PRODUCT DESCRIPTION

The AQ25400B “Add-A-Temperature” Expansion Control Panel provides additional zoning capacity for an existing hydronic installation controlled by an AQ2000 Series Boiler Control Panel such as an AQ250 Relay Boiler Control, an AQ25A Programmable Boiler Control, an AQ251 Reset Boiler Control, or an AQ252 Universal Injection/Mixing Boiler Reset Control. The AQ254, which can control up to 16 zones of heating in addition to the zones connected to the Master AQ2000 Series boiler control, maintains the water temperature in a secondary loop of a hydronic system by mixing higher temperature water from the primary (boiler) loop with cooler water returning from the heat emitters in the secondary loop that is being controlled by the AQ254.

The mixing action is accomplished by one of three outputs on the AQ254’s Control Module:
• a line voltage injection pump,
• a 24 Vac floating action motorized mixing valve, or
• a 0-10 Vdc (or 2-10 Vdc) modulating output (for a motorized mixing valve or variable speed pump). The floating action mixing valve can be either a rotary or globe style design.

FEATURES

The AQ25400B has the following features:
• Controls one mixed temperature loop.
• Outdoor temperature compensation (reset), or Load reset based on indoor temperature feedback, or none.
• Zone synchronization through Zone of Greatest Demand control.
• Customizable control settings allow for greater level of control and comfort.
• Use of variable speed injection pump or motorized mixing valve for mixed temperature loop control.

IMPORTANT

To ensure correct installation and proper operation of the control, perform the 6 installation steps in the order numbered in the “Contents” below.

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• Extends the capacity of an existing AQ2000 hydronic control panel by up to 16 zones and one reset mixed temperature loop.
• Intuitive programming interface (can be programmed at your shop and taken to the job site “ready-to-install”).
• Integral 38 VA transformer with self resetting electronic fuse.
• Equipment settings are stored in a non-volatile EPROM memory so the AQ254 retains all program settings during a power outage.

SPECIFICATIONS

Application: Provides additional zoning capacity for an existing hydronic installation controlled by an AQ2000 Series Boiler Control Panel.

Power and Electrical Ratings:
- Power Supply: 120 Vac / 60Hz
- Auxiliary Pump Output Rating: Dry contact output, 120 to 240 Vac 5A, 1/3 HP
- Secondary Pump Output Rating: 120 Vac 5A, 1/3HP
- Variable-Speed Injection Pump Output: Triac modulated; 120 Vac 2.1A, 1/6HP
- B-B Communication Bus Terminals: Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.
- Electrical Connections (Line Voltage): Wire-clamp screw terminals; maximum 2 x 14 AWG each on line voltage terminals

Environmental Ratings:
- Control and Zoning Panel Temperature Rating: 32°F to 130°F (0°C to 55°C)
- Operating Humidity Range (% RH): 5 to 90% RH, non-condensing

Temperature Ratings:
- Secondary Loop Mixing (Supply) Design Temp Range: 70°F to 210°F (21°C to 99°C)
- Secondary Loop Mixing (Supply) Min. Control Temp Range: OFF, 35°F to 150°F (OFF, 2°C to 66°C)
- Secondary Loop Mixing (Supply) Max. Control Temp Range: OFF, 80°F to 210°F (OFF, 27°C to 99°C)
- Sensor Temperature Rating: -58°F to 230°F (-50°C to 110°C)

Inputs/Outputs:
- Auxiliary (Demand) Input: External dry contacts connection only
- DHW Demand Input: External dry contacts connection only
- Secondary Sensor Input: External dry contacts connection only
- Mixing Valve (Com, O, C) Output: 24 Vac, 0.5A, 12VA
- Modulating Output: 0-10 or 2-10 Vdc for variable speed pump or modulating mixing valve

User Interface (Setting, Programming): 8-character, 3-line LCD Display with a 3 button keypad

Thermostat Compatibility: Digital non-communicating thermostats and/or AQ1000 Series 2-wire communicating thermostats

Secondary (Mixed) Loop Sensor: 10K ohm NTC thermistor at 77°F (25°C) ± 0.5°F (±0.3°C). Lead length: 10 ft. (3.0 m); up to 500 ft. (150 m) using 18 AWG or larger wire, beta=3892

Dimensions (HxWxD): 8.0 x 9.4 x 3.3 in. (20.3 x 23.8 x 8.5 cm) approximate

Weight: 3.9 lb. (1.8 kg)

Approvals: Canadian Standards Association: Certified, File No. LR76830

ORDERING INFORMATION

When purchasing replacement and modernization products from your TRADELINE® wholesaler or distributor, refer to the TRADELINE® Catalog or price sheets for complete ordering number.

If you have additional questions, need further information, or would like to comment on our products or services, please write or phone:

1. Your local Honeywell Automation and Control Products Sales Office (check white pages of your phone directory).
2. Honeywell Customer Care
   1885 Douglas Drive North
   Minneapolis, Minnesota 55422-4386

In Canada—Honeywell Limited/Honeywell Limitée, 35 Dynamic Drive, Toronto, Ontario M1V 4Z9.
International Sales and Service Offices in all principal cities of the world. Manufacturing in Australia, Canada, Finland, France, Germany, Japan, Mexico, Netherlands, Spain, Taiwan, United Kingdom, U.S.A.
1 INSTALLATION PREPARATION

When Installing this Product...
1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the ratings given in the instructions and on the product to make sure the product is suitable for the application.
3. Installers must be trained, experienced, and licensed service technicians.
4. Follow local codes for installation and application.
5. After installation is complete, check out the product operation as printed in these instructions.

WARNING
Risk of electrical shock.
Can cause severe injury, property damage or death.
Disconnect power supply before installation and before servicing.

Check That You Have All the Necessary Equipment For a Successful Installation
• AQ2000 Series components:
  — AQ2000 boiler Control Panel (such as AQ250, AQ25A, AQ251, or AQ252)
  — AQ254 “Add-A-Temperature” Expansion Control Panel
  — AQ Expansion Zoning Panel (at least one Expansion Zoning Panel must be connected to an AQ254 to provide input from zone thermostats associated with the mixed temperature loop controlled by the AQ254)
  — Digital thermostats (one for every space heating zone being controlled)
• Secondary loop supply temperature sensor (included with the AQ254 control panel)
• Mixing device (injection pump, floating 2-, 3- or 4-way motorized mixing valve, modulating 0-10 Vdc [or 2-10 Vdc] motorized mixing valve or variable speed pump
• Secondary loop pump
• Low voltage thermostat wire
• Zoning equipment (zone valves or pumps)
The AQ254 is designed to be connected to an AQ2000 boiler Control Panel - it cannot be operated as a standalone device.

