

# Single and Multi-Function Aquastat Controllers

## L4006; L6006 Aquastat® Controller



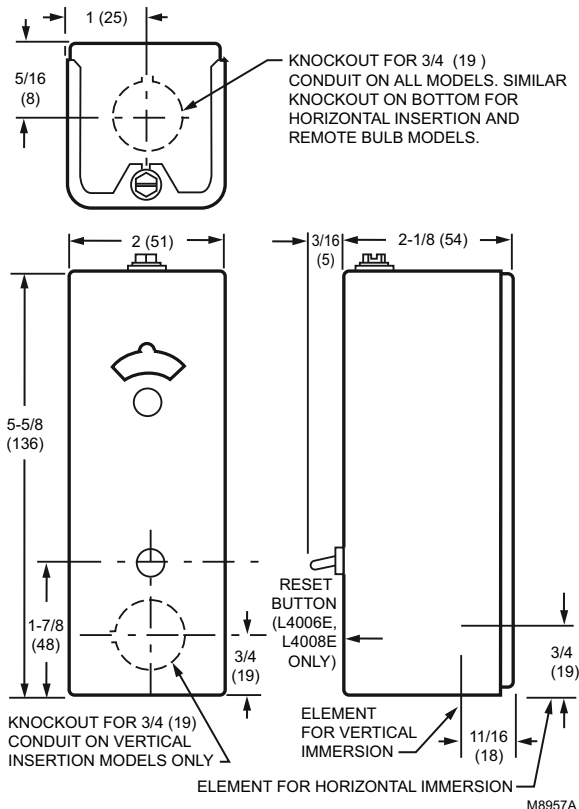
Aquastat® Controllers are immersion type devices for limiting or regulating the temperature of liquids in boilers, storage tanks, and other applications where temperature control is required.

- Totally enclosed Micro Switch™ snap-acting switches operate on temperature rise to setpoint.
- Visible control point scale and external adjustment screw permit easy setting.
- Horizontal or vertical insertion of the sensing element.
- Direct or well immersion of the sensing element.
- Models available for strap-on mounting.
- Remote bulb model may be used to sense air temperature in ducts and in outside air sensing applications.
- TRADELINE models include heat-conductive compound.
- Select models have wells.

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### Dimensions in inches (millimeters)



**Case Dimensions:** 5 5/8 in. high x 2 in. wide x 2 1/8 in. deep  
(143 mm high x 51 mm wide x 54 mm deep)

**Maximum Ambient Temperature:** 150 F (66 C)

**Operating Temperature Range:** (100 F to 240 F 38 C to 116 C)

### Approvals:

**American Gas Association IAS:** AGA Certified

**Canadian Standards Association:** Certified: File No. LR95329-1

**Underwriters Laboratories Inc.** UL Component Recognized: File No. MP466, Vol. 6, Sec.1, Guide No. MBPR2

# Single and Multi-Function Aquastat Controllers

Product Number	Electrical Ratings		
	(Full Load)	(Locked Rotor)	(Millivolt)
L4006A1009	5.1A @ 240 Vac; 8A @ 120 Vac	30.6A @ 240 Vac; 48A @ 120 Vac	0.25 A @ 0.25 to 12 Vdc
L4006A1017			
L4006A1132			
L4006A1678			
L4006A1959	1.3A @ 240 Vac; 2.6A @ 120 Vac	7.8A @ 240 Vac; 15.6A @ 120 Vac	—
L4006A1967	5.1A @ 240 Vac; 8A @ 120 Vac	30.6A @ 240 Vac; 48A @ 120 Vac	0.25 A @ 0.25 to 12 Vdc
L4006A2007			
L4006A2148			
L4006B1007			
L4006B1155			
L4006B1163	1.3A @ 240 Vac; 8A @ 120 Vac	30.6A @ 240 Vac; 48A @ 120 Vac	0.25 A @ 0.25 to 12 Vdc
L4006E1067			—
L4006E1091			0.25 A @ 0.25 to 12 Vdc
L4006E1109			
L4006E1117			
L4006E1125			
L4006H1004	5.1A @ 240 Vac; 8A @ 120 Vac	30.6A @ 240 Vac; 48A @ 120 Vac	0.25 A @ 0.25 to 12 Vdc
L6006A1004			
L6006A1012			
L6006A1145			
L6006A1244			
L6006C1018			
L6006C1059			

Product Number	Application	Differential Temperature		Bulb Size		Spud Size		Insulation Depth		Switching Action	Mounting	Includes
		(F)	(C)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)			
L4006A1009	High or Low limit	5 F Fixed	3 C fixed	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	3/4 in. NPT	19 mm NPT	1 1/2 in.	38 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	1 1/2 in. (38 mm) insulation
L4006A1017	High or Low limit	5 F to 30 F adj.	3 C to 17 C adj.	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	3/4 in. NPT	19 mm NPT	1 1/2 in.	38 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	1 1/2 in. (38 mm) insulation
L4006A1132	High or Low limit	5 F Fixed	3 C fixed	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	3/4 in. NPT	19 mm NPT	3 in.	76 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	3 in. (76 mm) insulation, stop factory-set at 160 F (71 C).
* L4006A1678	High or Low limit	5 F to 30 F adj.	3 C to 17 C adj.	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	3/4 in. NPT	19 mm NPT	3 in.	76 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	3 in. (76 mm) insulation, stop factory-set at 240 F (116 C), and heat-conductive compound.
* L4006A1959	High or Low limit	2 F fixed	1 C fixed	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	3/4 in.	19 mm	3 in.	76 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	1 1/2 in. (38 mm) insulation and heat-conductive compound.
* L4006A1967	High or Low limit	5 F to 30 F adj.	3 C to 17 C adj.	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	3/4 in.	19 mm	1 1/2 in.	38 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	1 1/2 in. (38 mm) insulation, stop factory-set at 240 F (116 C).

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# Single and Multi-Function Aquastat Controllers

	Product Number	Application	Differential Temperature		Bulb Size		Spud Size		Insulation Depth		Switching Action	Mounting	Includes
			(F)	(C)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)			
—	L4006A2007	High or Low limit	5 F to 30 F adj.	3 C to 17 C adj.	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	3/4 in.	19 mm	3 in.	76 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	3 in. (76 mm) insulation.
	L4006A2148	High or Low limit	5 F to 30 F adj.	3 C to 17 C adj.	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	3/4 in.	19 mm	3 in.	76 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	—
	L4006B1007	Circulator	5 F Fixed	3 C fixed	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	1/2 in.	13 mm	1 1/2 in.	38 mm	SPST, contacts make on temperature rise.	Horizontal or Vertical	1 1/2 in. (38 mm) insulation
*	L4006B1155	Circulator	5 F to 30 F adj.	3 C to 17 C adj.	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	—	—	3 in.	76 mm	SPST, contacts make on temperature rise.	Horizontal or Vertical	3 in. (76 mm) insulation, stop factory-set at 240 F (116 C), and heat-conductive compound.
	L4006B1163	Circulator	5 F to 30 F adj.	3 C to 17 C adj.	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	—	—	3 in.	76 mm	SPST, contacts make on temperature rise.	Horizontal or Vertical	3 in. (76 mm) insulation.
*	L4006E1067	High Limit; Manual Reset	Manual Reset	Manual Reset	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	—	—	3 in.	76 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	3 in. (76 mm) insulation, stop factory-set at 250 F (121 C); well adapter and heat-conductive compound.
	L4006E1091	High Limit; Manual Reset	Manual Reset	Manual Reset	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	—	—	3 in.	76 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	3 in. (76 mm) insulation.
	L4006E1109	High Limit; Manual Reset	Manual Reset	Manual Reset	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	—	—	1 1/2 in. to 3 in. less well	38 mm to 76 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	—
	L4006E1117	High Limit; Manual Reset	Manual Reset	Manual Reset	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	3/4 in. - 14 NPT	19 mm - 14 NPT	1 1/2 in.	38 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	—
	L4006E1125	High Limit; Manual Reset	Manual Reset	Manual Reset	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	—	—	3 in.	76 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	—
*	L4006H1004	High Limit; strap-on mounting on well mount.	Manual Reset	Manual Reset	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	—	—	1 1/2 in.	38 mm	SPST, contacts break on temperature rise.	Horizontal or Vertical	Bracket for strap-on mounting, stop factory-set at 240 F (116 C), and heat-conductive compound.
	L6006A1004	Circulator Control and High Limit or Low Limit	5 F	3 C	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	1/2 in.	13 mm	—	—	SPDT	Horizontal or Vertical	—
	L6006A1012	Circulator Control and High Limit or Low Limit	5 F to 30 F adj.	3 C to 17 C adj.	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	1/2 in.	13 mm	—	—	SPDT	Horizontal or Vertical	—
•	L6006A1145	Circulator Control and High Limit or Low Limit	5 F to 30 F adj.	3 C to 17 C adj.	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	—	—	3 in.	76 mm	SPDT	Horizontal	Stop factory-set at 240F (116 C) and heat-conductive compound

