STAT USER MANUAL

AMERICAN
AUTO-MATRIX®
SMART BUILDING SOLUTIONS®

Section 1 - Overview

Section 2 - Installation & Wiring

Section 3 - Configuration & Operation

SECTION 1: OVERVIEW

This section will introduce you to the various STAT models, explain the various display options available on the different models, and list the specifications for all the models.

IN THIS SECTION

STAT User Manual

AMERICAN
AUTO-MATRIX®

1.1 STAT MODELS

1.1.1 SBC-STAT1 & SBC-STAT1-D
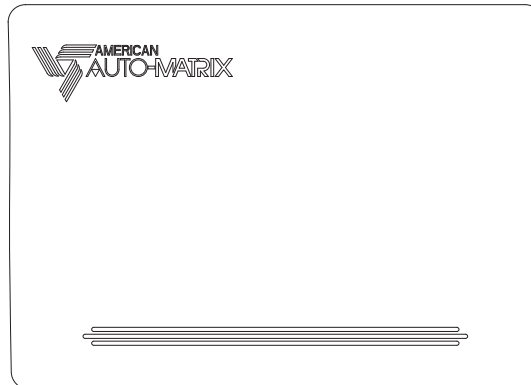
Figure 1-1 SBC-STAT1 & SBC-STAT1-D

An economical thermostat solution, the SBC-STAT1 is the choice when you need a simple zone temperature monitoring point without the added features of the other models. The SBC-STAT provide a digital temperature sensor and does not have any display or user adjustment capabilities.

1.1.2 SBC-STAT3
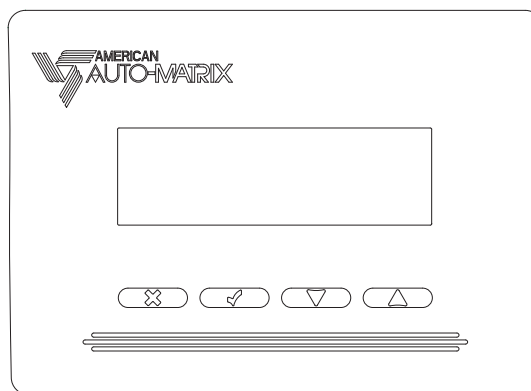
Figure 1-2 SBC-STAT3

A digital STAT with full graphical interface, the SBC-STAT3 provides a menu system which allows for system monitoring and configuration. A password is required to access each of three separate configuration menus. Feedback is provided for setpoint adjustment and occupancy override through both the graphical display and the onboard LED.

1.2 STAT DISPLAY

1.2.1 TEMPERATURE DISPLAY
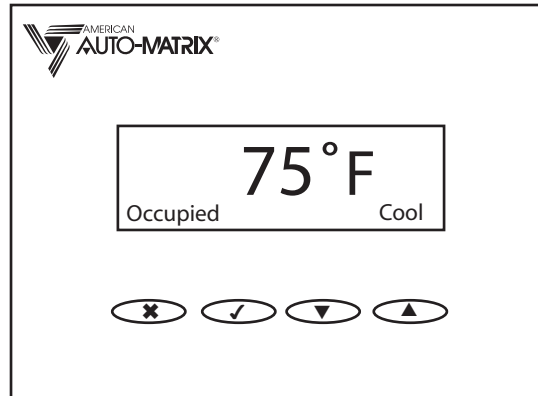
Figure 1-3 STAT Temperature Display

Available on the SBC-STAT3, the temperature is displayed by default. The controller can be configured to display the temperature either as a whole number or to include a single decimal place. You also have the option as to whether or not the degree symbol and either an 'F' for Fahrenheit or a 'C' for Celsius is displayed. Additionally, the current schedule state and the current heating/cooling mode will be displayed.

AMERICAN
AUTO-MATRIX®

1.3   STAT/CONTROLLER FUNCTIONALITY

Table 1-1 enumerates which features are present in each STAT model as well as which models are usable by which controllers.

Table 1-1 STAT Functionality Matrix

Feature	SBC-STAT	SBC-STAT 3
Temperature Sensor	●	●
Humidity Sensor*		
Graphical LCD Display		●
Digital Communications via STATbus	●	●
Setpoint Indication via LED		●
Graphical Setpoint Indication		●
Occupancy Override of Controller Schedules		●
Occupancy Override Indication		●
Menu-based Air Balancing (VAV models only)		●
Fan Speed Control (SMT-ASCFC only)		●

1.4   SPECIFICATIONS

1.4.1   SBC-STAT1
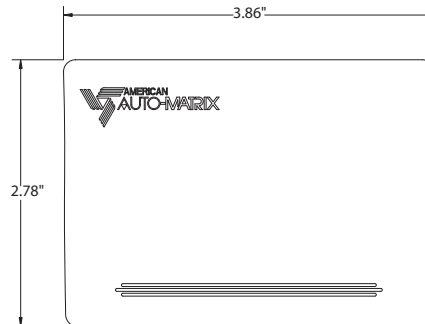
size: 2.78 × 3.86 × 1.03 in. (7.06 × 9.80 × 2.62 cm)
weight: 4.0oz (113.5g)
sensor temperature range: 35° to 140°± 0.24°F (2° to 60° ± 0.13°C)
sensor resolution: ± 0.36°F (± 0.2°C)

1.4.2   SBC-STAT3
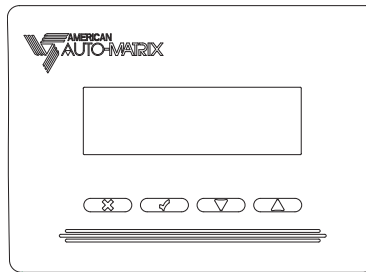
size: 2.78 × 3.86 × 1.03 in. (7.06 × 9.80 × 2.62 cm)
weight: 4.0oz (113.5g)
sensor temperature range: 50° to 122°± 0.9°F (10° to 50° ± 0.5°C)
sensor resolution: ± 0.1125°F (± 0.0625°C)

1.4.3   OPERATING ENVIRONMENT
.   **temperature range:** 32-122°F (0-50°C)
.   **humidity range:** 0-80% RH, non-condensing
.   **altitude:** up to 2000m

1.4.4   AGENCY APPROVALS
.   UL listed 916, Enclosed Energy Management Equipment
.   UL listed 873, Component-temperature indicating and regulating equipment (XAPX2)
.   Complies with FCC rules Part 15, Class B Computing Device
.   Complies with CE directives and standards

SECTION 2: INSTALLATION & WIRING

This section will explain the wiring necessary to connect the various STAT models to a controller. Optional network wiring and field diagnostic features will also be discussed.

IN THIS SECTION

2.1 MOUNTING

STAT modules may either be mounted directly to a wall or attached to a 2x4 junction box by means of optional horizontal mounting plate or vertical mounting plates. To mount the STAT directly to the wall, you must simply drive screws through the holes in the STAT base. The dimensions of the horizontal mounting plate (part #SBC-STAT-HWP-20) and the vertical mounting plate (part# SBC-STAT-VWP-20) are shown in Figure 2-1.

Figure 2-1 Dimensions of the Horizontal (top) and Vertical (bottom) STAT Mounting Plates.

