 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 or by loading/running each program from the Control Basic Program menu or with BACstage, TotalControl, or KMC Connect.

### Illustration 12-1 FlexStat Update Manager



**FlexStat display remains blank** 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 installed on the correct pins. See the illustration [FlexStat jumpers and terminals on page 38](#).

## Missing jumpers

To replace missing jumpers or to add a jumper for controllers that require extra jumpers, use any standard 2.54 mm computer jumper. Jumpers are available from KMC Controls; order HPO-0063 for a package of five. For FlexStat models, cut off the finger tab from the jumpers to clear the backplate.

## Operation failed

If a message appears that the operation has failed, verify that the WD (watch dog) jumper had been temporarily removed during the upgrade. Also, some models require additional jumpers to be installed during upgrade.

Restore the jumpers as described in each model specific procedure after the upgrade process is complete.

## USB port not available

If the USB port is not listed in the Select Port list for the Flash tab, do the following:

- 1 Close the tool.
- 2 Turn off the controller power.
- 3 Disconnect the programming pod from the controller and the computer.
- 4 Reconnect the programming pod to the computer.



- 5 Reconnect the programming pod to the controller.
- 6 Turn on the controller power.
- 7 Start the tool.

See also [Flash Programming tab on page 10](#).

## User interface problems

For user interface issues in the Firmware Upgrade Tool, right-click in the Flash Programmer tab and choose Restore Defaults from the shortcut menu.



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