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# Single and Multi-Function Aquastat Controllers

Product Number	Application	Differential Temperature		Bulb Size		Spud Size		Insulation Depth		Switching Action	Mounting	Includes
		(F)	(C)	(inch)	(mm)	(inch)	(mm)	(inch)	(mm)			
L6006A1244	Circulator Control and High Limit or Low Limit	5 F to 30 F adj.	3 C to 17 C adj.	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	—	—	3 in.	76 mm	SPDT	Horizontal or Vertical	—
* L6006C1018	Circulator Control and High Limit or Low Limit	5 F to 30 F adj.	3 C to 17 C adj.	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	—	—	—	—	SPDT	Horizontal or Vertical or Strap-on-mounting	—
L6006C1059	Circulator Control and High Limit or Low Limit	5 F to 30 F adj.	3 C to 17 C adj.	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	—	—	—	—	SPDT	Horizontal or Vertical	—

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# Single and Multi-Function Aquastat Controllers

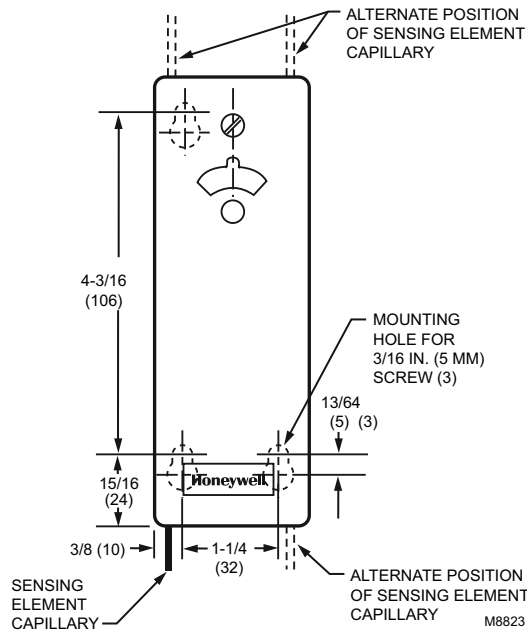
## L4008; L6008 Remote Bulb Controller



**Aquastat® Controllers are immersion type devices for limiting or regulating the temperature of liquids in boilers, storage tanks, and other applications where temperature control is required.**

- Remote temperature sensing element detects and responds rapidly to temperature changes.
- Totally enclosed Micro Switch® snap-acting switch.
- Visible control point scale and external adjustment screw permit easy setting.
- Horizontal or vertical mounting of the remote element into boiler, tank, or other container.
- Case mounts to a vertical surface.

### Dimensions in inches (millimeters)



**Case Dimensions:** 5 5/8 in. high x 2 in. wide x 2 1/8 in. deep  
(143 mm high x 51 mm wide x 54 mm deep)

**Maximum Ambient Temperature:** 150 F (66 C)

**Operating Temperature Range:** 100 F to 240 F (38 C to 116 C)

**Electrical Ratings:** 5.1A @ 240 Vac; 8A @ 120 Vac (Full Load), 30.6A @ 240 Vac; 48A @ 120 Vac (Locked Rotor), 0.25A @ 0.25 to 12 Vdc (Millivolt)

### Approvals:

**Canadian Standards Association:** Certified: File No. LR95329-1

**Underwriters Laboratories Inc.** UL Component Recognized: File No. MP466, Vol. 6, Sec.1, Guide No. MBPR2

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Product Number	Application	Differential Temperature		Bulb Size		Capillary Length	Switching Action	Mounting	Includes
		(F)	(C)	(inch)	(mm)	(inch)			
L4008A1015	High or Low limit	5 F to 30 F adj.	3 C to 17 C adj.	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	66 in.	SPST, contacts break on temperature rise.	Horizontal or Vertical	5 1/2 ft (1.7 m) capillary.
L4008A1130	High or Low limit	5 F to 30 F adj.	3 C to 17 C adj.	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	120 in.	SPST, contacts break on temperature rise.	Horizontal or Vertical	10 ft (3.04 m) capillary; factory-set stop at 200 F (93 C).
L4008B1013	Circulator	5 F to 30 F adj.	3 C to 17 C adj.	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	66 in.	SPST, contacts make on temperature rise.	Horizontal or Vertical	5 1/2 ft (1.7 m) capillary.
* L4008E1156	High Limit; Manual Reset	Manual Reset	Manual Reset	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	66 in.	SPST, contacts break on temperature rise.	Horizontal or Vertical	5 1/2 ft (1.7 m) capillary; factory-set stop at 250 F (121 C); heat-conductive compound.
* L4008E1305	High Limit; Manual Reset	Manual Reset	Manual Reset	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	66 in.	SPST, contacts break on temperature rise.	Horizontal or Vertical	—
— L4008E1313	High Limit; Manual Reset	Manual Reset	Manual Reset	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	66 in.	SPST, contacts break on temperature rise.	Horizontal or Vertical	—

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# Single and Multi-Function Aquastat Controllers

	Product Number	Application	Differential Temperature		Bulb Size		Capillary Length	Switching Action	Mounting	Includes
			(F)	(C)	(inch)	(mm)	(inch)			
*	L6008A1192	Circulator Control and Low Limit	5 F to 30 F adj.	3 C to 17 C adj.	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	66 in.	SPDT	Horizontal or Vertical	66 in. capillary
—	L6008A1242	Circulator Control and Low Limit	5 F to 30 F adj.	3 C to 17 C adj.	3/8 in. x 2 7/8 in. copper	10 mm x 73 mm copper	66 in.	SPDT	Horizontal or Vertical	66 in. capillary

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# Single and Multi-Function Aquastat Controllers

## L4103 Combination Aquastat® and High Limit Controller

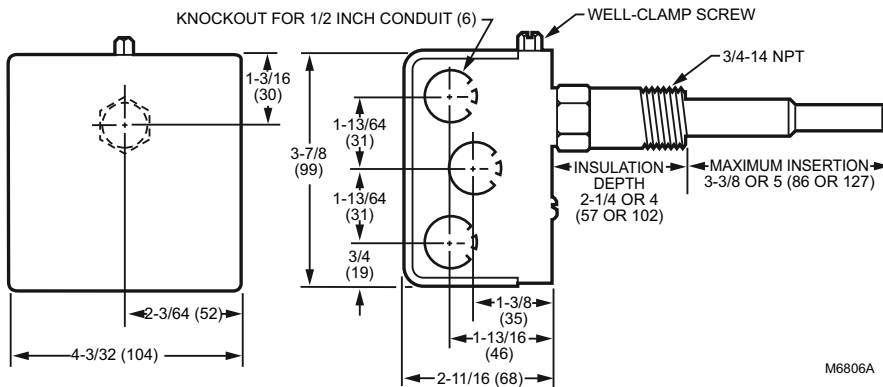


The L4103A,B is an immersion-type controller for oil-fired water heaters. The Aquastat® Controller senses water temperature and cycles the burner through the oil primary. The high-limit controller breaks the circuit to the burner on a temperature rise past the factory-set setpoint. The L4103C is an immersion-type controller for gas systems that provides water temperature regulation. The high-limit controller breaks the circuit to the burner on a temperature rise past the factory-set setpoint.

- L4103A,B,C have a sensing element and a high limit sensor with automatic reset.
- Mounts on a horizontal immersion well in water heater wall.
- Adjustable temperature setting scale.
- Fluid-filled element operates SPST, Micro Switch® snap-acting switch.
- Integral, nonadjustable high limit. L4103C is an immersion controller for gas systems.
- L4103A,B is an immersion controller for oil systems.