The STAT mounting plates attach to a standard 2x4 junction box the identically to a normal cover plate. However, there are cutouts specifically designed to allow you to run the wires for STATbus and network communications. To Install a STAT on a mounting plate, perform the following steps:
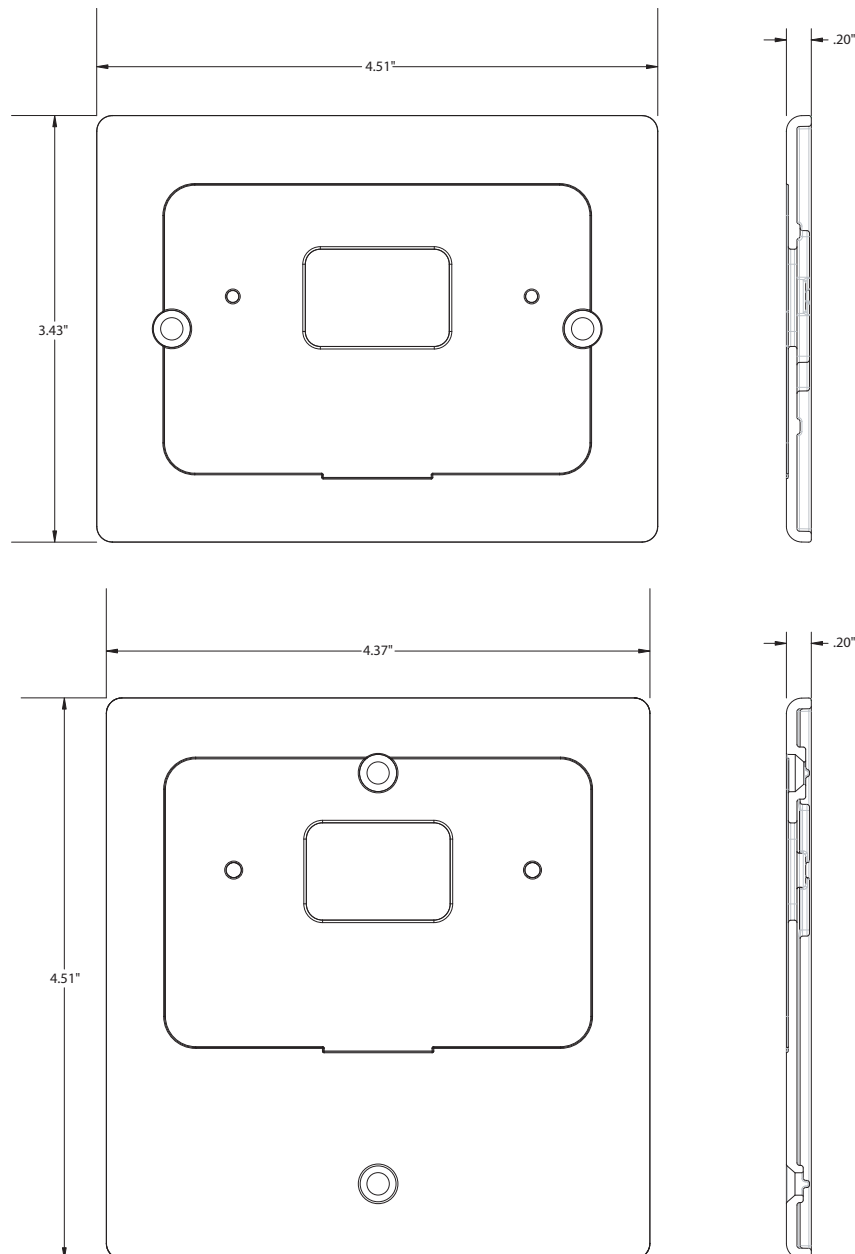
1. Make certain you have wires for STATbus communications, and network if you are using the optional Network Install Kit, run to the junction box before attaching the mounting plate.
2. Remove the STAT from the STAT base.
3. Pull the communications wiring through the large central hole in the mounting plate.
4. Align the holes in the mounting plate with the mounting holes on the 2x4 junction box.
5. Insert the 6-32 x ½" screws (part # 4A-00-00-0016 or 4A-04-00-0019) into the holes on the mounting plate and tighten to secure the plate to the junction box.
6. Pull the communications wiring through the large central hole in the STAT base.
7. Align the STAT base with the mounting plate so that the STAT sits in the indentation in the center of the plate and the openings in the center are aligned.
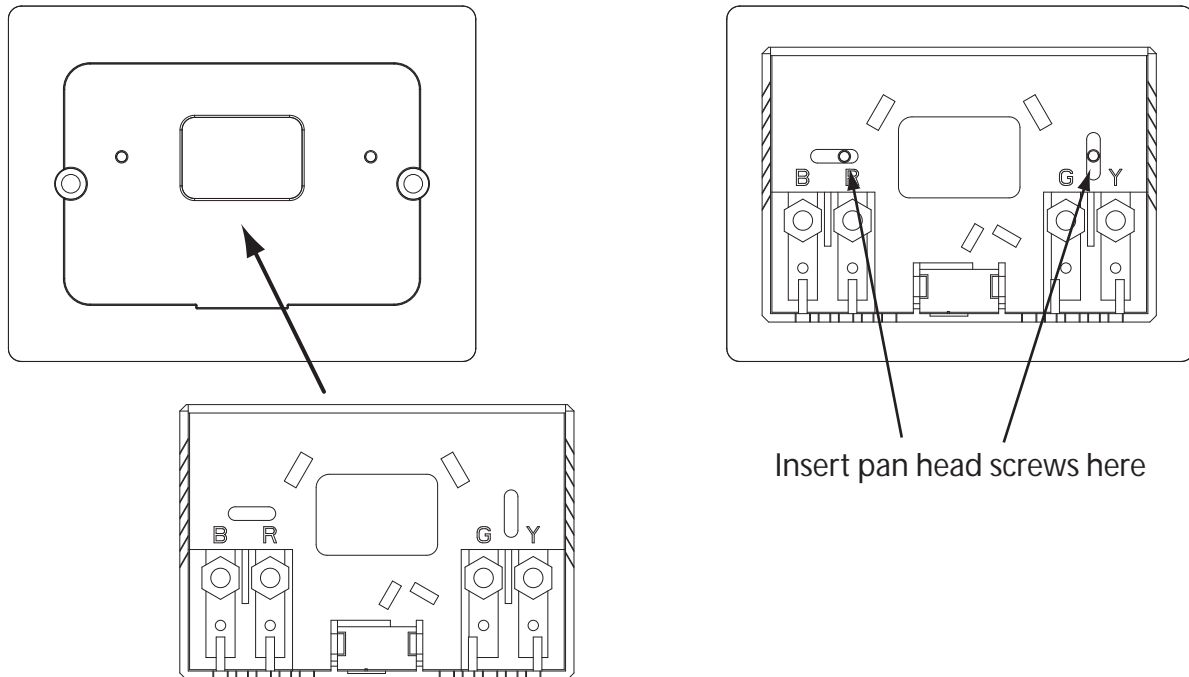
Figure 2-2 Attaching the STAT Base to the Mounting Plate

8. Insert a pan head screws (part# 4A-00-00-0016) into the oval slot located above the B and R terminals and tighten until the STAT base does not move. Insert a second screw into the oval slot located above the G and Y terminals and tighten is in the same way.
9. Connect the STATbus and network (optional) wiring to the terminal of the STAT base.
10. Secure the STAT to the base by placing it over the base and tightening the screws through the bottom of the base.

