

Aquatrol AQ2000 Series

Electronic Controls for Residential Hydronic Heating

Honeywell



Learn More

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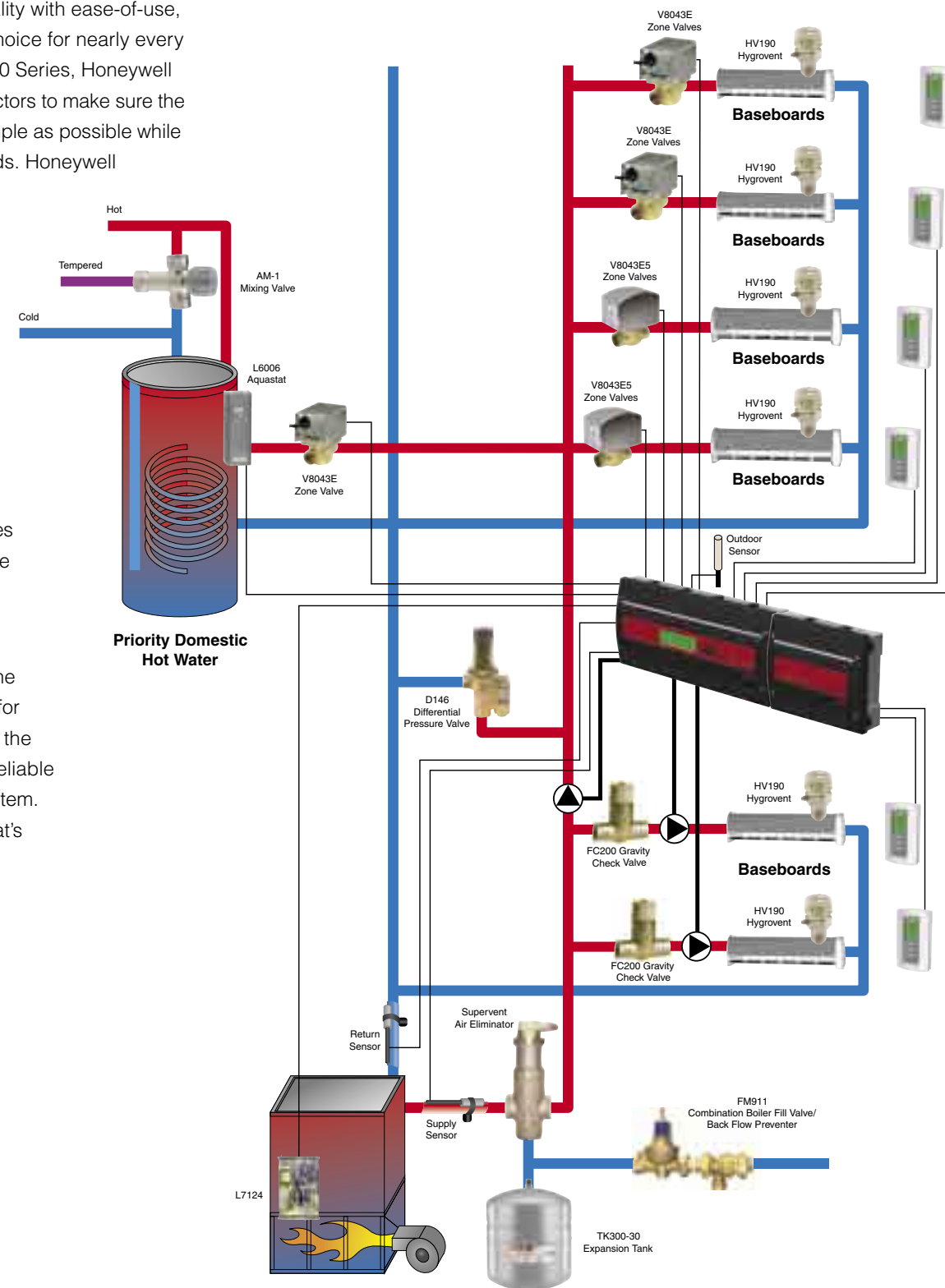
Simple. Powerful. Affordable.

AQ2000 Series Controls Fall Right Into Place

Some hydronic system controls are basic and have limited features and functionality. Others are so complex that they're difficult to install and use.

Honeywell Aquatrol AQ2000 Series electronic controls combine functionality with ease-of-use, making them the perfect choice for nearly every application. For the AQ2000 Series, Honeywell worked directly with contractors to make sure the new controls worked as simple as possible while meeting all contractor needs. Honeywell also drew upon its control technology knowledge and experience gained through years as a leading hydronics supplier in both Europe and North America. The result was the AQ2000 Series, with everything from a 2-wire communications thermostat wiring to the pure power of control with easy expansion.