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### Dimensions in inches (millimeters)



**Case Dimensions:** 4 3/32 in. wide x 3 7/8 in. high x 2 11/16 in. deep (104 mm wide x 99 mm high x 68 mm deep.)

**Operating Temperature Range:** 100 F to 240 F stop set at 150 F (Scale marked- Hot-Normal-Warm); (38 C to 116 C stop set at 66 C (Scale marked- Hot-Normal-Warm))

**Electrical Ratings:** 5A @ 240 Vac; 8A @ 120 Vac (Full Load), 30A @ 240 Vac; 48A @ 120 Vac (Locked Rotor)

**Approvals:**  
**Underwriters Laboratories Inc.** UL Component Recognized: File No. MP466, Guide No. MBPR2.

Product Number	Application	Differential Temperature		Spud Size		Insulation Depth		Switching Action	Mounting
		(F)	(C)	(inch)	(mm)	(inch)	(mm)		
L4103A1019	High Limit	7 F ± 4 F	3.9 C ± 2 C	3/4 in. NPT	19 mm NPT	4 in.	102 mm	SPST, contacts break on temperature rise.	Mounts on a horizontal immersion well in water heater wall.
L4103A1100	High Limit	7 F ± 4 F	3.9 C ± 2 C	3/4 in. NPT	19 mm NPT	2 1/4 in.	57 mm	SPST, contacts break on temperature rise.	Mounts on a horizontal immersion well in water heater wall.

# Single and Multi-Function Aquastat® Controllers

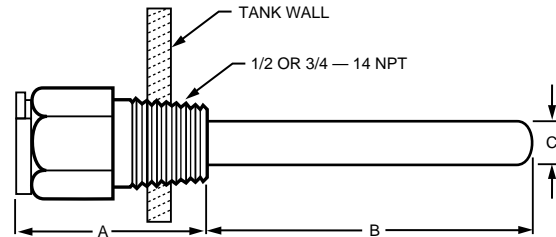
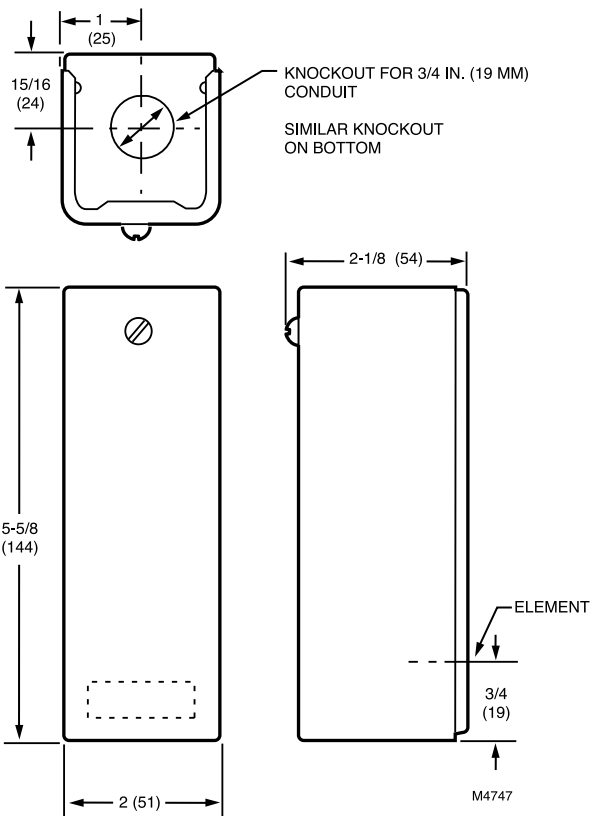
## L8100 Aquastat® Controller



L8100A,B, and C are immersion type controllers for regulating and limiting the tank temperature in water heaters. As the water temperature rises past the setpoint, the controller switches off the gas valve.

- Regulates temperature and provides energy cutoff (ECO) action on a temperature rise past the setpoint.
- Includes a second sensing element that senses average water temperature to minimize stacking.
- Fluid-filled element operates Micro Switch® SPST snap-acting switch.
- ECO switch interrupts the thermocouple circuit or main valve before tank reaches 210 F (99 C) maximum temperature.
- Includes factory-installed immersion well on controller.
- Internal adjustment screw.
- Special switch terminal provides three-wire hookup from Aquastat® controller to gas valve.

### Dimensions in inches (millimeters)



	CONTROLLER WELL		REMOTE WELL	
	IN.	MM	IN.	MM
A INSULATION DEPTH	2-1/4	57	1-1/2 OR 2-1/2	38 OR 64
B INSERTION DEPTH	5	127	3	76
C WELL DIAMETER	7/16	11	7/16	11

M4746

**Case Dimensions:** 5 5/8 in. high x 2 in. wide x 2 1/8 in. deep (136 mm high x 51 mm wide x 54 mm deep)

**Electrical Ratings:** 2A maximum at 24 VAC

**Temperature Rating (ECO) Energy Cutoff:** 190 F

**Maximum Ambient Temperature:** Maximum Tank: 210 F (Maximum Tank: 99 C)

**Operating Temperature Range:** 100 F to 180 F; (38 C to 82 C)

### Approvals:

**American Gas Association IAS:** Design Certified: Report Number 23-11B

**Canadian Standards Association:** —

**Underwriters Laboratories Inc.** UL Component Recognized: File No. MP466, Guide No. MBPR2



# Single and Multi-Function Aquastat Controllers

Product Number	Application	Differential Temperature		Bulb Size		Capillary Length	Insulation Depth		Switching Action	Mounting	Includes
		(F)	(C)	(inch)	(mm)	(inch)	(inch)	(mm)			
L8100B1037	High Limit	Controller: 5 F, fixed. Energy Cutoff Switch: 20 F, fixed.	Controller: 3 C fixed; energy cutoff switch: 11 C fixed.	3/8 in.	10 mm	42 in.	Controller well: 2 1/4 in. remote well: 1 1/2 or 2 1/2 in.	Controller well: 57 mm, remote well: 38 mm or 64 mm	SPST, contacts break on temperature rise.	Immersion Well	—
L8100B1094	High Limit	Controller: 5 F, fixed. Energy Cutoff Switch: 20 F, fixed.	Controller: 3 C fixed; energy cutoff switch: 11 C fixed.	3/8 in.	10 mm	54 in.	Controller well: 2 1/4 in. remote well: 1 1/2 or 2 1/2 in.	Controller well: 57 mm, remote well: 38 mm or 64 mm	SPST, contacts break on temperature rise.	Immersion Well	Two zinc plated wells and one well clamp for remote well.
L8100B1128	High Limit	Controller: 5 F, fixed. Energy Cutoff Switch: 20 F, fixed.	Controller: 3 C fixed; energy cutoff switch: 11 C fixed.	3/8 in.	10 mm	39 in.	1 1/2 in.	38 mm	SPST, contacts break on temperature rise.	Immersion Well	—

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# Single and Multi-Function Aquastat Controllers

## L4081; L6081 Multiple Aquastat® Controllers



Cover

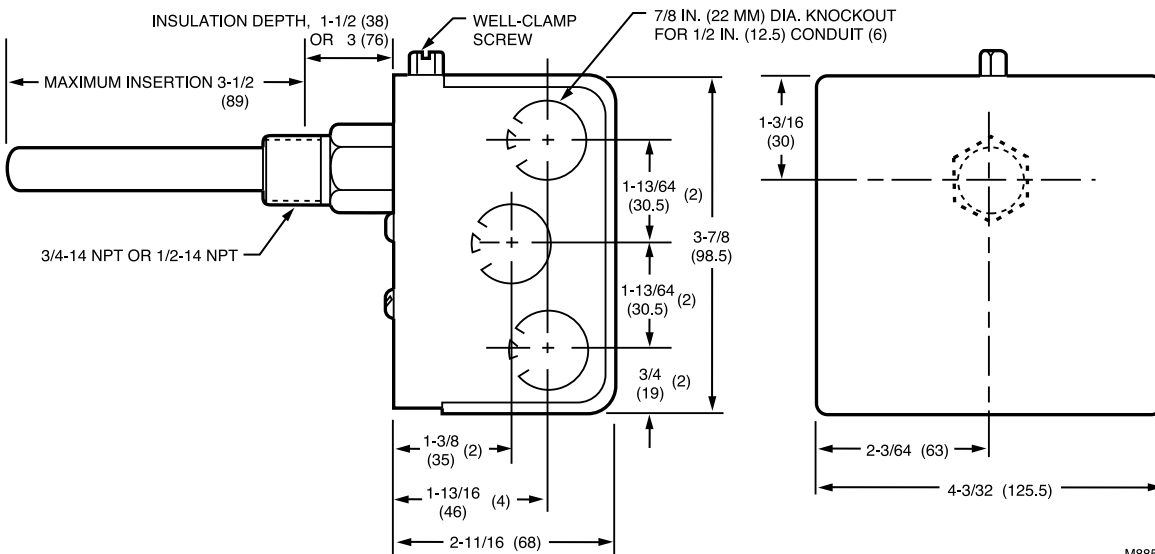


Controller

High limit, low limit and/or circulator controllers used to regulate boiler water temperature in gas- or oil-fired hydronic heating systems.