AMERICAN
AUTO-MATRIX®

2.2 STAT*BUS* W*IRING*

When connecting an SBC-series temperature or humidity STAT to a controller, you should connect the SSB and COM terminals on the controller to the two outermost screw terminals in the STAT base, labeled B and Y.
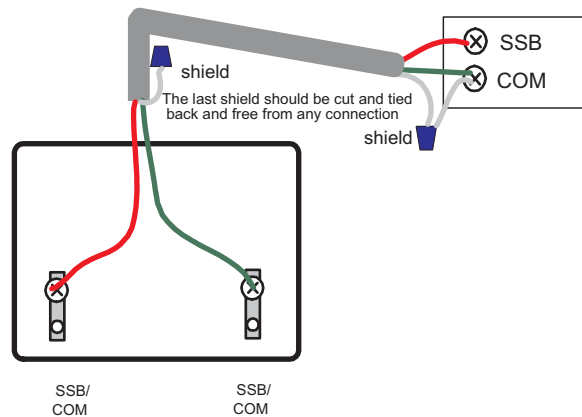
Figure 2-3 Wiring an SBC-STAT

If you are using a controller which allows you to connect multiple digital STATs to a single STATbus (ASC, VAV, V3T, GPC), you simply daisy-chain each additional STAT to the first. Figure 2-4 shows two STATs connected to a controller with a wire connected to the next device on the STATbus.
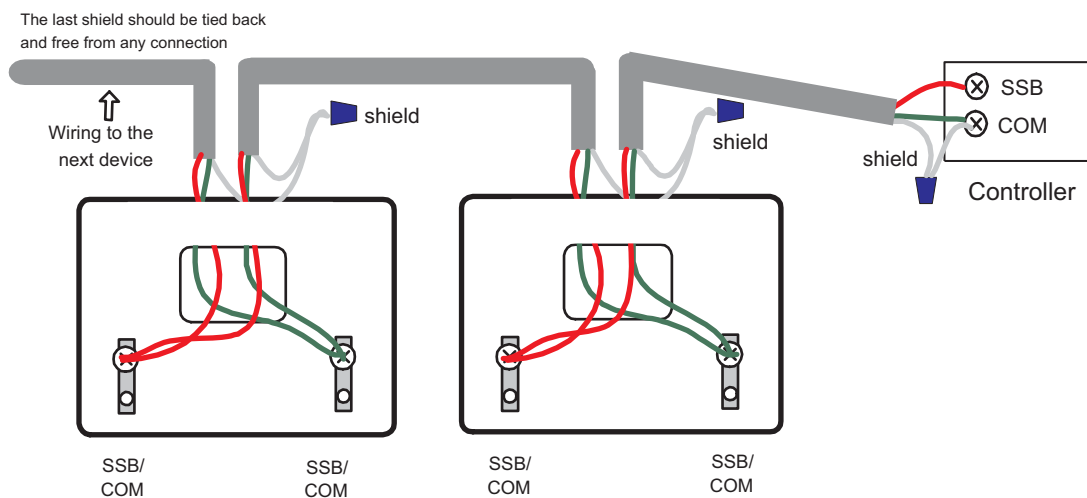
Figure 2-4: SBC-STAT Bus Wiring

2.3 MULTIPLE CONTROLLERS SHARING A SINGLE STATBUS

When using digital thermostats—*SBC*-STAT1-D, *SBC*-STAT2-D, and *SBC*-STAT3—two or more ASCs, VAVs, and/or V3Ts can be wired onto the same Sensor Bus. For this wiring structure to work properly, one controller must be set up as a Master (**BM**=0), and all others must be set up as Slaves (**BM**=1) in the Zone Temperature channel/object. Up to four digital *SBC*-STATs are allowed on a single STATbus. When setting up this configuration, you must make sure that polarity is maintained between the controllers, i.e. the COM terminal on one controller must be connected to the COM terminal and the SSB terminals on both controllers should be connected together in the same way. This is shown in Figure 2-5.
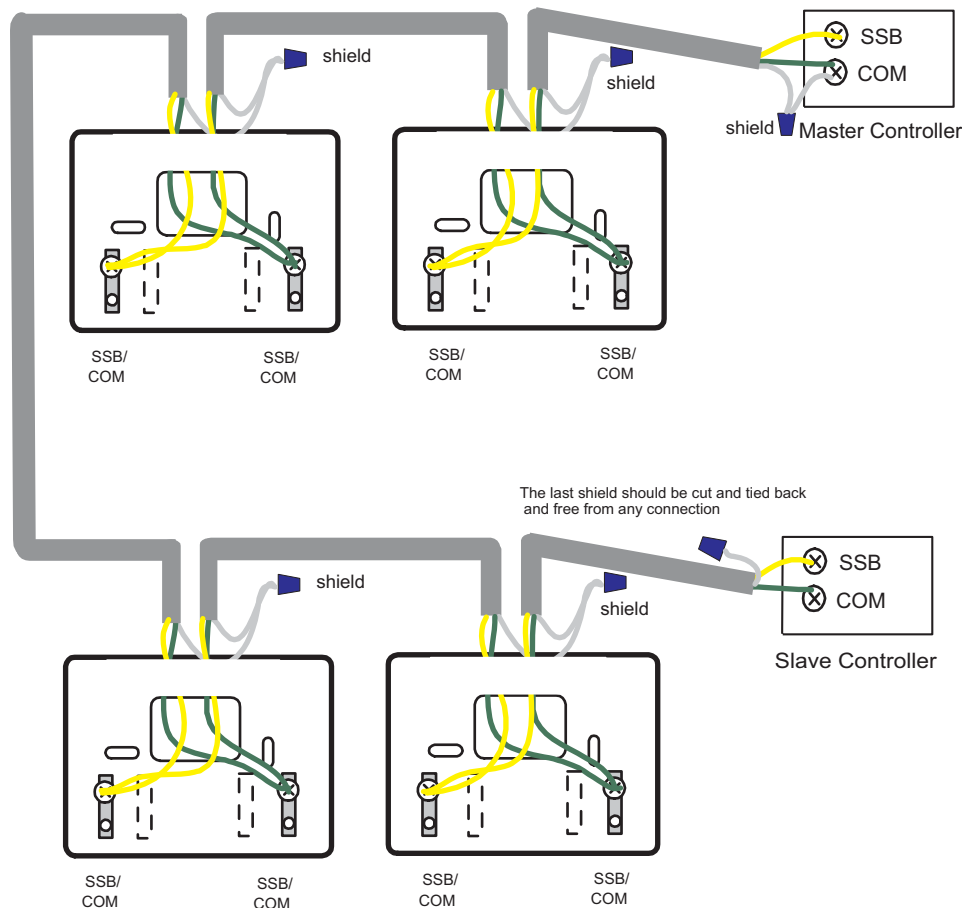
Figure 2-5: Multiple Controllers on a Single STATbus

STATs connected in this fashion can also have the Network Install Kit as described in *Section 2.3, Multiple Controllers Sharing a Single STATbus*. The network wires in such an installation would be connected as shown in Figure 2-6.

AMERICAN
AUTO-MATRIX®
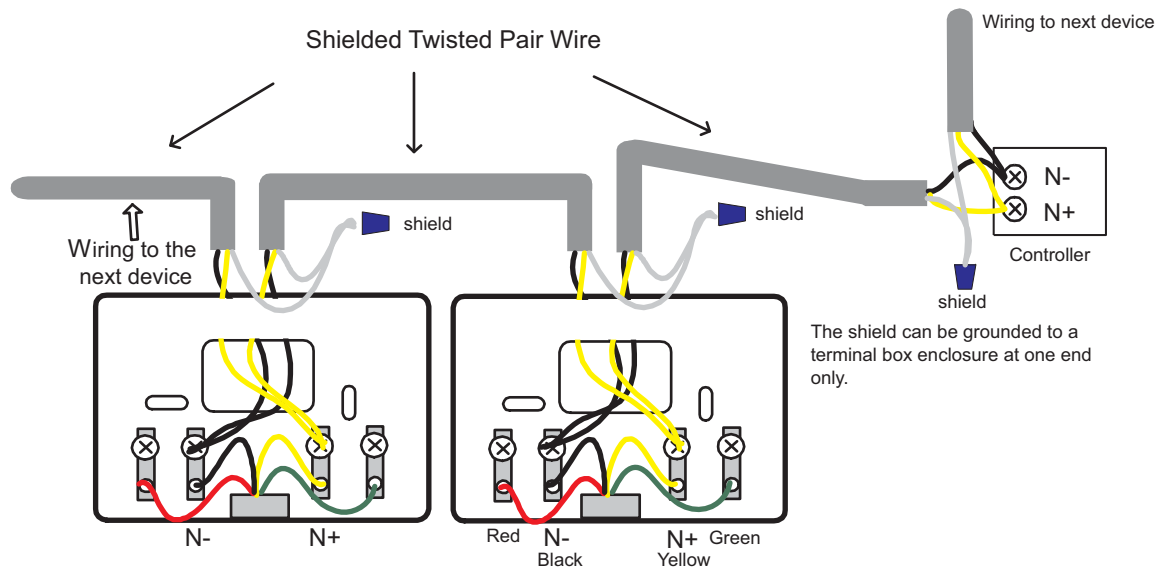
Figure 2-6: Network Wiring of Multiple STATs