Simply put, Honeywell is one of the most trusted names for hydronic components, and the AQ2000 Series gives you reliable control to run the entire system. Simplicity and power — that's the AQ2000 Series.



Not a typical system. Illustration for reference purposes only.

Easy To Install. Easy To Use.

Honeywell Aquatrol AQ2000 Series controls are designed to keep even the most complex systems simple.

EASY SELECTION

Selecting the proper components for each system has never been easier:

- Selection tools are available in either print or online
- Many key features come standard
- Answering 4 simple questions gets you exactly the right configuration of controls for the job — less than one minute from design to bill of materials

EASY INSTALLATION

Ready to use with minimal installer setup:

- Expansion panels allow for system design versatility
- Expansion panels connect simply and require only six control wires to add on new modules
- Designed with plenty of space for wiring
- Control panel enclosures are designed with multiple ground terminals
- Controls work with 2-wire, polarity-insensitive communicating thermostats, so retrofit jobs are easier to install — plus, it's impossible to wire them backwards

EASY COMMISSIONING

Get up and running swiftly:

- Pre-programmed with most common settings
- Final checklist quickly confirms all is working properly
- Auto test program sequentially activates and tests all system inputs and outputs for 15 seconds
- Purge program removes air from zones sequentially operating from 5 to 30 minutes for each zone, defined by the installer

EASY TROUBLESHOOTING

Multiple features simplify troubleshooting during setup or in the event of a malfunction:

- Zone LEDs are illuminated on a call for heat
- An audible “click” occurs when relays are activated
- Diagnostic data (including zone ID number) is displayed on the LCD to indicate the status of the system; system problems — what they are, and time when they occurred — are displayed on the LCD. For AQ250, diagnostics data is displayed by coded blinking LEDs

EASY CHOICE

The list of reasons to choose Honeywell AQ2000 Series controls goes on and on:

- Zone synchronization — Extends boiler life and saves energy by minimizing frequent boiler cycling.
- Boiler short-cycling protection — Used in combination with zone synchronization to keep boiler on for at least 2 minutes and prevent boiler from firing for at least 2 minutes after the last firing.
- Boiler post purge — Saves energy by delivering retained heat stored in the boiler to zones where it can be used.
- Freeze protection — Increases equipment life by activating all valves and pumps if communication is lost between the zones and the controller.

- Pump/valve exercise — Extends equipment life by periodically activating all valves and pumps to prevent seasonal start-up problems.
- Domestic hot water priority (override) protection — Ensures adequate DHW supply even on the coldest days (priority) while still supplying sufficient hot water to space heating zones during sustained DHW demand.
- Auto test — Confirms equipment is in working order by energizing and de-energizing all inputs and outputs at time of commissioning. AQ250 tests all inputs/outputs in sequence. AQ251 offers increased flexibility, allowing for testing of only the inputs, outputs, demands and other functions as needed.
- Auto purge — Sequenced purging of all zones, to quickly remove air before system start-up. Available only on the AQ251.

Control Panels

Thanks to Honeywell's modular design, you'll have true installation flexibility. From basic relay zone control to more advanced systems, Honeywell AQ2000 Series electronic controls have you covered.



AQ250 Relay Control Panels

Model Number	Application
AQ2504B2	For use with pumps or zone valves without end switches
AQ2504B4	For use with zone valves with end switches

Zoning Control For Up To 4 Zones:

- Line or low-voltage output
- 1-stage zoning
- Controls pumps or zone valves
- Can be expanded to a total of 16 zones with AQ255 or AQ257 zoning expansion panels

Loaded With Standard Features:

- Use with AQ1000TN2 2-wire "polarity insensitive" communicating thermostats
- Zone synchronization
- Boiler short cycling protection
- Boiler post purge
- Freeze protection
- Pump/valve exercise
- Domestic hot water priority (override) protection
- Automated test feature for quick start-up and simple troubleshooting
- Integral domestic hot water management

AQ251 Reset Control Panels

Model Number	Application
AQ2514B2	For use with pumps or zone valves without end switches
AQ2514B4	For use with zone valves with end switches

All The Great Features Of AQ250 Controls, Plus:

- Customizable control settings and schedules allow for greater level of control and comfort
- Outdoor temperature compensation (reset)
- Allows outdoor temperature to be displayed on all thermostats
- Central set-back schedules available
- Automated purge feature for quick start-up and simple troubleshooting

DHW Management Included!

Domestic Hot Water Priority and
Domestic Hot Water Priority Override

Both are included with the AQ250 or AQ251 controller — no need to use one of your 4 heating zones to run DHW!

Also available for one-zone applications — [AQ2511B0](#)



Zoning Expansion Panels

Control of pumps and zone valves has never been easier. The modular flexibility allows for zoning with pumps and valves on the same installation.