The AQ254 Control Panel can control a maximum of 16 zones by connecting additional Expansion Zoning Panels to the AQ254 Control Panel. The hydronic system can be expanded by 16 zones for each AQ254 connected to the AQ2000 network. A maximum of three (3) AQ254 Panels may be connected to an existing AQ2000 Control Panel for a maximum of 64 zones connected on the AQUATROL® network.

Read All Instructions Carefully Before Proceeding
The AQ254 Control Panel is a part of a totally new family of hydronic controls. And although they - and other AQ2000 system components - are very easy to install and operate, they are different than other hydronic controls that you have previously installed. So take a moment to read through this Product Data sheet before beginning the installation. Failure to follow them could damage the product or cause a hazardous condition.

Familiarize Yourself With the AQ254 Control Panel Layout
The AQ254 “Add-A-Temperature” Expansion Control Panel consists of two functional components (see Fig. 1 on page 3):
• The AQ10X38 transformer (power supply module), which connects to 120 Vac power and supplies 24 Vac power to the Expansion Control Module and any connected Zoning Modules.
• The Mixing Control Module, AQ15400B, which controls the mixing device (pump or valve) to maintain the secondary loop temperature according to the method of reset (outdoor or load adaptive reset).

The top terminals of the AQ254 carry low voltage (24 Vac) power and the bottom terminals carry line voltage (120 Vac) power. This is illustrated in Fig. 1.

The powered terminals on the bottom of the AQ254 are connected internally, as shown in by the dashed lines in Fig. 1. The voltage supplied to the N and L terminals is also available at the SEC pump and variable speed injection pump terminal pairs when the hot ( ) relays are switched. The 38 VA transformer included with the AQ254 has sufficient capacity to provide low voltage power to the AQ15400B Control Module as well as up to 16, AQ1000 thermostats.

All low voltage contacts (terminals 3 to14) on the top of the AQ15400B Control Module are internally-powered.

IMPORTANT
Voltage must not be applied to the low voltage terminals or the internal electronics of the AQ15400B could be damaged.

The 10kΩ sensor for measuring the secondary loop (mixed) temperature is the only low voltage input on the AQ254 Control Panel (besides the 24 Vac R and C supply terminals). There are two low voltage outputs: 0-10Vdc (or 2-10Vdc)
modulating signal to drive a modulating mixing valve or a variable speed pump, and a 24 Vac set of terminals that provides a floating signal to a motorized mixing valve.

Line voltage outputs include a secondary pump relay and a variable speed injection output which drives a fixed speed circulating pump at a varying speed depending on the heat input required for the secondary mixed loop.

On the bottom of the Control Module, there is a set of line voltage-rated auxiliary (AUX.) dry contacts that can be programmed to close under several predefined conditions, making this Control Panel a very versatile mixing controller for hydronic systems.

**MOUNTING**

Since the AQ254 “Add-A-Temperature” Panel is an Expansion Control Panel, it functions as an “add-on” control to an existing Main AQ2000 Series Boiler Control. The AQ254 is designed to be connected to an AQ2000 boiler Control Panel - it cannot be operated as a standalone device.

**IMPORTANT**

The Main AQ2000 Series Control Panel (an AQ250, AQ25A, AQ251, or AQ252), and any Expansion Zoning Panels connected to the Main panel **must be mounted on the wall of the mechanical room before the AQ254 can be installed.**

**Mount AQ254 Control Panel**

Mount the control panel on the wall using Fig. 2 as a guide:

1. Remove the wire channel plugs from the AQ254.
2. Mount the AQ254 on the right hand end of the main AQ2000 Series Control Panel (or Expansion Zoning Panel).
3. Reverse the wire channel plugs and re-insert them into the groove from where they were removed to form a wiring channel between the main AQ2000 Series Control Panel (or Expansion Zoning Panel) and the “Add-A-Temperature” Control Panel.
4. Install the two top screws, mount the panel, and install the two lower screws.

**Mount Expansion Zoning Panel(s)**

If there are Expansion Zoning Panels to install, mount them to the wall now:

1. Remove wire channel plugs from the AQ254 Control Panel and any Expansion Zoning Panels (see Fig. 2).
2. Mount Expansion Zoning Panel on the right-hand end of the AQ254 Control Panel. Install two top screws of the Expansion Zoning Panel, ensuring it is level with the adjoining Control Panel, and install two lower screws.
3. Reverse wire channel plugs and re-insert them into their slot, to form a wiring channel between the Control Panel and the Expansion Zoning Panel. Refer to Figure Fig. 5 on page 7 for an example of an installation with multiple AQ254 Expansion Control Panels.
4. Repeat steps 1–3 for any additional Expansion Zoning Panels.

![Fig. 2. Orientation of wire channel plugs for creating pass-through wire channel and for joining Control Panel to Expansion Zoning Panels.](image-url)
Mount and Wire Thermostats in the Zones

Install the thermostats on the walls in the zones that are to be controlled by the AQ2000 Series panels, and (if not done already) run low voltage thermostat wire (24 gauge or heavier) from the thermostats back to the Zoning Modules connected to the AQ254 Control Panel.

When using AQ1000 thermostats, refer to the installation instructions included with the AQ1000 thermostats.

Connect floor sensors (part # AQ12C20) to the thermostats for any space heating zones with in-floor heating, where temperature regulation of the floor is required.

Spare Fuse

The AQ254 includes a fuse to protect the electronic circuit that drives the variable speed injection pump output. Although it is unlikely that the fuse will be blown – as injection pumps rarely if ever exceed the 1/6 HP rating for this output – there is a spare fuse attached to the side of the AQ254 housing. See Fig. 3 for location of this spare fuse. If additional replacement fuses are needed, please contact Honeywell Technical Support at 1-800-318-0815.

2 WIRING PROCEDURE

The AQ254 Control Panel is pre-wired at the factory, making for faster installation:

- The low voltage output terminals located at the top of the AQ10X38 transformer are wired to the R and C input terminals of the AQ15400B Control Module, and
- The line voltage terminals on the bottom of the AQ10X38 transformer are connected to the N and L terminals on the bottom of the AQ15400B Control Module.

NOTES: If not otherwise specified, low voltage wiring should be run with 18 gauge thermostat wire and line voltage wiring should be run with 14 gauge wire. AQUATROL line voltage screw terminals are only approved for use with 14 gauge copper conductors.

Several wiring diagrams are included in this document. For additional information, refer to http://customer.honeywell.com or your local distributor.