2.3.1   CONNECTING A REMOTE STAT

If you have a mounted digital STAT which does not include a display and you need to adjust setpoints or other system parameters of the controller to which the STAT is connected, you can connect an external STAT with a Network Install Kit using a pair of probes connected to an RJ-11 plug. To connect the external STAT, simply plug the RJ-11 plug attached to the probes into the RJ-11 jack on the external STAT's base. Next insert the probes into the holes aligned with the SSB connectors on the STAT. You should now be able to use the STAT to modify system parameters just as if it were permanently connected to the STATbus network.
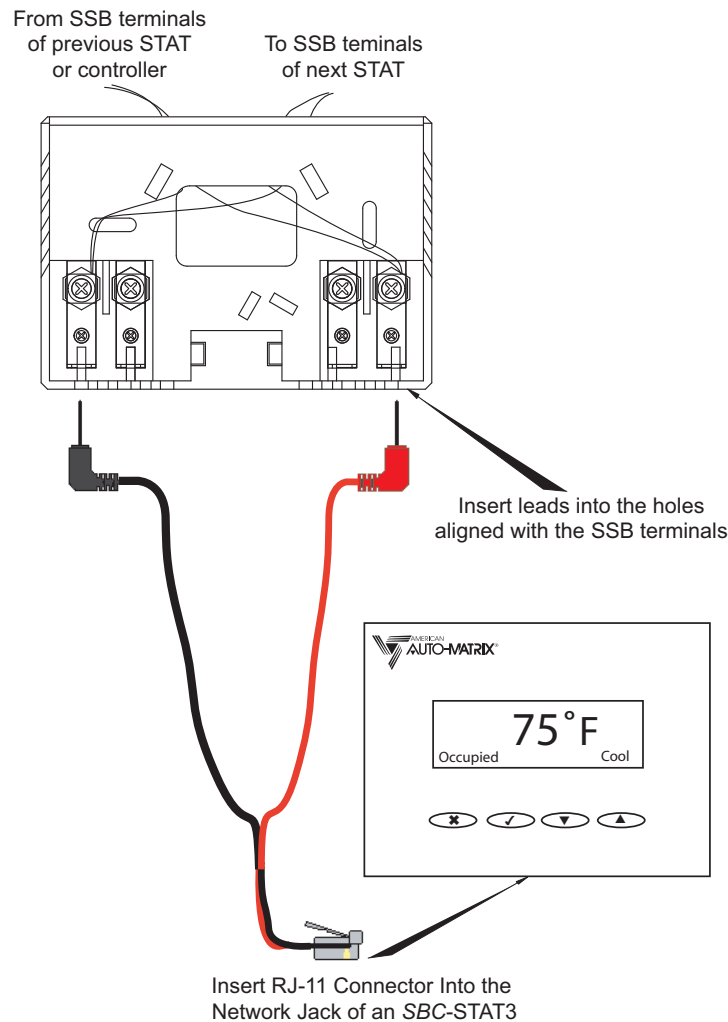
Figure 2-7 Remote SBC-STAT3 connected to a mounted SBC-STAT via the RJ-11 jack

AMERICAN
AUTO-MATRIX®

You can also wire the test probes directly from the base of your external STAT. As shown in Figure 2-8, the probes are connected to the B and Y terminals on the STAT base. Because STATbus is non-polar, you do not need to be concerned which probe gets plugged into which probe port when connecting an external STAT.

Connect lead/probe wires
to the SSB terminals
for STAT Bus connectivity

SSB terminal   SSB terminal
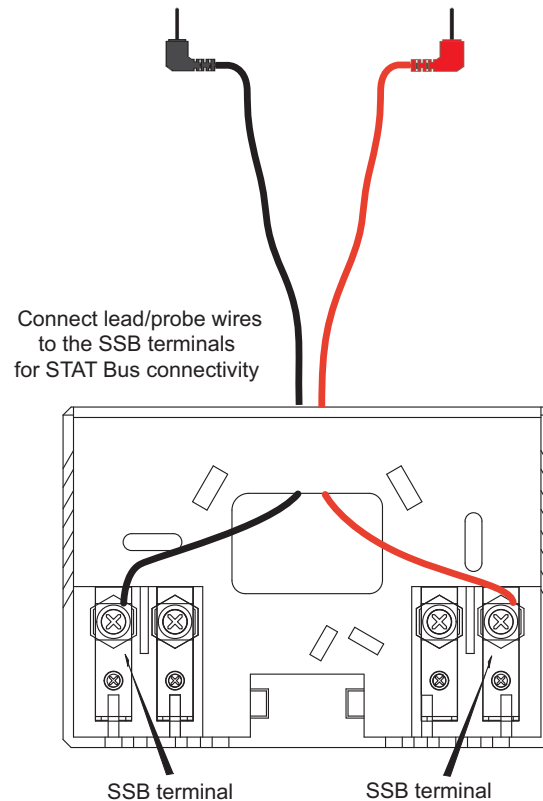
Figure 2-8 Probe Connections for Remote STAT Operation.

AMERICAN
AUTO-MATRIX®

SECTION 3: CONFIGURATION & OPERATION

This section will discuss how to adjust the setpoint and how use the menus on STATs with a graphical display. The options in the various menus will be described as well as addiotnal features such as VAV balancing and the display of trends.

IN THIS SECTION

STAT User Manual

3.1 SETPOINT ADJUSTMENT

If you press the up or down buttons on a SBC-STAT3, the setpoint will be adjusted by a pre-determined amount. STAT3 modules display the adjustment on the screen.

3.1.1 SBC-STAT3

When the up or down button is first pressed, the current setpoint offset will be displayed on the graphical display as shown in Figure 3-1.
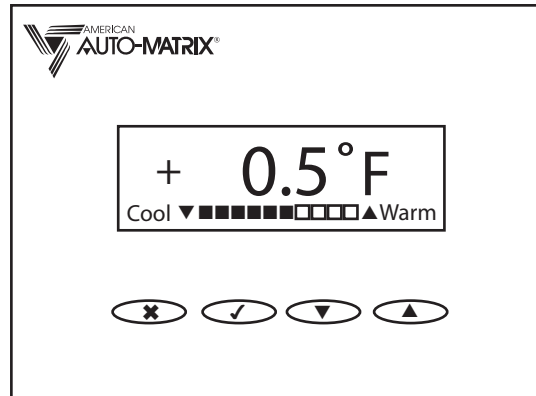
Figure 3-1: Setpoint Adjustment Display

If either the up or down buttons are pressed again within 15 seconds, the setpoint will move one increment in the direction of the button pressed. The increment is set using the **(TM) Thermostat Multiplier** property.The setpoint can be adjusted up or down by five increments, giving an adjustment range of +/- 0.5 x **TM**.