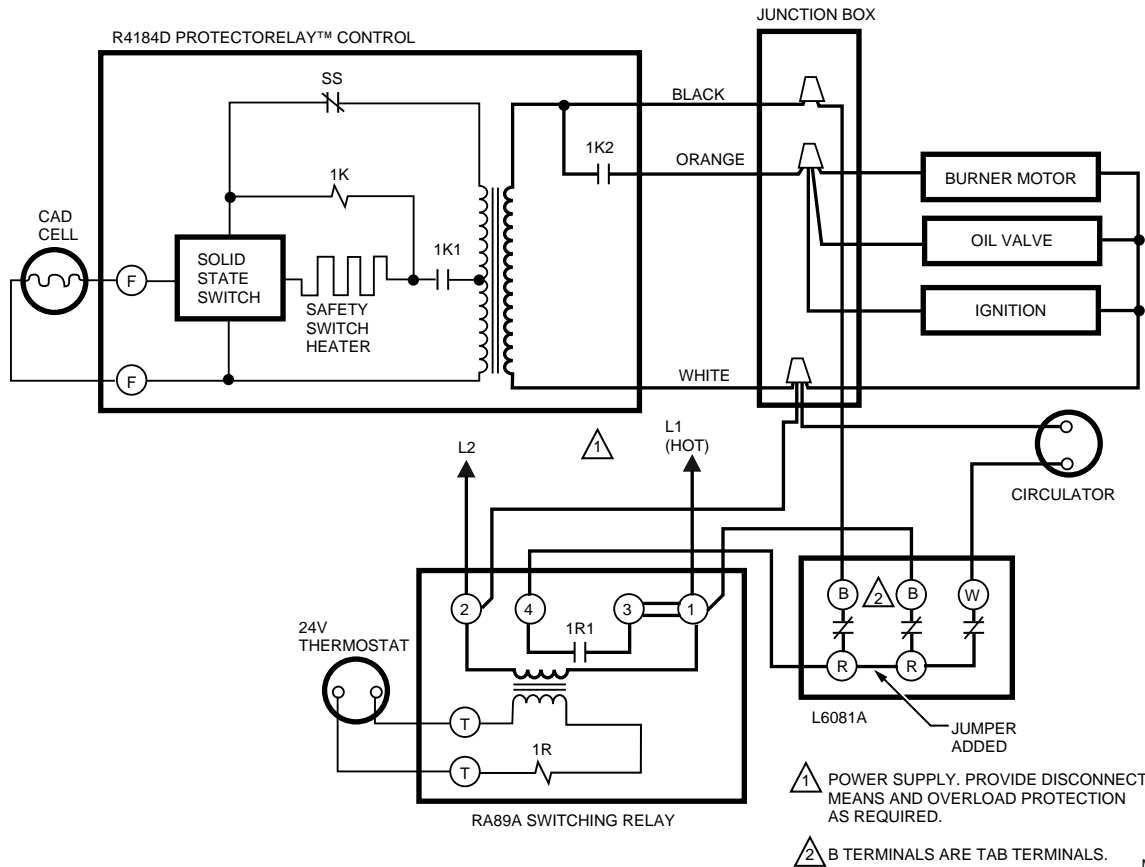
- An immersion type liquid-filled sensing element actuates two snap switches.
- One switch operates as a high limit control.
- The other switch operates as a low limit and/or circulator control, depending on the model.
- Controller may be mounted in any positioning and needs no leveling.
- Separate, easy-to-read, calibrated dial and setpoint adjustments for each switch.
- Differential adjustment on low limit or circulator switch.
- All adjustments accessible inside front cover.
- Push-in terminals for quick connecting.
- Single sensing element for easy installation.
- One SPST and one SPDT snap switches act independently at respective temperature settings.

### Dimensions in inches (millimeters)



# Single and Multi-Function Aquastat Controllers

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M8855

**Dimensions, Approximate:** 3 7/8 in. high x 4 1/8 in. wide x 2 3/4 in. deep (98 mm high x 105 mm wide x 70 mm deep.)  
**Electrical Ratings (ignition):** Transformer Load: 360 VA  
**Maximum Ambient Temperature:** 150 F at switches; 265 F at sensing element (66 C at switches; 129 C at sensing element)  
**Operating Range, High Limit:** 130 F to 240 F (54 C to 116 C)  
**Operating Range, Low Limit:** 110 F to 220 F (43 C to 104 C)

**Operating Humidity Range (% RH):** 0 to 95% RH, non-condensing  
**Approvals:**  
**Canadian Standards Association:** Certified: File No. LR95329-1  
**Underwriters Laboratories Inc.** UL Listed: File No. MP466, Vol. 12, Sec. 4, Guide No. MBPR2

Product Number	Application	Differential Temperature	Insulation Depth		Spud Size	Switching Action	Mounting	Includes
		(F)	(inch)	(mm)	(inch)			
L4081A1023	High and Low limit	High limit: 10 F fixed; low limit: 10-25 F adj.	1 1/2 in.	38 mm	3/4 in. - 14 NPT	SPST: High & Low Limit	Horizontal	—
L4081B1013	High Limit and Circulator	10 F fixed	3 in.	76 mm	3/4 in. - 14 NPT	SPST: High Limit & Circulator	Horizontal	—
L4081B1047	High Limit and Circulator	High limit: 10 F fixed; low limit: 10-25 F adj.	1 1/2 in.	38 mm	3/4 in. - 14 NPT	SPST: High Limit & Circulator	Horizontal	—
L4081B1096	High Limit and Circulator	10 F fixed	3 in.	76 mm	—	SPST: High Limit & Circulator	Horizontal	—
* L6081A1010	High and Low limit	10 F fixed	3 in.	76 mm	3/4 in. - 14 NPT	—	Horizontal	3 in. insertion well.
* L6081A1036	High and Low limit	High limit: 10 F fixed; low limit: 10-25 F adj.	1 1/2 in. to 4 in.	38 mm	3/4 in. - 14 NPT	—	Horizontal	—

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# Single and Multi-Function Aquastat Controllers

## L7148 Electronic Aquastat® Controller



Replaces the function of the bulb and capillary electromechanical Aquastat® Controller with electronic temperature sensing and microprocessor controlled relays.

- Combination Aquastat® and high limit controller is intended for use in gas-fired boilers using a 24 Vac burner circuit with vestibules for a wiring enclosure.
- Can replace a Honeywell L4080 High Limit and R8285 Transformer Relay.
- Used in gas boilers where ignition controls such as the Honeywell S8600 Spark Ignition or SV9500/SV9501 SmartValve™ controls or standing pilot gas controls such as the Honeywell VR8300 are powered from 24 Vac.
- An external 120 Vac to 24 Vac transformer with 10 VA minimum is required to power the L7148F.
- For total external transformer VA requirements, add the 10 VA requirements for the control, gas valve load requirement (connections B1, B2), zone valve connection requirement (see zone valve specifications), vent damper requirement and VA requirement for any other equipment.
- Total low voltage load must not exceed 4A. Available with quick-connect or AMP® plug connections.
- W, R and C terminals are provided in a terminal block with screw connections.

**Dimensions, Approximate:** 6 in. high x 4 1/2 in. wide x 2 in. deep (152 mm high x 114 mm wide x 51 mm deep)

**Anticipator Setting:** 0.1 A

**Electrical Ratings (ignition):** Transformer Output: nominal 24 Vac

**Maximum Power Consumption:** 10 VA

**Voltage:** 24 Vac

**Frequency:** 60 Hz

**Electrical Connections:** Quick-connect terminals

**Maximum Ambient Temperature:** 150 F with 2.0 A 24 V load (66 C with 2.0 A 24 V load)

**Minimum Ambient Temperature:** -30 F (-9 C)

**Setpoint Temperature Range:** 140 F to 220 F (60 C to 104 C)

**Operating Range, High Limit:** 140 F to 220 F (60 C to 104 C)

**Operating Humidity Range (% RH):** 0 to 95% RH, non-condensing

**Approvals:**

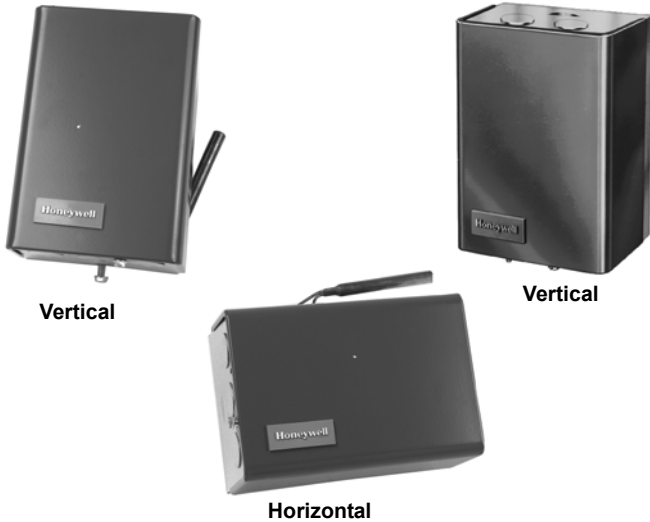
**Underwriters Laboratories Inc.** UL Component Listed: File No. MP466; Canadian UL Component Recognized: File No. MP466