Beginning with the top left of Fig. 4 on page 6 and moving clockwise around the panel, wire components to the AQ254 Expansion Control Panel and Expansion Zoning Panels (if installed) in the following six steps:

- “Step 1 – Low Voltage Transformer Wiring” on page 7
- “Step 2 – Low Voltage Control Panel Wiring” on page 7
- “Step 3 – Communications Bus Wiring” on page 8
- “Step 4 – Line Voltage Wiring” on page 8
- “Step 5 – Connection to Expansion Zoning Panels” on page 8
- “Step 6 – Connection to Line Voltage Power” on page 8
Fig. 4. Wiring sequence.
Step 1 – Low Voltage Transformer Wiring
Factory pre-wiring of the Control Panels is shown as dotted lines in Fig. 4 on page 6.

In addition to the pre-wiring, run low voltage jumper wires from available R and C terminals on the top of the AQ254’s transformer to the R and C terminals on the top of any Expansion Zoning Panel connected to the AQ254.

Step 2 – Low Voltage Control Panel Wiring
a. Connect the Secondary loop temperature sensor to terminals 3 and 4 of the AQ15400B Control Module.
b. If using the 10Vdc modulating output to drive a mixing valve or variable speed pump, connect the modulating device’s motor leads to terminals 6 and 7.
c. If using a floating action motorized mixing valve, connect the valve’s actuator wires to terminals 8, 9 and 10, being careful to connect the COM wire to terminal 8, the Open wire to terminal 9, and the Close wire to terminal 10.

The AQ254 outputs three separate signals for controlling a mixing device (10Vdc, floating action and variable speed pump) from three different outputs on the Control Module, but only one of these three signals should be used to drive the chosen mixing device.

The variable speed signal is produced by the Control Module in response to calls for heat from the zones connected to the AQ254 and the water supply temperature in the secondary loop, measured by the secondary loop’s temperature sensor. The secondary loop’s supply water temperature is reset (similar to resetting the boiler loop temperature) according to either the outdoor temperature (OUTDOOR) or the measured load of the system (LOAD), from internal thermostat feedback. The type of reset applied to the secondary loop (OUTDOOR or LOAD) can be selected in the AQ254’s programming menus at system set-up. Refer to section 3, “Program and Configure the Expansion Control Panel” on page 9.
Step 3 – Communications Bus Wiring

Connect the communication bus wiring from the Exp Bus Out (terminals 13 and 14) of the last Zoning Module or Panel connected to the AQ2000 Series Master Control Panel, to the Exp.In connection (terminals 11 and 12) of the AQ254.

Connect the communication bus wiring from the Exp. Out (terminals 13 and 14) of the AQ15400B Control Module to the Exp Bus In connection (terminals 3 and 4) of the first Expansion Zoning Panel. Wire any additional Expansion Zoning Panels connected to the AQ254 in a daisy-chain fashion, connecting the Exp Bus Out (terminals 13 and 14) of one Expansion Zoning Panel to the Exp Bus In connection (terminals 3 and 4) of the next Zoning Expansion Panel.

If more than one AQ254 Control Panel will be installed in this system, note that the Communication Bus wiring for each AQ254 Panel must connect to the data bus of the Main AQ2000 Series Control Panel or the Expansion Zoning Panels connected to it (i.e. Group A on the AQ network); See Fig. 5 on page 7 for wiring multiple AQ254 Expansion Control Panels to an AQ2000 Series network. Any of the connection points marked as location “*” in Fig. 5 are acceptable.

Step 4 – Line Voltage Wiring

Next, connect the line voltage equipment – the secondary system pump (SEC) and, if required, the variable speed injection pump (Var. Injection) – to the bottom of the AQ15400B Control Module.

If an optional AUX.Pump or other line voltage device will be used with the line voltage-rated AUXiliarly dry contacts, wire it in at this point. The AUX.Pump dry contacts are line voltage-rated but unpowered. To connect a line voltage auxiliary device to these contacts, such as a group pump, power the device from the N and L terminals on the bottom of the AQ1540 Control Module, running the L (hot) lead through the AUX.Pump contacts and then to the installed device. See Figure 6 for an example of how to connect a group pump to the Aux.Pump contacts of the AQ254. If a low voltage device is connected to the AUX.Pump contacts, the wire insulation must be suitable for use in line voltage enclosures.

Step 5 – Connection to Expansion Zoning Panels

Connect the N and L line voltage inputs of the AQ254 (at the bottom of the AQ10X38 transformer) to the N and L line voltage inputs on the bottom of the Expansion Zoning Panel (the AQ10X38 transformer for Valve Zoning Panels) or the Zoning Module itself (for Pump Zoning Panels). A service switch should be installed on the hot (L) lead to the distribution panel.


Step 6 – Connection to Line Voltage Power

Finally, provide line voltage power to the AQ254 “Add-A-Temperature” Expansion Control Panel by connecting one of the sets of N and L terminals located on its AQ10X38 transformer to the corresponding N and L terminals on the AQ10X38 transformer of the AQ2000 Series Main Boiler Control Panel (e.g. AQ250, AQ25A, AQ251, AQ252, etc.), or directly to the electrical distribution panel. A service switch should be installed on the hot (L) lead to the distribution panel.

Switch on power to the AQ254 in order to configure its operating settings.

IMPORTANT

Be careful not to overload the electrical circuit to which these Control Panels are connected. Calculate the potential full load amp draw of all line voltage equipment combined (system and zone pumps) and if necessary, split up the Control Panels on more than one 15A fused circuit.

If the AQ254 and the main AQ2000 Series Control Panel are connected to separate circuits at the distribution panel, ensure that both circuits are in phase with each other.

CAUTION

Electrical Shock or Equipment Damage Hazard. Can shock individuals or short equipment circuitry.

When line voltage is applied to the AQ254 Control Panel and the front cover of the Panel is removed, there is a risk of electrocution. Be careful to avoid contact with the line voltage (N and L) terminals, either with your fingers or with metal tools (such as a screwdriver) when power is applied to the Control Panel.
3 PROGRAM AND CONFIGURE THE EXPANSION CONTROL PANEL

Control Panel Programming Defaults

Operation of the AQ254 Control Module is set by the menu selections accessible through the Control Module’s LCD screen. See “AQ254 – System Programming” on page 9 for instructions.

The AQ254 Control Panels are shipped from the factory with pre-defined values for all program settings. These factory default settings are commonly used by hydronics contractors across North America. Usually, most of the settings only need to be checked by the installing contractor to make sure they are suitable for the job, rather than having to input all the settings from scratch.

Although these factory default values are suitable for many installations, Honeywell recommends that they be reviewed, and changed as necessary, to get optimal performance of the hydronic system controlled by the AQ2000 Series products.