AQ255 and AQ257 Zoning Expansion Panels — Zone Valves

Model Number	Application
AQ2554V2	4 zones with zone valves without end switches
AQ2574V4	4 zones with zone valves with end switches

Works With AQ2000 Boiler Control Panels And AQ1000 Communicating Thermostat To Provide These Superior Functions:

- AQ255 controls up to 16 zone valves without end switches
- AQ257 controls up to 16 zone valves with end switches
- Zone synchronization
- Auto test function to test zones at system start up
- Armchair programmable (can be programmed at your desk and taken to the job site "ready-to-install")

Zoning Expansion Panel Features:

- R-C transformer and B-B data bus terminal connections and network communication for easy expansion
- Status LCDs for easy diagnostics
- Use with 2-wire "polarity insensitive" communicating thermostats

AQ255 Zoning Expansion Panels — Pumps

Model Number	Application
AQ2554P2X	4 zones with pumps
AQ2558P2X	8 zones with pumps

Works With AQ2000 Boiler Control Panels And AQ1000 Communicating Thermostat To Provide These Superior Functions:

- Controls up to 16 zones
- Zone synchronization
- Auto test function to test zones at system start up
- Armchair programmable (can be programmed at your desk and taken to the job site "ready-to-install")

Zoning Expansion Panel Features:

- R-C transformer and B-B data bus terminal connections and network communication for easy expansion
- Status LCDs for easy diagnostics
- Use with 2-wire "polarity insensitive" communicating thermostats

Communicating Thermostat

You can truly get all of your hydronic system control components and controls from one supplier, including the thermostat. And just like Honeywell AQ2000 Series controls, the AQ1000TN2 communicating thermostat is easy to install and use.



AQ1000TN2 Communicating Thermostat

- Communication enables easy 2-wire “polarity insensitive” installation for quick and easy wiring of both retrofit and new construction jobs
- Outdoor temperature is shown on display (with outdoor reset models only)
- Can display temperature as Fahrenheit or Celsius
- Easy-to-read backlit display
- Settings memory retained on power loss
- Separate installer set-up and homeowner menus

Thermostat Selection Couldn't Be Easier — Only the AQ1000TN2 is designed for use with AQ2000 Series Control Panels. It's the only thermostat you need for enhanced communication capabilities between the thermostat and the control panels to run the entire system more efficiently.

Choosing Components

When using AQ2000 controls, selecting components could not be easier. All it takes are four easy steps.

- 1. Outdoor temperature compensation** (reset – yes or no)
- 2. Zoning equipment** (pumps or valves — with or without end switches)
- 3. Number of zones**
- 4. Thermostats** (add one AQ1000TN2 for every zone being controlled)

		No Reset			Reset		
		Zone pumps	Zone valves without end switches	Zone valves with end switches	Zone pumps	Zone valves without end switches	Zone valves with end switches
Control Panel Selection	1 zone				AQ2511B0		AQ2511B0
	1 – 4 zones	AQ2504B2			AQ2514B2		
			AQ2504B2			AQ2514B2	
	5 – 8 zones			AQ2504B4			AQ2514B4
		AQ2504B2 + AQ2554P2X			AQ2514B2 + AQ2554P2X		
	9 – 12 zones		AQ2504B2 + AQ2554V2			AQ2514B2 + AQ2554V2	
		AQ2504B2 + AQ2558P2X					AQ2514B4 + AQ2574V4
	13 – 16 zones		AQ2504B2 + AQ2554V2 (2)		AQ2514B2 + AQ2558P2X		
				AQ2504B4 + AQ2574V4 (2)		AQ2514B2 + AQ2554V2 (2)	
		AQ2504B2 + AQ2558P2X + AQ2554P2X			AQ2514B2 + AQ2558P2X + AQ2554P2X		
			AQ2504B2 + AQ2554V2 (3)			AQ2514B2 + AQ2554V2 (3)	
				AQ2504B4 + AQ2574V4 (3)			AQ2514B4 + AQ2574V4 (3)