The LED on the STAT3 will also indicate the current schedule state of the controller. If the controller is currently in an Occupied state, the LED will be lit solid green. Warm up will be indicated by the LED blinking green while Night Setback and Unoccupied modes will be indicated by the LED flashing yellow periodically.

All of the patterns for the LED on the SBC-STAT3 are listed in Table 3-1.

Table 3-1 SBC-STAT3 LED Patterns

Event	*LED* flash
Setpoint adjustment	coldest = 1 red flash = 2 red flashes = 3 red flashes = 4 red flashes = 5 red flashes normal = 6 red flashes = 7 red flashes = 8 red flashes = 9 red flashes = 10 red flashes warmest = 11 red flashes

Table 3-1 SBC-STAT3 LED Patterns

Event	*LED* flash
Occupied mode	solid green
Warm up	flashing green
Night Setback	periodic yellow flash
Unoccupied mode	periodic yellow flash
Menus	solid yellow

AMERICAN
AUTO-**M**ATRIX®

3.2 OVERRIDE MODE

The Override mode allows building occupants to override the controller's programmed schedules, forcing it to change the active schedule state to Occupied for a predetermined amount of time. Override mode may only be entered if the active schedule state is warm-up, unoccupied, or night setback.

Before the user can use the STAT to enter Override mode, the following conditions must be met:

.   The **(SE) User Occupancy Override Enable** property must be set to "1=Enabled".
.   The **(ED) Extended Occupancy Duration** property must be set to a value greater than zero.
.   The active schedule mode is warm-up, unoccupied, or night setback.

A STAT3 will enter Override mode through the User Menu. To enter override mode, the user should enter the User menu by pressing the 4 button, use the s and t keys to highlight **Override**, and then press the check button. An icon will appear indicating that the controller's schedule has been overridden. The controller will stay in Override mode for a predetermined amount of time which is set using the **(ED) Extended Occupancy Duration** property. After a number of minutes equal to **ED** has elapsed, override mode will be cancelled and the controller will return to its active schedule state.

3.3   STAT3 MENUS

Depending on the controller, there are three (3) or four (4) menus that can be accessed in a STAT3, each of which provide different levels of monitoring and control. They are:

.   User
.   Install
.   Service
.   Balance (SMT-ASCV models only)

When working in a menu, you press the check button to initiate an action or enable/disable a function. After you have made the desired changes to the configuration, press the *X* button to exit and return to the previous menu.

Options in the Install, Service and Balance menus allow you to navigate properties to monitor or change their values. Selecting one of these options opens an Edit screen which allows you to change the value of the property. To change the value, use the 4 button to move places to the right and the up and down buttons to change values. Once you have entered a desired value, keep pressing the checkmark button until **set** is highlighted and then press the checkmark button once more to store the value and return to the previous menu. To exit an Edit screen without saving any changes, press the *X* button or highlight the **esc** option.

The User Menu, Service Menu, and Install Menu screen will be displayed for approximately thirty (30) seconds before returning to the temperature display screen and requiring you to re-enter a password (if required) to continue. Screens within those menus, such as the Control Monitor or Properties screens, will remain active for approximately four (4) minutes before returning to the parent menu.

AMERICAN
AUTO-MATRIX®

3.4 USER MENU

The User Menu is the most restrictive form of access allowed by the STAT. It is intended to allow end users to set the display preferences for the STAT as well as override the controllers built in schedule, assuming that feature has been enabled in the controller. The User Menu can be reached by pressing the 4 button while viewing the room temperature display. By default, no password will be required to enter the User menu. If you wish to require a password, the 4-digit password can be entered into the **(PU) User P.I.N.** property . If **PU** is set back to 0, a password will no longer be required to access the User menu. Setting **PU** to 10000 will disable access to the menu in its entirety.
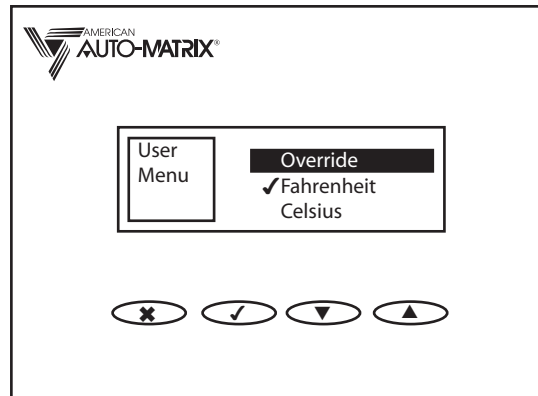
Figure 3-2: User Menu

From the User Menu the user can press the s and t buttons to highlight an entry. For SBC-STAT3, the available entries are **Override**, **Scroll Logos**, **Fahrenheit**, and **Celsius**.

Highlighting an option and pressing the check button will enable or disable the selected option.

Selecting the **Override** option puts the STAT in override mode and adjusts the controller's setpoints accordingly. For more information on the override mode, see *Section 3.2, Override Mode*.

Selecting the **Fahrenheit** or **Celsius** option will change the units of temperatures displayed on the STAT to degrees Fahrenheit or degrees Celsius respectively. Selecting one of these options will automatically deselect the other.

When you are finished configuring the setting in the User Menu, press the 6 button to exit and return to the temperature display.

3.5 SERVICE MENU

The Service menu is intended to provide access to the building automation system for technicians and other authorized people to monitor system variables.
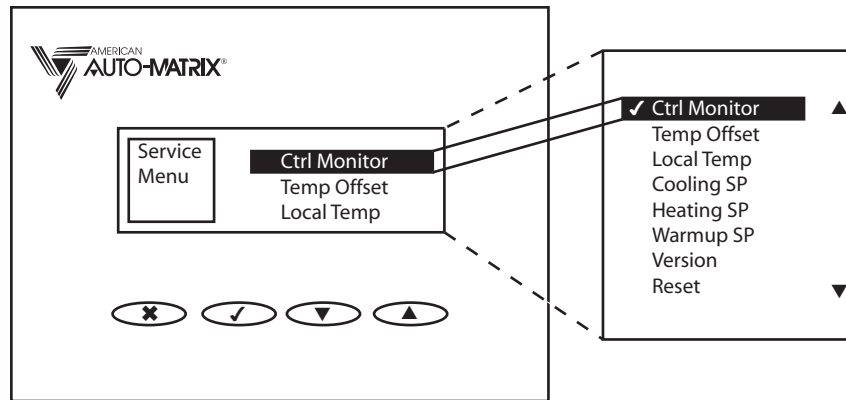
Figure 3-3 Service Menu

You can access the Service menu by pressing the the X and Down buttons simultaneously. A prompt for a password will appear. The password is stored in the **(PS) Service P.I.N.** property. The default password is 1100. If **PS** is set to 0, then a password will not be needed to enter access the Service menu. Setting **PS** to 10000 will disable access to the menu.

To enter your four digit password, use the Up and Down buttons to increment of decrement the number selected in the display. The checkmark button is used to move the selected number one place to the right. Once you have entered the correct password press the checkmark button one more time to enter the Service Menu.

Through the Service Menu, users can:

.   View Control Monitor functions.
.   Adjust the temperature offset for the STAT.
.   Select between displaying the zone temperature or the and the individual STAT reading.
.   Set the control setpoints.
.   View version information for the controller and the STAT.
.   Reset the STAT and the controller.

3.5.1 CTRL MONITOR

A simplified version of the control monitor option also exists. When you select the **Ctrl Monitor** option on these controllers, you will see a screen similar to Figure 3-4.