AQ254 – System Programming

This section describes how to navigate the user interface using the keypad and LCD display, and how to program the AQ254 Control Panel, which begins on page 10.

NOTES:
1. For information related to configuring Expansion Zoning Panels connected to the AQ254, see AQ2000 Series Expansion Zoning Panels - Product Data Honeywell literature number 69-1981.
2. For information related to installing and configuring the zone thermostats, refer to the Installation guide for the appropriate AQ1000 thermostat.

Keypad

The AQ254 User Interface consists of an LCD screen (8 characters by 3 rows) and a 3-button keypad for navigating the menus, as illustrated in Fig. 7.

OK: The OK button of the AQ254 has five uses:
1. To view the System Status page.
   - Push the OK button once.
2. To enter the INSTALLER menu to change a parameter.
   - Press and hold this button for 3 seconds to enter or leave the INSTALLER menu.
3. To enter a sub-menu while in the INSTALLER menus.
4. To toggle a parameter between two pre-defined values (applicable when editing a value while in INSTALLER mode).
5. To enter EDIT mode when changing a parameter's value or setting.

^ / v: The ^ / v buttons of the AQ254 have three uses while in the INSTALLER menus:
1. To scroll UP/DOWN in the menu screen.
2. To increase/decrease a menu item’s value (when EDITing a value).
3. To scroll through the possible values of a parameter (applicable when editing a value).

LCD Display

The LCD on the AQ254 Control Panel is used to:
— Monitor system status and performance.
— Select and/or modify control settings for the system.
— Diagnose and troubleshoot system problems.

The layout of the display is logical and simple to navigate. The information is displayed so that the installer can see at a glance which group of zones is being controlled by the AQ254 (Group B, C, or D) and the operating temperature of the Secondary loop. All system information is displayed in simple, straightforward English for quick system diagnosis. Fig. 7 illustrates the layout and features of the LCD display panel and keypad.

![Fig. 7. LCD display and keypad layout.](image-url)
LCD Display Navigation
This section describes how the keypad is used to navigate the LCD display and menus.

The LCD displays up to three lines of text at a time. For menus with more than three lines, use the up and down buttons (↑ or ↓) to scroll through the menu options. As the menu is scrolled up or down, the indicator arrow (→) shows which menu item is active.

1. If the active menu item is part of a list of predefined options (e.g., AUX.PUMP operation), press the OK button to edit this value (the word EDIT displays on the top right portion of the AQ254 LCD screen) and then press either the "-" or "+" button to scroll through the available options. With the indicator arrow (→) beside the chosen option, press the OK button again to accept this value, exit EDIT mode, and return to the previous menu. The option's value is automatically saved upon exiting EDIT mode.

2. If the active menu item requires you to define a value (e.g. a setpoint), position the indicator arrow beside the menu item and press the OK button to edit this value (the word EDIT displays on the top right portion of the AQ254 LCD screen) and then press either the "-" or "+" button to change the value for the menu item until the desired value is shown. Press the OK button again to accept this value and return to the previous menu. Again, the option's value is automatically saved upon exiting EDIT mode.

3. If the active menu item leads to a further sub-menu, pressing the OK displays that sub-menu. Scroll through this sub-menu to position the indicator arrow (→) beside the menu item to be reviewed or modified. Press the OK button to edit this value (the word "EDIT" displays on the top right portion of the AQ254 LCD screen). Choose one of the options provided or input the desired value for the menu item. Press the OK button again and your selection is saved.

4. To define or modify another item within the same menu, scroll the UP and DOWN buttons (↑ or ↓) until the indicator arrow (→) is beside the desired option and repeat Steps 1 through 3.

To move back (up) one level within a menu, scroll to the bottom of the current menu list and – with the active indicator arrow (→) beside the EXIT option, press the OK button.

To leave INSTALLER MODE and return to the Home Page display screen, press and hold the OK button for 3 seconds from any menu location within the INSTALLER menu.

HOME PAGE DISPLAY
The Home Page is the default view displayed on the AQ254 Control Panel's LCD screen (refer to "Home Page and System Status Page" on page 14 in the "Appendix").

The Home Page together with the System Status Page provide a service contractor extensive diagnostic information for troubleshooting the installation.

Programming the AQ254
Program the AQ254 by using the keypad and LCD display to select parameters from the Installer menu. Refer to Fig. 7 on page 9 for an illustration of the LCD screen and keypad.

NOTE: The figures in "Installer Menu Structure" on page 19 provide a graphical layout of the AQ254's Installer menu.

When a new AQ2000 component is connected on the AQUATROL network, it is seamlessly integrated in the system after a few seconds. If one or more components are disconnected or stop providing data to the network, a message will appear on the System Status page of the AQ254's LCD of the main AQ2000 Control Panel until the fault is corrected.

System Status Page
The System Status Page is intended for use by the building owner to view the system state and status.

NOTE: If there are any problems with the system's operation, the AQ254 displays error codes on the System Status Page display of the LCD panel. For details on these, refer to "Troubleshooting" on page 13.

Refer to Table 2 on page 14 in the "Appendix" for all of the possible status messages for the AQ254 Expansion Control Panel, the factory default values and permissible ranges for each option, and a brief description of each setting.

Installer Menu
The Installer Menu is used to:
— Set up and modify the Loop and Mixing settings.
— Access the Test and Purge functions to facilitate quick and simple commissioning of the system.

TO ACCESS THE INSTALLER MENU:
Press and hold the OK button for 3 seconds.

Refer to Table 3 on page 15 in the "Appendix" for all of the Installer Menu options for the Control Panel, the factory default values and permissible ranges for each option, and a brief description of how each setting affects the AQ254's operation.
4 TEST AND CHECK OUT THE INSTALLATION

Startup

IMPORTANT
Apply power to the AQ254 Control Panel only after all of the AQ2000 SERIES components (Control Panel, thermostats, sensors, Zoning Panels) have been connected to the other equipment in the hydronic heating system (boiler, zone valves or pumps, DHW, Aquastat®, etc.).

When powered, the AQ254 Control Panel begins its start-up routine, establishing communication with all other AQ2000 Series components on the AQUATROL network.

Test

The TEST feature enables the installer to checkout all of the system's outputs, sensors, and zone equipment as part of system commissioning (Checkout).

The TEST operation can be accessed via the TEST menu in the INSTALLER mode of either the main AQ2000 Series Control Panel or the AQ254 Expansion Control Panel. To begin testing the installation, position the indicator arrow (←) beside the equipment group to be tested [OUTPUTS, SENSORS, or ZONES] and press the OK button.