* Panels come with 4 zones pre-wired from factory

AQ2000 SERIES FEATURES	CONTROL PANELS					ZONING EXPANSION PANELS			
Model Numbers	AQ2504B2	AQ2504B4	AQ2511B0	AQ2514B2	AQ2514B4	AQ2554V2	AQ2574V4	AQ2554P2X	AQ2558P2
Control Capabilities	Relay Control Panel	Relay Control Panel	Reset Control Panels	Reset Control Panels	Reset Control Panels	Zone Expansion Module	Zone Expansion Panel	Zone Expansion Panel	Zone Expansion Panel
Number of Zones	4 Zones	4 Zones	1 Zone	4 Zones	4 Zones	4 Zones	4 Zones	4 Zones	8 Zones
Valves or Pumps	Pumps or Zone Valves Without End Switches	Zone Valves With End Switches	Pumps or Zone Valves With End Switches	Pumps or Zone Valves Without End Switches	Zone Valves With End Switches	Zone Valves Without End Switches	Zone Valves With End Switches	Pumps	Pumps
Boiler Specifications									
Boiler Actual Set Point			•	•	•				
Boiler Minimum Set Point			•	•	•				
Boiler Maximum Set Point			•	•	•				
Boiler Minimum Return Temperature									
Switchable Load Adaptive Boiler Reset			•	•	•				
Selectable On/Off or Modulating Boiler			•	•	•				
Boiler Mass	•	•	•	•	•				
Boiler Operations									
Automatic/Manual Mode			•	•	•				
Boiler Min. Differential			•	•	•				
Boiler Max. Differential			•	•	•				
Fire Delay			•	•	•				
Pump/Valve Exercise	•	•	•	•	•	•	•	•	•
Freeze Protection	•	•	•	•	•	•	•	•	•
Selectable Post Purge Time for Boiler and DHW	•*	•*	•	•	•				
Programs									
Temperature Setback Program			•	•	•				
Temperature Setback Program (via programmable thermostat)	•	•	•	•	•				
Design Temperatures									
Outdoor Low			•	•	•				
Warm Weather Shut Down			•	•	•				
Domestic Hot Water (DHW)									
DHW Priority (switchable)	•	•	•	•	•				
DHW Priority Override	•	•	•	•	•				
DHW Valve or Pump	•	•	•	•	•				
Zoning Controls									
Zone Valves or Pumps	•			•		•		•	•
Zone Synchronization	•	•	•	•	•	•	•	•	•
Temperature Sensors									
Outdoor			•	•	•				
Supply	•	•	•	•	•				
Return	•	•	•	•	•				
Demands (Dry Contacts)									
Aux. In	•	•	•	•	•				
Call for Heat	•	•	•	•	•				
DHW Demand	•	•	•	•	•				
Other Features									
Status LEDs for valves/pumps						•	•	•	•
Status LED and/or LCD Icon for Primary Pump, Burner and DHW	•	•	•	•	•				
System Auto Test Routine	•	•	•	•	•	•		•	•
System Purge Routine	•	•	•	•	•	•	•	•	•
Arm-chair Programmable	•	•	•	•	•	•	•	•	•

* This feature is always selected and the time is fixed.

Installing And Connecting Components Is Easy With Honeywell

Simplified Wiring

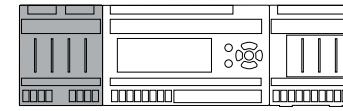
- Logical interface — the modules in all control panels are laid out in the same way, so it's easy to connect them together.
- Easy access 24V power output.
- Connecting panels for multi-zone systems is easy thanks to integral wiring channels that serve as snap fit connectors between components for easy installation and alignment of panels.
- Straightforward terminal strip design offers plenty of room for wiring; plus, terminals are located in the front.
- All relay and reset control panels are factory pre-wired and come complete with transformer, controller and zoning modules for up to four zones, minimizing installation time. All control panels are expandable up to 16 zones,

communicating on the same network.

- The AQ2511B0 reset control panel can provide outdoor temperature compensation for systems that are configured as one large zone. Ideal for retrofitting outdoor temperature compensation to an existing installation without zoning changes.

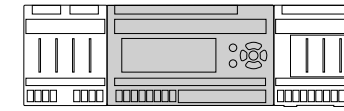
Additional Easy Connections

- Switching from pumps to valves is easier than ever because the AQ2504B2 and AQ2514B2 control panels have built-in zoning modules that can be used by either pumps or non-end switch zone valves.
- Only two wires are required to connect thermostats, plus polarity doesn't matter. That's especially valuable for retrofit jobs where the thermostat wires are already in the wall.



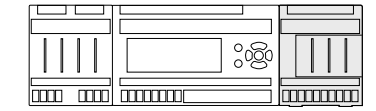
Transformer Module

- Powerful 38 VA capacity.
- Factory pre-wired to internal electronics (control and zoning modules).
- Easily drives internal electronics and zone valves.
- Powerful enough to run four zones of valves without needing to add external transformers.
- Re-settable electronic fuse protects transformer from excessive power demands.



Control Module

- Easy-to-read backlit screen.
- Simple and logically laid-out menu selection.
- Clearly labeled input and output connections.
- Integrated control of Domestic Hot Water — priority and priority override.



Zoning Module

- LED lights for easy diagnostics.
- Auto test function allows for operator-controlled testing of zones; includes pause/restart capability.
- Easily switch from zone valves to pumps with same zoning module – just flip one DIP switch!
- Allows zoning with either “Normally Open” or “Normally Closed” zone valves.
- Zones can be set to operate in conjunction with the main boiler pump or a parallel group pump.
- Adjacent zoning panels can operate different zone equipment – one panel may control 4 pumps and another may control 4 zone valves.