AMERICAN
AUTO-MATRIX®

Figure 3-4 Control Monitor Menu
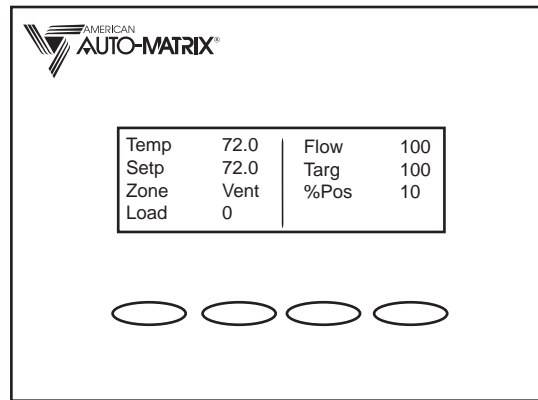
This screen displays the following information:

.   **Temp** - the current measured temperature.
.   **Setp** - the current control setpoint.
.   **Zone** - the current zone demand mode.
.   **Load** - the demand load of the zone.
.   **Flow** - the current measured flow (SMT-ASCV models only).
.   **Targ** - the target flow value (SMT-ASCV models only).
.   **%Pos** - the current damper position (SMT-ASCV models only).
.   **Sply** - the current measured supply temperature
.   **Sys** - the current demand mode of the controller. If the controller is set to Supply Dependent, **Sys** will reflect the current demand mode, i.e. if the controller is currently in cooling mode, **Sys** will display Cooling.

The **Flow**, **Targ**, and **%Pos** values are only displayed on SMT-ASCV controllers. For SMT-ASC controllers, these values will not be present and all values will be displayed on a single screen. Because there are more values than can be displayed on a single screen in the VAVs, if you press the s or t button while in the control monitor screen, the display will change to a screen similar to the one shown in Figure 3-5 which displays the additional values. Pressing either button will return you to the first control monitor screen.
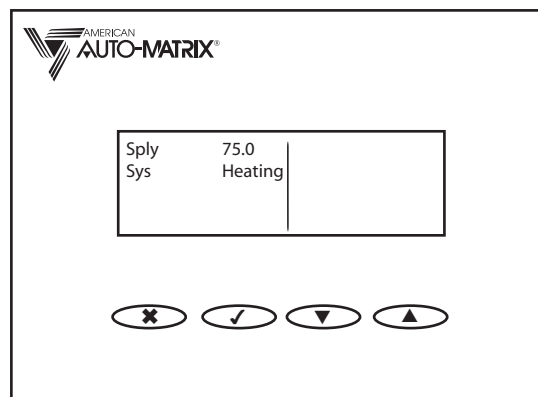

Figure 3-5 Control Monitor Menu, second screen (SMT-ASCV only)

3.5.2   TEMP OFFSET

The Temp Offset option opens a screen, shown in Figure 3-6, which allows you to change the value of ;**OF** property.   This can be used to calibrate the STAT to a known reference or to adjust a STAT that consistently reads high or low. To adjust the temperature offset, use the up arrow button to toggle between a negative (-) and positive (+) sign. Use the checkmark button to move places to the right and the up and down arrows to change a value. Once you have entered a desired value, press the checkmark button to highlight **set** and press the checkmark button once more to store the value and return to the Service Menu. To exit the screen without saving any changes, press the *X* button
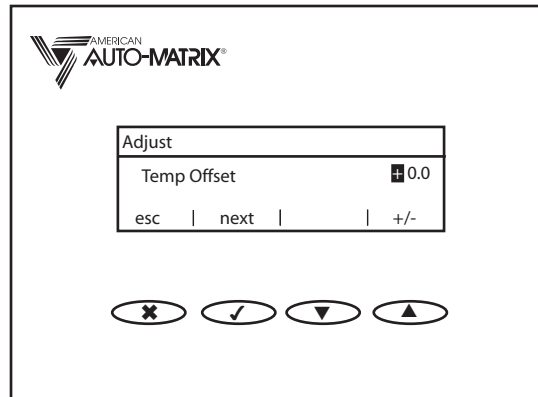
Figure 3-6: Temp Offset Screen

3.5.3   LOCAL TEMP

This option toggles the multiple thermostat display between zone and individual modes. If you press the 4 button, a check mark will appear on the screen to indicate that the STAT will display the local temperature as read on that device. This will change the value of the ;**DV** property accordingly.

3.5.4   COOLING SP, HEATING SP, WARMUP SP

These options open a screen allowing you to set the value of the corresponding setpoint. First, you use the s button to toggle whether the temperature entered is positive or negative. Use the 4 button to accept the sign and move to the right to change the setpoint value. The up and down buttons are used to change the value of the highlighted digit. If you press the up button when the digit is a 9, it will cycle through to 0. Similarly, pressing the down button when the value is 0 will change it to a value of 9.   Once you have entered the desired value for the last digit of the setpoint, press the checkmark button. This will highlight the **set** option. Press the checkmark button once more to store the value and return to the Service Menu.

To exit the Edit screen at any time without saving any changes you have made to that point, press the X button.
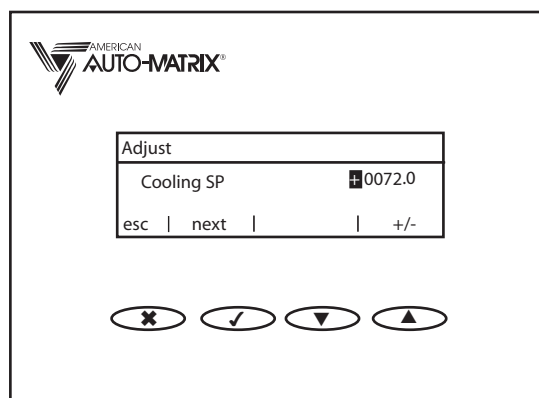
Figure 3-7 Cooling SP Screen

3.5.5 VERSION

The Version option displays information about the controller to which the STAT is connected. It displays:

. **S/N** - The serial number of the controller (Device**:(SN) Serial Number** propert).
. **Vers** - The version number of the controller firmware (Device**:(VE) Firmware Version**).
. **Rel** -The software time stamp for the controller's firmware (Device**:(SR) Software Time Stamp**).
. **Type** - The firmware type number for the controller (Device**:(FT) Firmware Type**).
. **Cont** - The controller type number for the controller (Device**:(CT) Controller Type**).
. **ID** - Unit ID (Device**:(ID) Unit Number (ID)**).
. **Stat** - The version number of the STAT firmware.
. **GID** - The global identification number of the STAT.

Figure 3-8: Version Screen

Pressing the *X* button while viewing the Version option will return you to the Service menu.

3.5.6 RESET

Selecting this item restarts the STAT and the controller.

3.6   INSTALL MENU

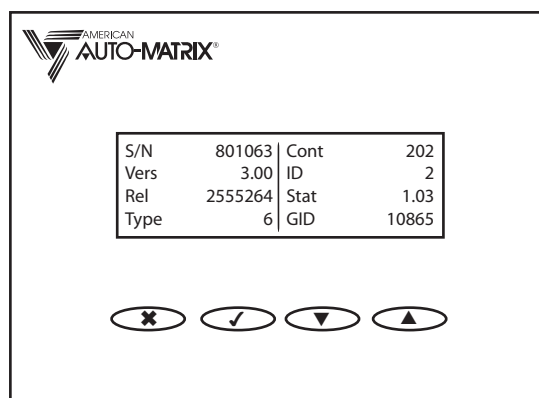The Install menu is intended as a diagnostic and troubleshooting tool for those installing the building automation system. From within the Install Menu, users have the ability to monitor and change the value of properties on the host controller.