Test Outputs

- When TEST OUTPUTS is selected, the AQ254 LCD displays a list of all outputs that can be tested. To select an output to test, position the indicator arrow (←) beside that output and press the OK button to activate the output's relay. As each output is activated, a word icon for that output displays at the top or bottom of the LCD display (refer to Fig. 7 on page 9). The TEST routine activates the output relay until the OK button is pressed to turn off that output.
- To test additional outputs, navigate the list using the Up or Down arrow (↑ or v), position the indicator arrow (←) beside that output and press the OK button to begin testing. Press the OK button to de-activate the output relay and stop the test.
- When finished testing the outputs, scroll to the bottom of the TEST OUTPUTS menu to the EXIT menu item and press OK to move up one menu level to the main TEST menu.

NOTE: Any combination of outputs can be activated at the same time when testing the outputs.

Test Sensors

Scroll down to position the indicator arrow beside the SENSOR menu item and press OK.

When SENSOR is selected, the AQ254 LCD displays the temperature that the SECONDARY sensor is measuring. If the sensor is malfunctioning or is not properly connected to the AQUATROL network, the value "--" displays beside the SEC item on the LCD screen, instead of the mixed loop temperature. If the sensor reports a temperature that is illogical, investigate further by referring to "Troubleshooting" on page 13.

To leave the TEST SENSOR menu, scroll down to the EXIT menu item and press OK to move up one menu level to the main TEST menu.

Test Zones

Scroll down to position the indicator arrow beside the ZONES menu item and press OK.

- When ZONES is selected, the Installer can test all space heating zones connected to the AQ254 simultaneously or individually.
- If zones are tested simultaneously (ALL), all zone equipment is energized. There is a start delay of 1/10th of a second between each pump or valve to minimize the effect of inrush currents from the devices' motors.
- To test zones individually, position the indicator arrow (←) beside a selected zone and press the OK button to energize it. Press the OK button again to de-energize it. As each zone is tested, the Status LED on the Zoning Module associated with that zone is illuminated. To test additional zones, position the indicator arrow (←) beside the zone to be tested, press the OK button to energize the zone’s pump or valve and then press the OK button again to de-energize it.
- When finished testing the zones, scroll down to the EXIT menu item and press and hold the OK button for 3 seconds to return to the Home Page display.

Checkout

1. In Installer mode, disable the Warm Weather Shut Down (WWSD) temperature setting on the Main AQ2000 Series Control Panel by increasing the WWSD setting to 100°F (37°C). This way, the WWSD will not interfere with the zone operation during checkout.

   The WWSD setting can be found in the INSTALLER menu of the AQ25A, AQ251, or AQ252 in the "INSTALLER MENU > EQUIPMENT SETUP > BOILER SETTINGS menu.

   NOTE: Disabling WWSD does not apply to systems where an AQ250 is the Main AQ2000 Series Control Panel, as the AQ250 does not have the option of connecting an outdoor sensor to it.

2. Turn down the DHW AQUASTAT, if present, to avoid interfering with space heating control operation.

3. Turn up the set point of one of the AQ254's zone thermostats that is associated with the SECondary mixed water loop.

   3.1 The zone valve or pump associated with that zone will turn on.

   3.2 The Boiler T-T relay of the Main AQ2000 Series Control Panel is activated (Boiler displays in the DEMANDS section of the Control Module's LCD screen).

   3.3 The SECondary pump connected to the AQ254 is energized (SEC displays in the OUTPUTS section of the AQ254's LCD screen).

   3.4 The Boiler pump relay is activated (PRIMary displays in the OUTPUTS section of the LCD screen).

   3.5 The mixing device, injection pump or mixing valve, is energized and the word INJ (for an injection pump) or OPEN (for a mixing valve) displays on the AQ254's LCD screen.

   3.6 Depending on the settings for the AUX.PUMP (line voltage-rated dry contacts) on the AQ254, these contacts may also close, and if so, the word AUX displays in the OUTPUTS section of the LCD screen.
4. Turn down the set point of the AQ1000 zone thermostat. The zone valve or pump associated with that zone will turn off.
5. The Boiler T-T, SEConday pump, and Boiler pump relay outputs will be de-activated.

Repeat steps 2-5 for all zones associated with the AQ254’s mixed temperature loop.

6. Turn up the DHW AQUASTAT to simulate a call for domestic hot water.
   6.1 If the DHW device is a pump, the DHW relay output will be energized immediately. The Boiler pump relay will remain off.
   6.2 If the DHW device is a valve, the Boiler pump relay will come on after a delay to allow the zone valve to fully open. This delay is installer-defined from the EQUIPMENT SETUP>ZONING>TIME TO OPEN menu of the Main AQ2000 Series Control Panel.
6.3 Turn up the set point of one of the AQ1000 zone thermostats connected to the AQ254.
   6.3.1 If the DHW relay is configured to control a pump, and DHW Priority is selected, the Boiler and the associated zone pumps relay will remain off.
   6.3.2 If the DHW relay is configured to control a valve, and DHW Priority is selected, the Boiler pump will be activated after a delay for the DHW zone valve to open, but the associated zone relays will remain off.
   6.3.3 If DHW Priority is disabled, space heating zone pumps and valves will operate even during a call for DHW.
7. Turn down the DHW AQUASTAT to end the call for domestic hot water. Space heating operation should continue (if DHW priority is disabled) or resume (if DHW priority is enabled).
8. Repeat steps 3 through 7 for all space heating zones connected to an AQ254.

5 PURGE AIR FROM ALL SYSTEM AND ZONE PIPING

The PURGE operation on the AQ254 Expansion Control Panel allows the installer to purge all zones (loops) sequentially, or each zone individually, for a period of time selected in the TEST > PURGE menu. Purge time can be adjusted in increments of one minute, up to a maximum of 30 minutes per loop to be purged. After using the AQ254’s menus to select which loops to purge (ALL loops, or an individual loop) and for how long, position the indicator arrow (←) beside the START option and press the OK button. The START display will change to STOP and the AQ254 display will begin counting down the time remaining for the purge cycle.

Purging All Loops
When the purge time has elapsed for the first loop, the control will proceed to subsequent loops and perform the purge operation on each of them. After all selected loops have been purged, the display shows COMPLETE.

Note that only the loops controlled by the AQ254 are purged. This means that:
1. Zones that are programmed to use water on the Primary (boiler) loop will have their pump running while the Boiler pump (on the Main AQ2000 Series Control Panel) is not running;
2. Other AQ254 loops will not have been purged when the COMPLETE indication displays.