Product Number	Electrical Ratings		
	(burner AFL)	(circulator AFL)	(circulator ALR)
L7148F1075	2.0 A @ 24 Vac	7.4 A @ 120 Vac	44.4 A @ 120 Vac

Product Number	Application	Differential Temperature	Mounting
		(F)	
L7148F1075	Oil Aquastat Controller	10 F fixed ± 2 F	Vestibule mount

# Single and Multi-Function Aquastat Controllers

## L8124 Triple Aquastat® Relay

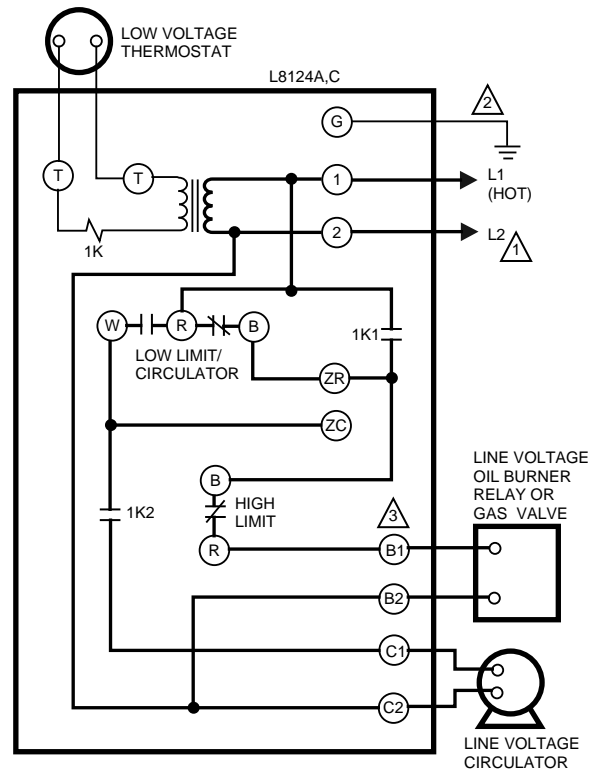
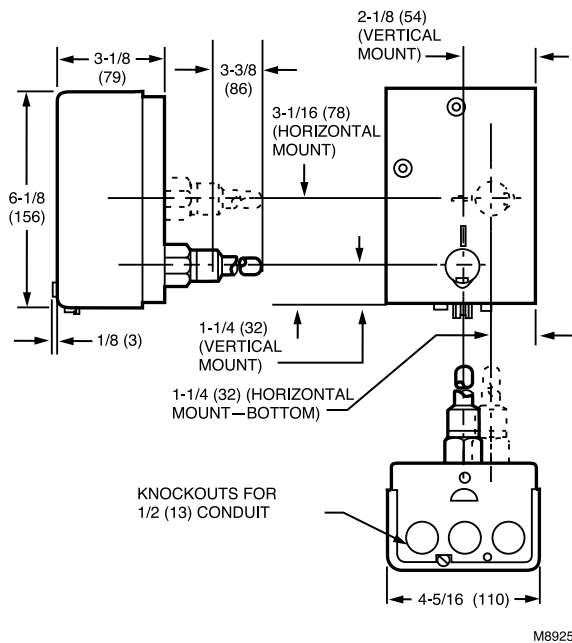


Immersion-type controllers that combine high limit protection with low limit and circulator control in forced hydronic heating systems, including domestic hot water service.

- Immersion-type controllers that combine high limit protection with low limit and circulator control in forced hydronic heating systems.
- Provide multizone control by using a separate circulator and R845 Relay for each zone.
- Include diaphragm powerhead and Micro Switch® assembly that respond to temperature changes in boiler water.
- Mount directly to boiler.
- Select models include large transformers and extra terminals for supplying power to low voltage zone valves.
- Require 24 Vac thermostat with heat anticipator set at 0.2 A (plus current draw of gas valve on L8124E).
- TRADELINE models include tube of heat conductive compound and range stops.

Residential  
Combustion Controls

### Dimensions in inches (millimeters)



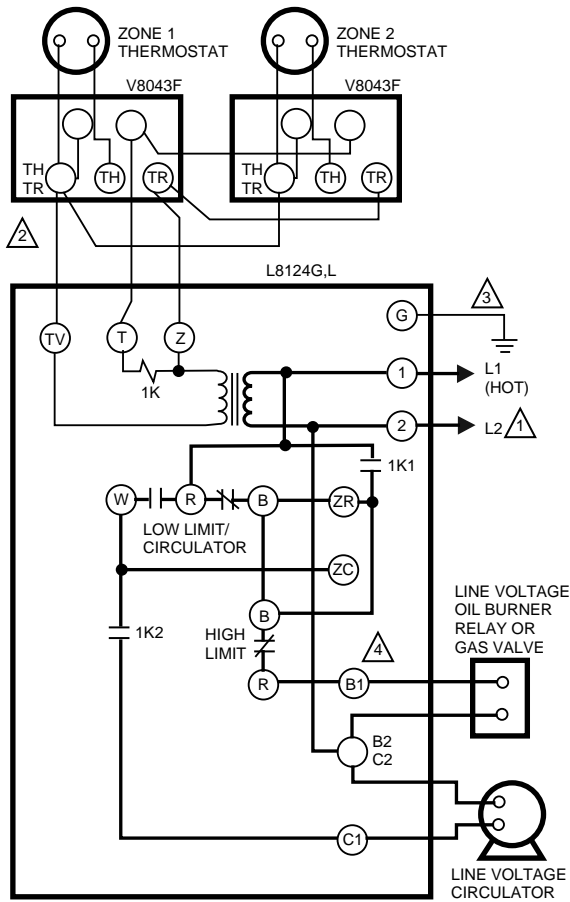
△ 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

△ 2 CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.

△ 3 B1 IS 1/4 IN. TAB TERMINAL.