You can access the Install menu by pressing the X and up buttons simultaneously. A prompt for a password will appear. The password is stored in the **(PI) Installer P.I.N.** property. **PI** has a default value of 3300. If **PI** is set to 0, then you will not need to enter a password to access the Install menu.

To enter your four-digit password, use the s and t buttons to increment or decrement the number selected in the display. The checkmark button is used to move the selected number one place to the right. Once you have entered the correct password press the checkmark button one more time to enter the Service Menu.

Through the Install Menu, installers can:
.   View Control Monitor functions.
.   Perform an LED Test.
.   Reset the *SBC*-STAT3 and the controller to which it is attached.
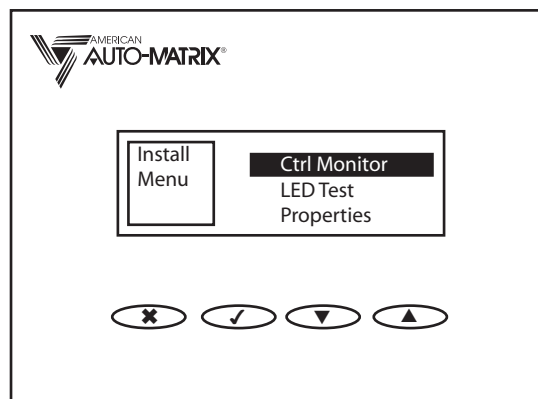
Figure 3-9: Install Menu

3.6.1   LED TEST

The second option under the Install menu is LED Test. This allows the installer to test the LED on the upper corner of the STAT by sequentially displaying the various LED colors and flash patterns. To display a given LED mode, first use the s and t buttons to highlight the LED Test option from the Install menu. Once highlighted, pressing the 4 button will step sequentially through the available LED modes. The available modes (in order) are:

.   Flashing Green
.   Green
.   Flashing Yellow
.   Yellow
.   Flashing Red
.   Red

When you reach the end of the sequence, the LED will return to the steady yellow which indicates you are in a menu.

3.6.2 RESET

This option restarts the controller and the STAT.

3.7   VAV BALANCING VIA MENUS

Figure 3-10: Balance Menu

VAV controllers provide a special menu which is intended to provide limited access to the controller so that the System Balancer can calibrate the flow sensor without having access to other settings in the controller. To access the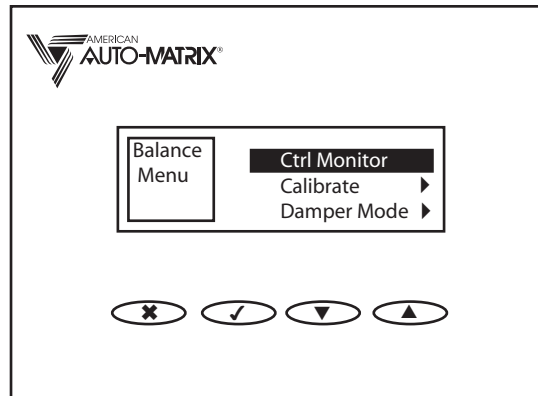 Balance Menu or the , press the X and checkmark buttons simultaneously. You will then need to enter the four digit password to gain access to the menu. To enter the password use the up and down buttons to scroll through the numbers and the checkmark button to move one place to the right. Once you have selected the correct password press the checkmark button once more to enter the Balance Menu screen. The default password is 2200.

Through the Balance or Calibrate Menu, users can:

.   View Control Monitor functions.
.   Perform calibration functions.
.   Set the Damper Mode.
.   Perform flow setpoint adjustments.
.   Reset the controller.

3.7.1   CTRL MONITOR

The first menu option listed in the Install Menu is **Ctrl Monitor**. This option allows the monitoring of temperature control operation and is identical to the Control Monitor found in the Service Menu. For more on the functionality of the Control Monitor, see *Section 3.5.1, Ctrl Monitor*.

3.7.2 CALIBRATE
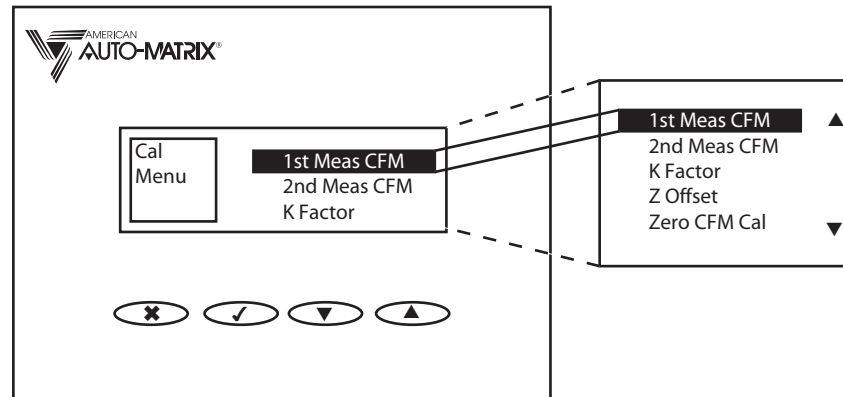
Figure 3-11: Calibrate Menu

The Calibrate menu allows you to enter the values needed for one- and two-point flow calibration as well as a zero flow calibration. The Calibrate menu contains the following items:

.   **1st Measured CFM** - used to enter the measured flow value for single-point calibration or the first point in a two-point calibration.

.   **2nd Measured CFM** - used to enter the measured flow value for the second calibration point in a two-point calibration.

.   **K Factor** - the K-factor calculated from the calibration steps. This can also be used to manually enter a K-factor.

.   **Z Offset** - the calculated zero offset as determined by the calibration.

.   **Zero CFM Cal** - initiates the zero flow calibration procedure. For more information on performing the zero flow calibration, see *Section 3.7.6, Balancing Procedures.*

3.7.3 DAMPER MODE

Figure 3-12 Damper Mode Menu

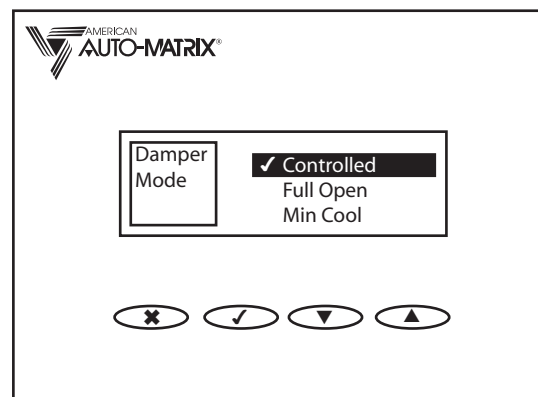The Damper Mode menu allows you to make changes to the Flow Control:**(DM) Damper Mode** property when the STAT is connected. The Damper Modes menu lets you set the following values for **DM**:

.   Controlled (Automatic) (**DM**=0)
.   Full Open (**DM**=1)
.   Min Cool (**DM**=2)
.   Max Cool (**DM**=3)
.   Min Heat (**DM**=4)
.   Max Heat (**DM**=5)
.   Min Warm-up (**DM**=6)
.   Max Warm-up (**DM**=7)

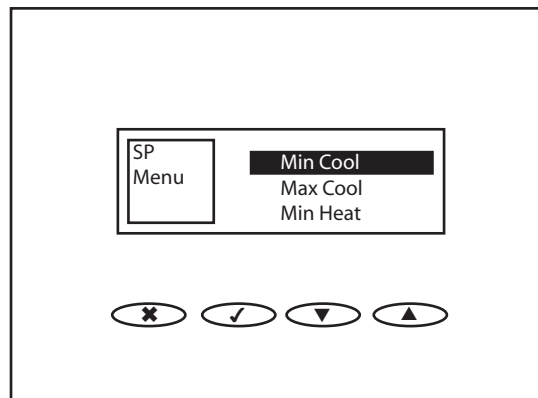### 3.7.4   SETPOINTS (VAV AND V3TD)