To remedy to this, it is preferable to use the Main AQ2000 Series Control Panel’s PURGE operation, which has the overall system control to achieve an efficient PURGE routine for all zones

6 DOCUMENT AND KEEP A RECORD OF ALL SYSTEM SETTINGS

After the hydronic installation with the AQ254 Control Panel has been set up and is operating properly, it’s important to document all the system settings for future reference.

Job Records
All AQ2000 Series Panels are shipped with Installation Job Records for documenting these settings. These should be filled out completely and saved in the Installing Contractor’s files.

Save Feature
In addition to the hardcopy Installation Job Records, the AQ254 Control Panel has a convenient Save feature that allows the installing contractor to save the specific equipment setting for this installation in the AQ254’s memory for future recall, in case the system’s settings are inadvertently changed. This feature is found in the SETUP > SAVE menu of the AQ254.

There are three levels of settings in the AQ254’s memory – CURRENT, FACTORY and SETUP.
• CURRENT settings are the settings that are currently displayed in any of the menus and are the settings that the AQ254 uses to operate. Any time a value is changed in any of the menus, the CURRENT settings are changed and these new settings are instantly used by the AQ254 Control Panel.
• FACTORY settings are the default values loaded at the factory and are the starting point for programming the AQ254. These values are permanently stored in memory and cannot be over-written or erased. The AQ254 can be restored to factory settings through the FACTORY option in the SAVE / RESTORE sub-menu. A warning prompt, RESTORE FACTORY—ARE YOU SURE?, displays and YES or NO must be chosen before proceeding. If YES is selected, the FACTORY settings are copied to the AQ254’s CURRENT settings and the Control Panel begins to operate with these values immediately.
• SETUP settings are the specific settings for this installation which an installer has saved after the AQ254 is set up and operating well. These are saved for future recall, in case the system’s settings are inadvertently changed.
   — To save settings for the first time, navigate to the SETUP > SAVE menu. Position the indicator arrow (←) beside SAVE and press OK. This saves current system settings to the SETUP values.
To retrieve the SETUP values at any time in the future, return to the SETUP > RESTORE menu and select RESTORE to load those values as the CURRENT settings. The system will now operate according to these retrieved settings.

If the current settings are modified after a RESTORE operation is performed, choosing SAVE subsequently will save these new settings, overwriting the previous SAVE settings stored in the AQ254’s memory.

CAUTION
If you change any system settings after a RESTORE SETUP operation, you change the current settings that the AQ254 uses as its basis of operation.

NOTE: There are two types of equipment settings used by the AQ2000 network to control the operation of the heating system: Zone Settings and System Settings.

a. When using AQ1000 thermostats, Zone Settings are designed to be adjustable by the User or the Installer and are stored in the faceplate of the AQ1000 thermostat. If the faceplates of two AQ1000 thermostats are switched, the settings (setpoints, zone minimum, zone maximum, etc.) will also be switched. These settings are NOT SAVED with the SETUP > SAVE operation.

b. System Settings are designed to be adjustable only by the system installer and are stored in the AQ2000 Control Modules (AQ250, AQ251, AQ25A, AQ252, AQ254, etc.). These are the settings that are saved with the SETUP > SAVE operation.

TROUBLESHOOTING
The following information helps the installer correctly identify system problems, making troubleshooting much faster.

Table 1 describes the possible status notices and error messages that can be communicated.

System Status Information
To aid in troubleshooting hydronic systems controlled by an AQ254, the operational status of the system is shown on the System Status page. Status notices and error messages display as appropriate, i.e., only those that are pertinent to the system’s current operation will be displayed.

See Table 2 on page 14 for a complete list of system status messages. The System Status page is available from the Home Page by pushing the OK button once.

This diagnostic information is very valuable and the System Status page is the first place a contractor should look for information when troubleshooting system problems.

Power Disruption
The system settings of the AQ254 are stored in non-volatile memory and are updated as they are changed. When a power disruption occurs, the current system configuration is retained in memory. When power is restored, the AQ254 Expansion Control Panel enters auto-detection mode, reads its previously-stored settings and all AQUATROL network components are initialized according to their saved parameters.

NOTE: Power disruptions have no impact on the AQ254’s saved settings, as they are stored in non-volatile memory and will remain saved indefinitely.

<table>
<thead>
<tr>
<th>LCD Display</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO GRP A</td>
<td>No network communication with the Main AQ2000 Series Control Panel (AQ250, AQ25A, AQ251, AQ252) is available. Check the wiring of the Exp. IN bus connection.</td>
</tr>
<tr>
<td>NO ZONES</td>
<td>No zones are detected on the AQ254’s sub-network.</td>
</tr>
<tr>
<td>NO SENSR</td>
<td>No secondary sensor has been connected to the AQ254.</td>
</tr>
<tr>
<td>IDLE</td>
<td>No activity on the secondary (mixed) loop and/or the zones associated with the AQ254.</td>
</tr>
<tr>
<td>DMND:XX</td>
<td>Percentage “XX” of the heating demand for the secondary (mixed) loop and/or the zones associated with the AQ254. The example show a demand of 100%.</td>
</tr>
</tbody>
</table>
## APPENDIX

The appendix provides AQ254 Expansion Control Panel User interface information for the:

- The Home Page and System Status Page
- Installer Programming menu
- Programming menu structure. See page 19.

### Home Page and System Status Page

The Home Page is the default display for the control panel. It provides general system information.

Press the OK button on the keypad to display the System Status Page.