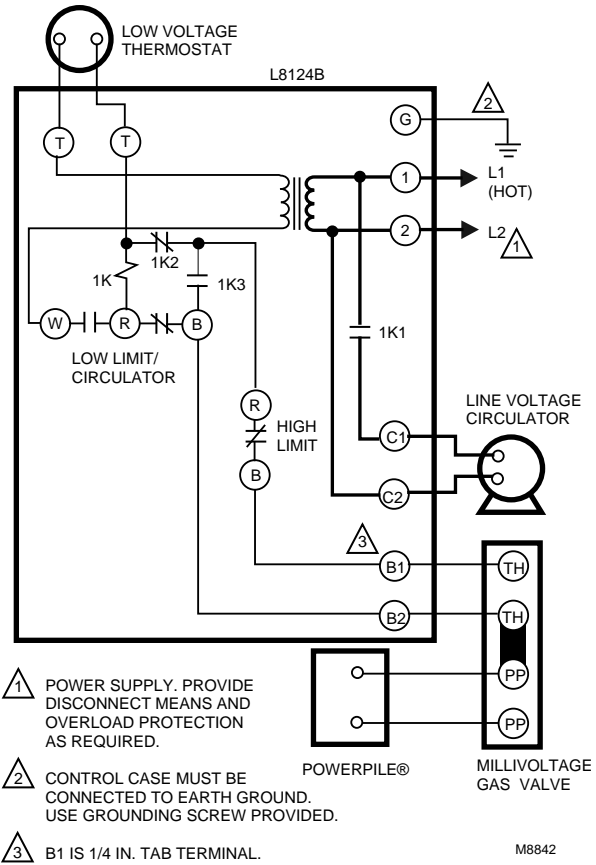
M8802

# Single and Multi-Function Aquastat Controllers



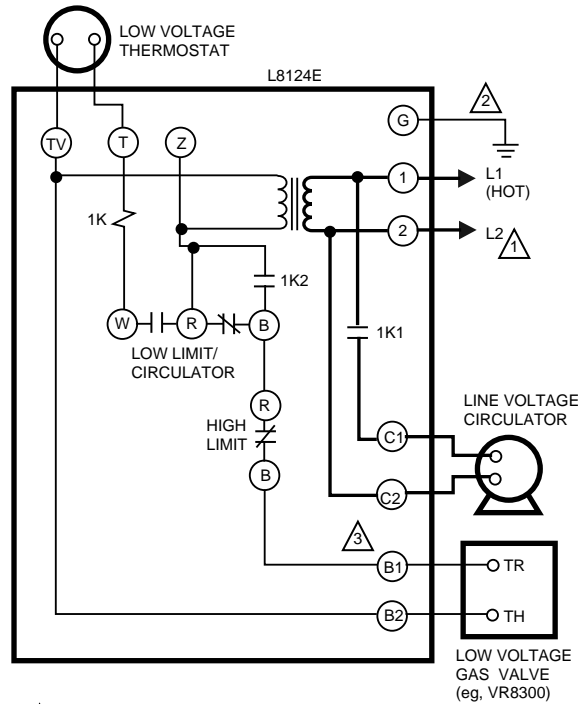
- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- 2 UP TO TWO V8043F ZONE VALVES CAN BE POWERED WITH L8124G.L. ADD ADDITIONAL TRANSFORMER FOR EVERY TWO OR LESS VALVES.
- 3 CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.
- 4 B1 IS 1/4 IN. TAB TERMINAL.

M1795B



- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- 2 CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.
- 3 B1 IS 1/4 IN. TAB TERMINAL.

M8842



- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- 2 CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.
- 3 B1 IS 1/4 IN. TAB TERMINAL.

M8803

# Single and Multi-Function Aquastat Controllers

**Dimensions, Approximate:** 6 1/8 in. high x 4 3/8 in. wide x 3 1/16 in. deep (156 mm high x 111 mm wide x 78 mm deep)

**Voltage:** 120 Vac

**Maximum Ambient Temperature:** 150 F at switches, 265 F at sensing element (66 C at switches, 129 C at sensing element.)

**Operating Range, High Limit:** 130 F to 240 F adj. (54 C to 116 C adj.)

**Operating Range, Low Limit:** 110 F to 220 F adj. (43 C to 104 C adj.)

**Maximum Operating Pressure:** 200 psi on outside of immersion well, 100 psi on capsule if inserted directly. (1378 kPa on outside of immersion well, 690 kPa on capsule if inserted directly.)

**Operating Humidity Range (% RH):** 0 to 95% RH, non-condensing

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR1620, Guide No. 400-E-O

**Underwriters Laboratories Inc.** UL Listed (models with well): File No. MP466, Guide No. MBPR; UL Component Recognized (models without well): File No. MP466, Guide No. MBPR2

Product Number	Electrical Ratings			
	(burner AFL)	(burner ALR)	(circulator AFL)	(circulator ALR)
L8124A, C, G, L	Line Voltage: 7.4 A @ 120 Vac; 3.7 A @ 240 Vac	Line Voltage: 44.4 A @ 120 Vac; 22.7 A @ 240 Vac	3.7 A @ 240 Vac; 7.4 A @ 120 Vac	22.2 A @ 240 Vac; 44.4 A @ 120 Vac
L8124B*	Line Voltage: 7.4 A @ 120 Vac; 3.7 A @ 240 Vac	Line Voltage: 44.4 A @ 120 Vac; 22.7 A @ 240 Vac	3.7 A @ 240 Vac; 7.4 A @ 120 Vac	22.2 A @ 240 Vac; 44.4 A @ 120 Vac
L8124E**	Line Voltage: 7.4 A @ 120 Vac; 3.7 A @ 240 Vac	Line Voltage: 44.4 A @ 120 Vac; 22.7 A @ 240 Vac	3.7 A @ 240 Vac; 7.4 A @ 120 Vac	22.2 A @ 240 Vac; 44.4 A @ 120 Vac

\*L8124B's burner rating is 0.25A @ 1/4 to 12 VCD. \*\*L8124E's burner rating is 1.25A @ 24 Vac; 30 VA total load (B1-B2, TV-Z).

Product Number	Application	Differential Temperature	Insulation Depth		Mounting	Includes
		(F)	(inch)	(mm)		
L8124A1007	High Limit Protection, Low Limit and Circulation Control	High limit: 10 F fixed; low limit: 10-25 F adj.	1 1/2 in.	38 mm	Vertical	3 in. insertion well
L8124A1015	High Limit Protection, Low Limit and Circulation Control	High limit: 10 F fixed; low limit: 10-25 F adj.	3 in.	76 mm	Vertical	3 in. insertion well and ground screw.
* L8124B1039	Triple Aquastat Relay with High limit	High limit: 10 F fixed; low limit: 10-25 F adj.		—	Vertical	—
L8124C1003	Triple Aquastat Relay with High limit	High limit: 10 F fixed; low limit: 10-25 F adj.		—	Horizontal	—
L8124C1102	High Limit Protection, Low Limit and Circulation Control	High limit: 10 F fixed; low limit: 10-25 F adj.	1 1/2 in. to 3 in. less well.	38 mm to 76 mm less well	Horizontal	—
* L8124E1016	Triple Aquastat Relay with High limit	High limit: 10 F fixed; low limit: 10-25 F adj.		—	Vertical	—
L8124G1020	Triple Aquastat Relay with High limit	High limit: 10 F fixed; low limit: 10-25 F adj.		—	Vertical	—
L8124L1011	Triple Aquastat Relay with High limit	High limit: 10 F fixed; low limit: 10-25 F adj.		—	Horizontal	—

\* TRADELINE models • SUPER TRADELINE models

Residential  
Combustion Controls

# Single and Multi-Function Aquastat Controllers

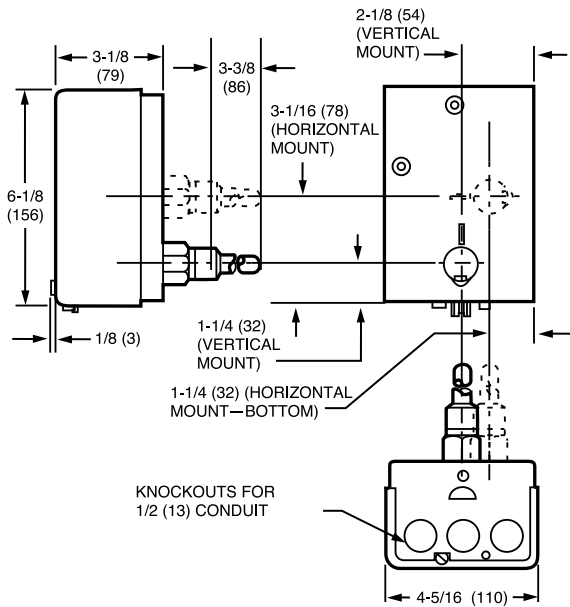
## L8148 Aquastat® Relay



Immersion-type controllers that combine high limit protection with switching relay control of burner and circulator motors.

- High limit opens burner circuit only.
- Include transformer and accessory terminals for adding a remote low limit controller.
- Case available for horizontal or vertical mounting.
- Requires a 24 Vac thermostat with heat anticipator set at 0.2A.
- TRADELINE models include well adapter, tube of heat conductive compound and range stops.

### Dimensions in inches (millimeters)



M8925

**Dimensions, Approximate:** 4 5/16 in. high x 6 1/8 in. wide x 3 1/8 in. deep (110 mm high x 156 mm wide x 79 mm deep)

**Anticipator Setting:** 0.2 A

**Voltage:** 120 Vac

**Frequency:** 60 Hz

**Electrical Connections:** Quick-Connect / Screw

**Maximum Ambient Temperature:** 150 F with 1.2 A 24 V load; 77 F with 1.4 A 24 V load (66 C with 1.2 A 24 V load; 25 C with 1.4 A 24 V load)