Figure 3-13: Setpoints Menu

The Setpoint Menu is intended to allow the Balancer to adjust the heating and cooling setpoints of the controller. Through this menu, the Balancer can view and edit the following values:

.   Min Cool [**Cooling Minimum Flow** (**CM**)]
.   Max Cool [**Cooling Maximum Flow** (**CX**)]
.   Min Heat [**Heating Minimum Flow** (**HM**)]
.   Max Heat [**Heating Maximum Flow** (**HX**)]
.   Min Warm-up [**Warm-up Minimum Flow** (**WM**)]
.   Max Warm-up [**Warm-up Maximum Flow** (**WX**)]

3.7.5   RESET
This option restarts the controller and the STAT.

3.7.6   BALANCING PROCEDURES
Using the Balance Menu, the Balancer can perform a single-point or two-point calibration to determine the K-factor and zero offset without requiring access to a connected computer running the SoloPro or NB-Pro software packages. The single-point calibration requires a zero-offset calibration step while the two-point calibration does not require you to shut down the flow in the system while preforming the calibration.

AMERICAN
AUTO-MATRIX®

3.7.6.1 SINGLE POINT CALIBRATION

The single-point calibration uses a single flow value and the zero offset to calibrate the flow. To perform the single point calibration:

1. Turn off all fans and eliminate all air circulation in your duct. Alternately, you can remove both hoses from the controller's airflow sensor.

NOTE

You may be required to physically close dampers in the system to completely eliminate the airflow through the system if static drafts are present.

---

2. Enter the Balance menu by pressing the X and checkmark buttons simultaneously.
3. Use the t and s buttons to select the **Calibrate** option and press the checkmark button.
4. Select the **Zero CFM Cal** option. You will see a screen similar to the one shown in Figure 3-14.
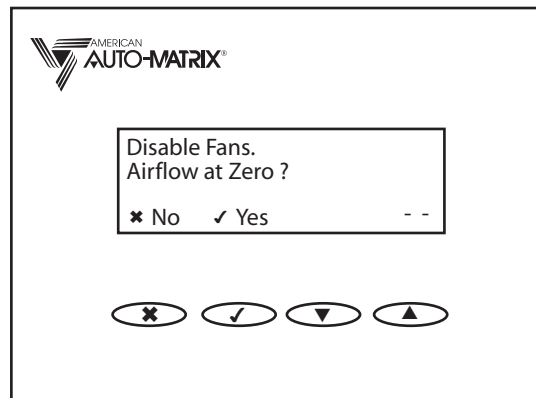

Figure 3-14 Zero CFM Calibration screen

5.   Press the checkmark button to select the **Yes** option.
6. The controller will measure the flow and calculate the zero offset. You will be returned to the Calibrate menu. The calculated offset can be viewed by selecting the **Z Offset** option from the Calibrate Menu.
7. Restart the airflow or reconnect the hoses to the controller's airflow sensor.
8. Press the X butotn to return to the Calibrate menu.
9. Select **Damper Mode** and press the 4 button.
10. Select **Max Cool**. The controller will now attempt to establish the flow rate defined in the **Max Cool SP**.
11. Press the X button button to return to the Calibrate menu.
12. Select **Ctrl Monitor** and press the checkmark button.
13. Verify that the **Targ** indicates the cooling maximum flow setpoint.
14. Wait for the **Flow** to stabilize.

NOTE

At this point it is normal for the **Flow** value to be different from the **Targ** value.

---

15. Measure the actual airflow using an external measurement device.
16. Press the 6 button to return to the Balance menu.
17. Select **Calibrate** and press the checkmark button.
18. Select **1st Meas CFM** and press the checkmark button.
19. Use the t and s buttons to change the value of the highlighted digit and the checkmark button to move one digit to the right until you have entered the flow value measured in Step 15. When you have reached the last digit the option over the checkmark button will change to **set** and be highlighted. Pressing the checkmark button will accept the value entered. If, at any point, you do not want to accept the entered value or you enter a value incorrectly, pressing the X button will return you to the Calibrate menu.
20. Select **Calibrate** and press the checkmark button.
21. Press the X button to return to the Balance menu.
22. Select **Ctrl Monitor** and press the check button. The **Flow** and **Targ** values should now be approximately the same. If they do not, return to Step 15 and repeat the calibration.
23. Press the X button to return to the Balance menu.
24. Select **Damper Mode** and press the checkmark button.
25. Select **Max Cool** or **Controlled** to release control back to the controller.

NOTE

It is suggested that after the calibration is performed, you record the calculated K-Factor and Zero Offset.

To view the K-Factor, select **Calibrate** and press the checkmark button. Select **K Factor** and press the checkmark button. The calculated K-Factor will be displayed.

To view the Zero Offset, select **Calibrate** and press the checkmark button. Select **Z Offset** and press the checkmark button. The calculated Zero Offset will be displayed.

The calibration is now complete and the controller should accurately read airflow values over its entire measurement range.

3.7.6.2 TWO POINT CALIBRATION

NOTE

For the two-point calibration, the **Min Cool** and **Max Cool** values must be separated by at least 100 CFM.

---

1. Enter the Balance menu by pressing the X and checkmark buttons simultaneously.
2. Select **Damper Mode** and press the checkmark button.
3. Select **Max Cool**. The controller will now attempt to establish the flow rate defined in the **Max Cool SP**.
4. Press the checkmark button to return to the Balance menu.

5. Measure the actual airflow using an external measurement device.
6. Select **Calibrate** and press the checkmark button.
7. Select **1st Meas CFM** and press the checkmark button.
8. Use the up and down buttons to change the value of the highlighted digit and the checkmark button to move one digit to the right until you have entered the flow value measured in Step 5. When you have reached the last digit the option over the checkmark button will change to **set** and be highlighted. Pressing the checkmark button will accept the value entered. If, at any point, you do not want to accept the entered value or you enter a value incorrectly, pressing the X button will return you to the Calibrate menu.
9. Press the X button to return to the Balance menu.
10. Select **Damper Mode** and press the checkmark button.
11. Select **Min Cool**. The controller will now attempt to establish the flow rate defined in the **Min Cool SP**.
12. Press the X button to return to the Balance menu.
13. Measure the actual airflow using an external measurement device.
14. Select **Calibrate** and press the checkmark button.
15. Select **2nd Meas CFM** and press the checkmark button.
16. Use the t and s buttons to change the value of the highlighted digit and the checkmark button to move one digit to the right until you have entered the flow value measured in Step 13.   When you have reached the last digit the option over the checkmark button will change to **set** and be highlighted. Pressing the checkmark button will accept the value entered. If, at any point, you do not want to accept the entered value or you enter a value incorrectly, pressing the X button will return you to the Calibrate menu.
17. Press the X button to return to the Balance menu.
18. Select **Damper Mode** and press the checkmark button.
19. Select **Min Cool** or **Controlled** to release control back to the controller.

NOTE

It is suggested that after the calibration is performed, you record the calculated K-Factor and Zero Offset.

To view the K-Factor, select **Calibrate** and press the checkmark button. Select **K Factor** and press the checkmark button. The calculated K-Factor will be displayed.

To view the Zero Offset, select **Calibrate** and press the checkmark button. Select **Z Offset** and press the checkmark button. The calculated Zero Offset will be displayed.

The calibration is now complete and the controller should accurately read airflow values over its entire measurement range.