---

### Table 2. Home Page and System Status Page.

<table>
<thead>
<tr>
<th>Menu Option</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOME Page</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X LOOP</td>
<td>B, C, or D</td>
<td>Defines whether this AQ254 is the first (B), second (C), or third (D) AQ254 Expansion Control Panel connected to the main AQ2000 Series Control Panel.</td>
</tr>
<tr>
<td>OUT:</td>
<td></td>
<td>Displays the outdoor temperature.</td>
</tr>
<tr>
<td>SEC:</td>
<td></td>
<td>Displays the temperature measured by the secondary mixed water sensor.</td>
</tr>
<tr>
<td>TGT:</td>
<td></td>
<td>Displays the mixed water temperature target calculated by the AQ254 controller.</td>
</tr>
<tr>
<td>SYSTEM STATUS(^a)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO GRP A</td>
<td></td>
<td>No network communication with the Main AQ2000 Series Control Panel (AQ250, AQ25A, AQ251, AQ252) is available. Check the wiring of the Exp. IN connection.</td>
</tr>
<tr>
<td>NO ZONES</td>
<td></td>
<td>No zones are detected on the AQ254’s sub-network. Check the wiring of the Exp. OUT connection.</td>
</tr>
<tr>
<td>NO SENSR</td>
<td></td>
<td>No secondary sensor has been connected to the AQ254</td>
</tr>
<tr>
<td>WWSD</td>
<td></td>
<td>The system is in Warm Weather Shutdown mode; calls for heat from the space heating zones connected to the AQ254 will not be served.</td>
</tr>
<tr>
<td>NO DMND</td>
<td></td>
<td>No activity on the secondary (mixed) loop and/or the zones associated with the AQ254</td>
</tr>
<tr>
<td>IN PURGE</td>
<td></td>
<td>Purge operation is active somewhere on the AQ network.</td>
</tr>
<tr>
<td>NO LINE VOLTAGE</td>
<td></td>
<td>No line voltage has been detected on the N and L (line voltage input) terminals on the AQ254 Expansion Control Module.</td>
</tr>
<tr>
<td>MIX IDLE</td>
<td></td>
<td>MIX items display only one at a time. They indicate whether the AQ254 mixing equipment is de-energized because the target temperature has been reached while an AQ254 zone is still being served (MIX IDLE), actively drawing hot water from the PRimary loop (MIX HEAT), in purge operation following a heating cycle (MIX PURG), or OFF.</td>
</tr>
<tr>
<td>MIX HEAT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIX PURG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIX OFF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INJ: XX%</td>
<td></td>
<td>Injection percentage displays from 0% to 100%.</td>
</tr>
</tbody>
</table>

\(^a\) Status notices and error messages display as appropriate. Only those that are pertinent to the system’s current operation are displayed.
**Installer Programming Menu**

The Installer Menu allows you to set up and modify system settings that typically would be adjusted by a trained installer. These include settings such as mixing temperatures limits, injection, and valve operation.

System statistics, testing, and purging are also available from the Installer Menu.

Illustrations of the complete Installer Menu begin on page 19.

To access the Installer Menu, press and hold the OK button for 3 seconds.

**NOTE:** To exit Installer Mode, select the Installer Exit menu option.

---

**Table 3. Installer Menu.**

<table>
<thead>
<tr>
<th>EQUIPMENT SETUP</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Menu Option</strong></td>
<td><strong>Range</strong></td>
<td><strong>Factory Default</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>MIXING</td>
<td>Settings that the AQ254 uses for Secondary loop operation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIX HIGH TEMP:</td>
<td>- - 80°F to 210°F (27°C to 99°C)</td>
<td>140°F (60°C)</td>
<td>The maximum temperature that the control can use as a target for the secondary loop supply water. The MIX HIGH TEMP cannot be set below the MIX LOW TEMP setting. • “- -” means Off (not used).</td>
</tr>
<tr>
<td>MIX LOW TEMP:</td>
<td>- - 35°F to 150°F (2°C to 66°C)</td>
<td>95°F (35°C)</td>
<td>The minimum temperature that the control can use as a target for the secondary loop supply water. The MIX LOW TEMP cannot be set above the MIX HIGH TEMP setting. • “- -” means Off (not used).</td>
</tr>
<tr>
<td>RESET:</td>
<td>AUTO / OUTDOOR / LOAD / NONE</td>
<td>AUTO</td>
<td>Selects the calculation method (algorithm) that the control uses to set the target temperature for the secondary loop supply water. AUTO option applies the same reset method selected for the main AQ2000 Series Control Panel.</td>
</tr>
<tr>
<td>DESIGN TEMP:</td>
<td>- - 70°F to 210°F (21°C to 99°C)</td>
<td>120°F (49°C)</td>
<td>The supply water temperature required in the mixed temperature SECondary loop when the outdoor temperature is at the OUTDOOR LOW temperature. • “- -” means Off (not used).</td>
</tr>
<tr>
<td>10V MOD:</td>
<td>DISABLE / 0V to 10V / 2V to 10V</td>
<td>DISABLE</td>
<td>Produces voltage on the 10 Vdc low voltage terminals (6 and 7) according to the setting chosen.</td>
</tr>
<tr>
<td>INJECT.:</td>
<td>ENABLE / DISABLE</td>
<td>ENABLE</td>
<td></td>
</tr>
<tr>
<td>MIX.VLV:</td>
<td>DISABLE / ENABLE</td>
<td>DISABLE</td>
<td></td>
</tr>
<tr>
<td>VLV OPEN TIME:</td>
<td>5 to 230 seconds</td>
<td>160 (seconds)</td>
<td>Available only when MIX.VLV = ENABLE</td>
</tr>
<tr>
<td>VLV ACTION:</td>
<td>DIRECT / REVERSE</td>
<td>DIRECT</td>
<td>Available only when MIX.VLV = ENABLE</td>
</tr>
<tr>
<td>- EXIT -</td>
<td>n/a</td>
<td>n/a</td>
<td>Exits this sub-menu and returns to the Installer menu.</td>
</tr>
</tbody>
</table>

**PRI/SEC**

Identifies the heating water loop that each space heating zone is supplied by: the primary boiler loop (PRI) or the secondary mixed loop (SEC).

Displays the PRI/SEC sub-menu with the following selections for all or individual zones:

| ALL PRI | n/a | n/a | Applicable only to the 16 zones of this AQ254 group of zones (B, C, or D). |
| ALL SEC | n/a | n/a | Applicable only to the 16 zones of this AQ254 group of zones (B, C, or D). |
| - EXIT - | n/a | n/a | Exits this sub-menu and returns to the Installer menu. |
Table 3. Installer Menu. (Continued)