**Setpoint Temperature Range:** 240 F (116 C)

**Operating Range, High Limit:** 120 F to 240 F (54 C to 116 C)

**Maximum Operating Pressure:** Immersion Well: 255 psi (Immersion Well: 1757 kPa)

**Operating Humidity Range (% RH):** 0 to 95% RH, non-condensing

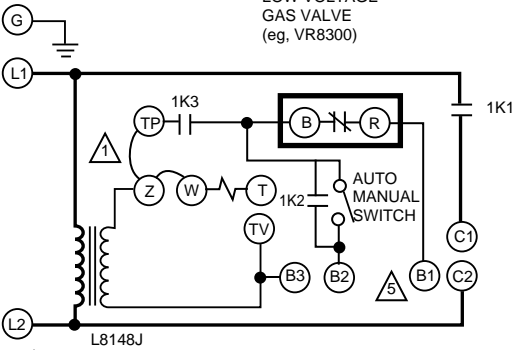
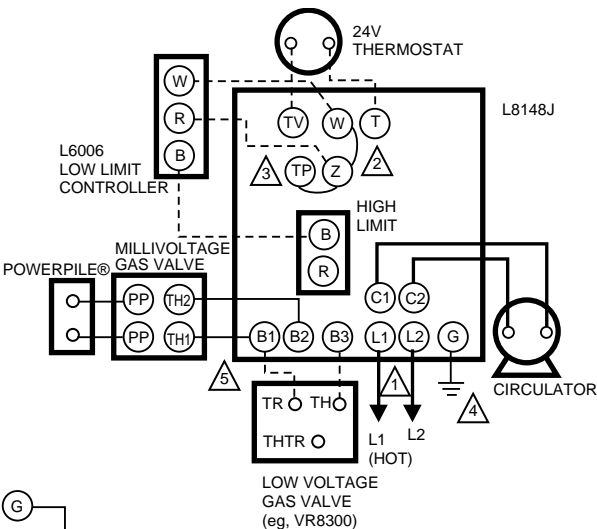
### Approvals:

**Canadian Standards Association:** Certified: File No. LR1620, Guide No. 400-E-O

**Underwriters Laboratories Inc.** UL Listed: File No. MP466, Vol. 13, Sec. 2, Guide No. MBPR2.

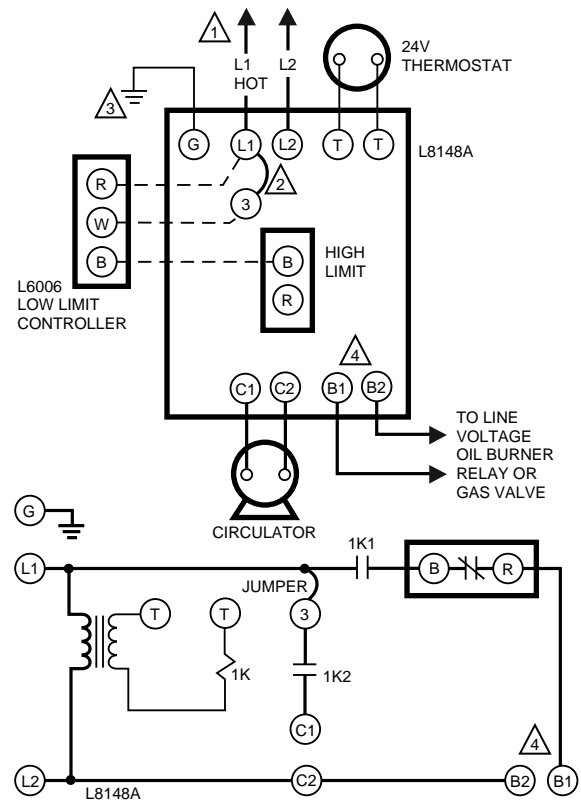


# Single and Multi-Function Aquastat Controllers



- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- 2 REMOVE Z-W JUMPER IF SERIES 60 LOW LIMIT IS USED. WIRE LOW LIMIT CONTROLLER OR ZONE VALVES AS SHOWN. USE WITH 24V (B1-B3) CIRCUIT ONLY.
- 3 FOR 24V BURNER, WIRE B1-B3 AND USE JUMPER Z-W AND TP-Z. FOR POWERPILE® (MILLIVOLTAGE) GAS VALVES, REMOVE JUMPER TP-Z AND WIRE BURNER B1-B2. JUMPER Z-W REMAINS IN POSITION.
- 4 CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.
- 5 B1 IS 1/4 IN. TAB TERMINAL.

M1793B

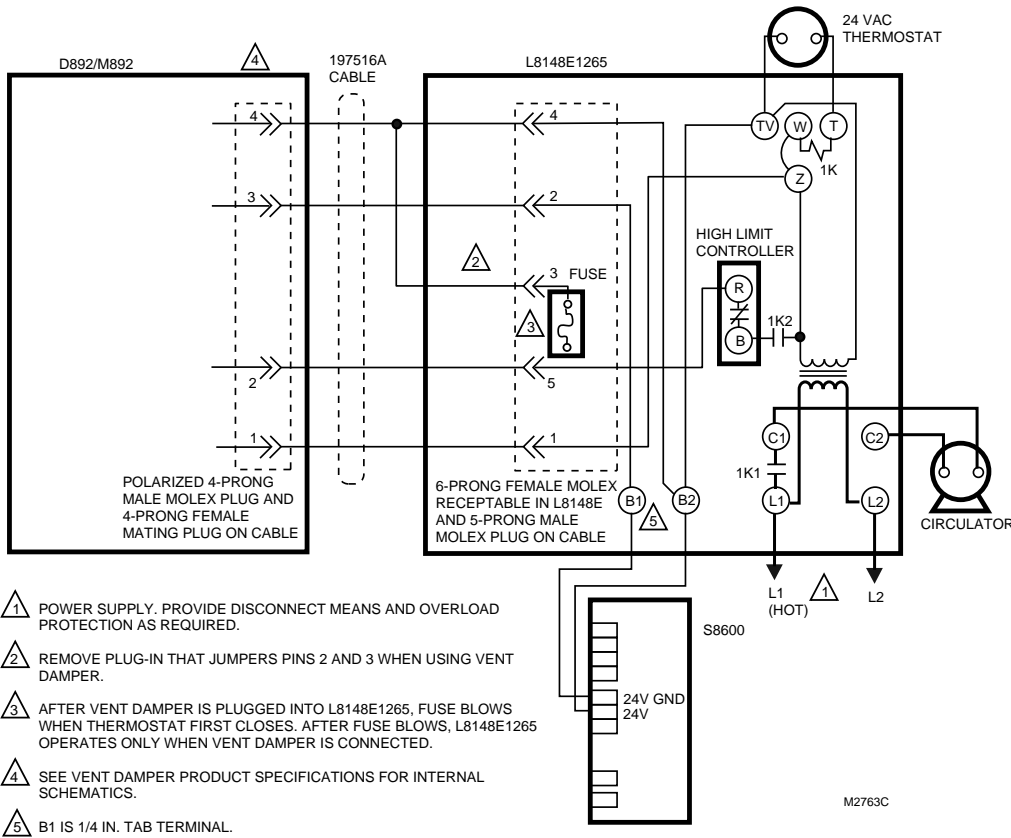


- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- 2 REMOVE JUMPER WHEN ADDING L6006 LOW LIMIT CONTROLLER.
- 3 CONTROL CASE MUST BE CONNECTED TO EARTH GROUND. USE GROUNDING SCREW PROVIDED.
- 4 B1 IS 1/4 IN. TAB TERMINAL.

M2842A

Residential  
Combustion Controls

# Single and Multi-Function Aquastat Controllers



Product Number	Electrical Ratings						
	(ALR)	(AFL)	(burner AFL)	(burner ALR)	(burner millivolt)	(circulator AFL)	(circulator ALR)
L8148A1017	—	—	Line Voltage: 7.4 A @ 120 Vac; 3.7 A @ 240 Vac	Line Voltage: 44.4 A @ 120 Vac; 22.7 A @ 240 Vac	0.25 A @ 1/4 to 12 Vdc	3.7 A @ 240 Vac; 7.4 A @ 120 Vac	22.2 A @ 240 Vac; 44.4 A @ 120 Vac
L8148E1265	0.25 A @ 0.25 to 12 Vdc	22.2A @ 240 Vac; 44.4A @ 120 Vac	Low Voltage: 0.8 A max. @ 24 Vac; Line Voltage: 7.4 A @ 120 Vac; 3.7 A @ 240 Vac	Line Voltage: 44.4 A @ 120 Vac; 22.7 A @ 240 Vac	0.25 A @ 1/4 to 12 Vdc	3.7 A @ 240 Vac; 7.4 A @ 120 Vac	22.7 A @ 240 Vac; 44.4 A @ 120 Vac
L8148E1299	0.25 A @ 0.25 to 12 Vdc	22.2A @ 240 Vac; 44.4A @ 120 Vac	Low Voltage: 0.8 A max. @ 24 Va; Line Voltage: 7.4 A @ 120 Vac; 3.7 A @ 240 Vac	Line Voltage: 44.4 A @ 120 Vac; 22.7 A @ 240 Vac	0.25 A @ 1/4 to 12 Vdc	3.7 A @ 240 Vac; 7.4 A @ 120 Vac	22.7 A @ 240 Vac; 44.4 A @ 120 Vac
L8148J1009	—	—	3.7 A @ 240 Vac; 7.4 A @ 120 Vac	22.2 A @ 240 Vac; 44.4 A @ 120 Vac	0.25 A @ 1/4 to 12 Vdc	3.7 A @ 240 Vac; 7.4 A @ 120 Vac	22.2 A @ 240 Vac; 44.4 A @ 120 Vac