<table>
<thead>
<tr>
<th>Menu Option</th>
<th>Range</th>
<th>Factory Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUX</td>
<td>Settings which the AQ252 uses to control the closure of the AUX.OUT dry contacts.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| AUX:        | ZONE OPN / BOILER / GROUP | ZONE OPN | Based on the setting chosen, the AQ252 closes the AUX OUT dry contact terminals when:  
- ZONE OPN: The end switch of any zone valve on this AQ254’s group of zones closes or a zone pump energizes.  
- BOILER: The boiler pump energizes.  
- GROUP: Any of the thermostats in a Group of zones (identified by the Zoning Module’s DIP switch #7 [AUX] being switched to YES) energize. |
| SETUP       | Options for saving settings or restoring previously-saved settings. |
| SAVE        | n/a         | n/a             | Enables installer to SAVE system settings once the system has been set up and is working well; Designed to facilitate quick recovery to proper system operation in the event of inadvertently changing control settings (e.g., tampering with the system settings by an inexperienced user). |
| RESTORE     | n/a         | n/a             | Selecting this option restores all settings to those saved by the Installer with the SAVE operation.  
RESTORE is only displayed as a menu option if installer settings have previously been saved using the SAVE menu item.  
- Only displays if the installer has previously saved the (non-factory default) settings using the SAVE feature. |
| FACTORY     | n/a         | n/a             | Selecting this option restores all settings to their factory defaults. |
| - EXIT -    | n/a         | n/a             | Exits this sub-menu and returns to the Installer menu. |
| TEST        | Tests the outputs, sensor, and zones connected to the AQ254 to ensure correct operation, and provides the Purge feature. |
| OUTPUTS     | Tests the individual system outputs to ensure correct operation. |
| SEC PUMP    | ON / OFF    | OFF             | Energizes / de-energizes the line voltage terminals (9 and 10) marked Sec. when switched to ON / OFF respectively. |
| INJ PUMP    | 0% to 100%  | 0%              | Produces a variable voltage on the Var. Injection line voltage terminals, according to the setting chosen (0% to 100%) in increments of 10%. |
| MIX VLV     | OFF / OPEN ON / CLOSE ON | OFF | Energizes the Open terminal (9) or the Close terminal (10), as selected, of the Motorized Mixing Valve to open or close the valve. |
| 10V MOD     | 0V to 10V   | 0V              | Produces voltage on the 10 Vdc low voltage terminals (17 and 18), according to the setting chosen (0V to 10V), in increments of 1V. |
| AUX         | ON / OFF    | OFF             | Closes / opens the line voltage rated dry contacts marked Aux. when switched to ON / OFF, respectively. |
| SEC PUMP    | ON / OFF    | OFF             | Energizes / de-energizes the line voltage terminals marked Sec. when switched to ON / OFF respectively. |
| EXIT        | n/a         | n/a             | Exits this sub-menu and returns to the Installer menu. |
Table 3. Installer Menu. (Continued)

<table>
<thead>
<tr>
<th>Menu Option</th>
<th>Range</th>
<th>Factory Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEST (continued)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SENSOR Tests the secondary mixed loop temperature sensor to ensure correct operation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| SEC | - - LO -49° to 257°F (-45° to 125°C) Hi | n/a | Displays the temperature measured by the secondary mixed water sensor.  
• "- -" means sensor is disconnected  
• LO means temperature reading is below -49°F (-45°C)  
• HI means temperature reading is above 257°F (125°C) |
| EXIT | n/a | n/a | Exits this sub-menu and returns to the Installer menu. |
| ZONES Tests the zone equipment individually, or sequentially, to ensure correct operation | | | |
| ALL | n/a | OFF | Sequentially energizes / de-energizes all zones connected to the AQ254 group of zones.  
• 0 displays when the AQ254 Control Module has confirmation that the zone’s pump is de-energized or its valve is fully closed.  
• 1 displays when the AQ254 Control Module has confirmation that the zone’s pump is energized or its valve is fully open.  
In the case of pump zoning, the 1 displays no more than 5 seconds after the activation of the relay. In the case of valve zoning, the 1 displays either when the zone valve operating time (defined in EQUIPMENT SETUP > ZONING > ZONE VALVES TIME TO OPEN on the main AQ2000 Series Control Panel) has elapsed (AQ1554P2) or when the valve’s end switch is closed (AQ1574V4). |
| ZONE B-1 0/1 … ZONE B-16 0/1 | 0/1 | 0 | Energizes / de-energizes each zone individually.  
• 0 displays when the AQ254 Control Module has confirmation that the zone’s pump is de-energized or its valve is fully closed.  
• 1 displays when the AQ254 Control Module has confirmation that the zone’s pump is energized or its valve is fully open. |
| EXIT | n/a | n/a | Exits this sub-menu and returns to the Installer menu. |
| PURGE Purges all (or individual) zones for the period of time selected in the PURGE TIME menu option | | | |
| PURGE TIME | 1 to 30 (minutes) | 5:00 (minutes) | Duration of purge for each zone selected. |
| PURGE | PURG ALL / DHW / PURGE 1 … PURGE 16 ALL | Installer selects which zones to purge (all, only DHW, or individual zones). |
| START PURGE | START PURGE / STOP PURGE n/a | Starts and Stops purge operation. |
| PURGE OFF | WAIT VALVE / PURGE COMPLETE n/a | Indicates status of the system during a Purge operation. Displays only if START PURGE is active. |
| EXIT | n/a | n/a | Exits this sub-menu and returns to the Installer menu. |
### Table 3. Installer Menu. (Continued)

<table>
<thead>
<tr>
<th>Menu Option</th>
<th>Range</th>
<th>Factory Default</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATISTICS</td>
<td>Displays the summary activity</td>
<td></td>
<td>(hours of operation or cycles since last reset)</td>
</tr>
<tr>
<td>LAST RST</td>
<td>Max. 24,855 days (68 years)</td>
<td>0</td>
<td>Number of days since last reset.</td>
</tr>
<tr>
<td>AUX.PMP:</td>
<td>Maximum of 596,523 hours (68 years)</td>
<td>0H</td>
<td>Hours of operation of the relay since last reset.</td>
</tr>
<tr>
<td>SEC PMP:</td>
<td>Maximum of 596,523 hours (68 years)</td>
<td>0H</td>
<td>Hours of operation of the relay since last reset.</td>
</tr>
<tr>
<td>INJ PMP:</td>
<td>Maximum of 596,523 hours (68 years)</td>
<td>0H</td>
<td>Hours of operation of the relay since last reset.</td>
</tr>
<tr>
<td>AUX OUT ACTIV</td>
<td>Maximum of 596,523 hours (68 years)</td>
<td>0H</td>
<td>Hours of operation of the relay since last reset.</td>
</tr>
<tr>
<td>MIX.VLV. OP. CYCLE</td>
<td>Maximum of 10,000,000 cycles</td>
<td>0</td>
<td>Displays number of valve open cycles since last reset.</td>
</tr>
<tr>
<td>MIX.VLV. CL. CYCLE</td>
<td>Maximum of 10,000,000 cycles</td>
<td>0</td>
<td>Displays number of valve close cycles since last reset.</td>
</tr>
<tr>
<td>RESET ? ARE YOU SURE?</td>
<td>YES / NO</td>
<td>NO</td>
<td>Selecting this item resets all of the summary and zone activity values to zero.</td>
</tr>
</tbody>
</table>

- EXIT -

Exits the Installer menu and returns to the Home Page.
Installer Menu Structure

To display the Installer Menu, press and hold the OK button for 3 seconds. Fig. 9 illustrates all possible Installer Menu selections.

Fig. 9. Installer Menu Structure.