Product Number	Application	Differential Temperature (F)	Capillary Length		Insulation Depth		Switching Action	Mounting	Includes
			(inch)	(mm)	(inch)	(mm)			
* L8148A1017	High Limit	8 F fixed	4 1/2 in.	114 mm	1 1/2 in. to 3 in. less well	38 mm to 76 mm less well	SPST: High Limit & Circulator	Horizontal	—
* L8148E1265	High Limit	15 F fixed	4 1/2 in.	114 mm	1 1/2 in. to 3 in. less well	38 mm to 76 mm less well	SPST: High Limit & Circulator	Vertical Mount	Molex® plug for use with vent damper, includes heat-conductive compound. Molex® plug for use with vent damper, includes heat-conductive compound.
L8148E1299	High Limit	15 F fixed	4 1/2 in.	114 mm	1 1/2 in. to 3 in. less well	38 mm to 76 mm less well	SPST: High Limit & Circulator	Vertical Mount	50 VA transformer and heat conductive compound.
* L8148J1009	Aquastat Relay	8 F fixed	4 1/2 in.	114 mm	1 1/2 in. to 3 in. less well	38 mm to 76 mm less well	SPST: High Limit & Circulator	Horizontal or Vertical	—

\* TRADELINE models • SUPER TRADELINE models

# Single and Multi-Function Aquastat Controllers

## L7224 Oil Electronic Aquastat® Controller



**Dimensions, Approximate:** 7 1/8 in. high x 4 1/4 in. wide x 2 5/8 in. deep (181 mm high x 109 mm wide x 67 mm deep)

**Maximum Power Consumption:** 2000 VA

**Voltage:** 120 Vac

**Frequency:** 60 Hz

**Maximum Ambient Temperature:** 150 F (66 C)

**Minimum Ambient Temperature:** -30 F (-9 C)

**Operating Range, High Limit:** 130 F to 240 F (54 C to 116 C)

**Operating Range, Low Limit:** 110 F to 220 F (43 C to 104 C)

**Operating Humidity Range (% RH):** 0 to 95% RH, non-condensing

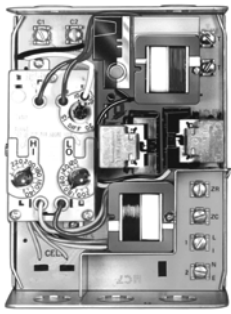
**Approvals:**  
Underwriters Laboratories Inc. Recognized

Product Number	Electrical Ratings			
	(burner AFL)	(burner ALR)	(circulator AFL)	(circulator ALR)
L7224U1002	7.4 A @ 120 Vac	44.4 A inrush	7.4 A @ 120 Vac	44.4 A inrush

Product Number	Application	Differential Temperature	Mounting
		(F)	
L7224U1002	Oil Aquastat Controller	High limit: 5-20 F adj.; low limit: 10-25 F adj.	Well mount, horizontal or vertical position, or flush mounted remote from the well.

# Single and Multi-Function Aquastat® Controllers

## R8182 Combination Protectorelay® and Hydronic Heating Controllers



Vertical or Horizontal Mount

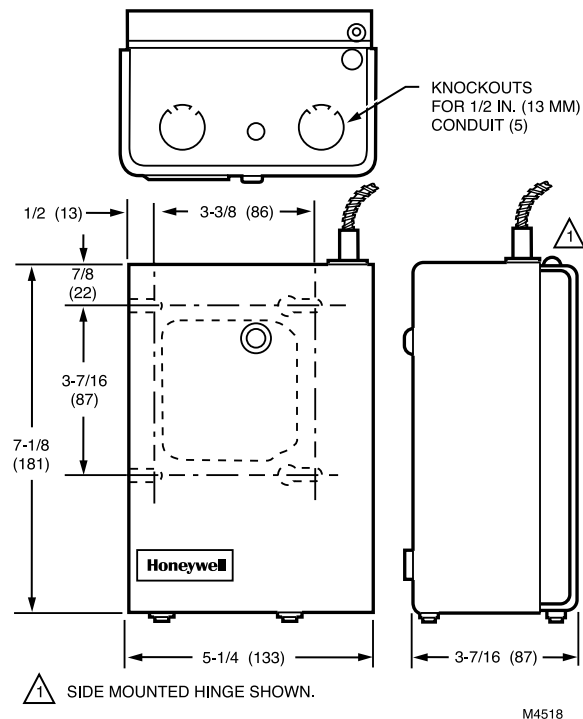
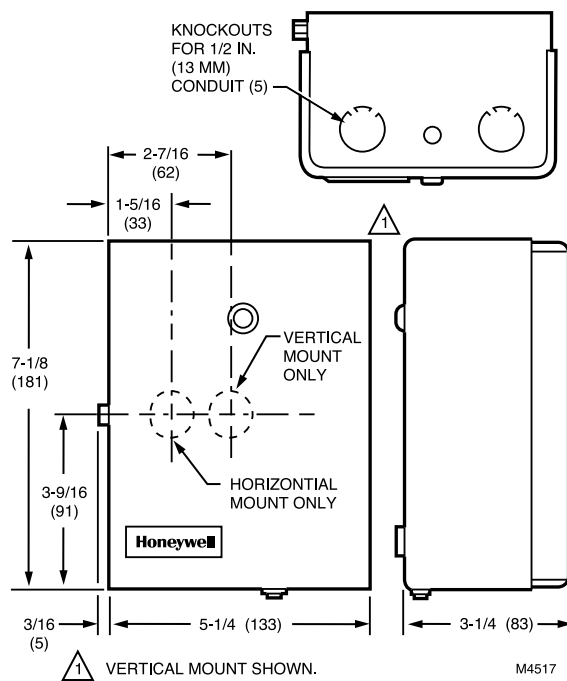


Junction Box Mount

Immersion type Aquastat® controller and oil burner primary control provides high limit and low limit/circulator control for oil-fired hydronic heating systems.

- Use in intermittent ignition applications.
- Capable of zone control with zone valves.
- Circulator zone control with ZC and ZR terminals on R8182D,E,H,J. Flame failure during the running cycle results in a 45 second attempt to restart.
- If unsuccessful, safety shutoff occurs, requiring manual reset before burner can be restarted.
- R8182D,E,F mount directly on burner; R8182H,J mount on 4 x 4 in. junction box and include 5 ft (1.5 m) armored capillary with remote sensor.
- C554A Cadmium Sulfide Flame Detector and a 24 Vac thermostat required.

### Dimensions in inches (millimeters)



**Dimensions, Approximate:** 7 1/8 in. high x 5 1/4 in. wide x 3 7/16 in. deep (181 mm high x 133 mm wide x 87 mm deep.)

**Anticipator Setting:** 0.2 A

**Electrical Ratings (ignition):** 360 VA

**Electrical Ratings (burner AFL):** 4.4 A @ 120 Vac

**Electrical Ratings (burner ALR):** 26.4A @ 120 Vac

**Maximum Power Consumption:** 9 W

**Voltage:** 120 Vac

**Frequency:** 60 Hz

**Timing Safety Switch:** 45 sec

**Maximum Ambient Temperature:** 250 F at element (121 C at element)

**Operating Range, High Limit:** 130 F to 240 F (54 C to 116 C)

**Operating Range, Low Limit:** 110 F to 220 F (43 C to 104 C)

**Maximum Operating Pressure:** 200 psi on immersion well; 100 psi direct immersion. (1378 kPa on immersion well; 90 kPa direct immersion.)

**Operating Humidity Range (% RH):** 0 to 95% RH, non-condensing

**Approvals:**

**Canadian Standards Association:** Certified: File No. LR95329-1

**Underwriters Laboratories Inc.** UL Listed: File No. listed: MP268, Vol. 3,4 (R8182D,E,F), Vol. 37 (R8182H,J), Sec. 1.

# Single and Multi-Function Aquastat Controllers


	Product Number	Application	Differential Temperature	Insulation Depth		Mounting	Includes
			(F)	(inch)	(mm)		
*	<b>R8182D1079</b>	Use in an intermittent ignition application	High limit: 10 F fixed; Low limit/circulator: 10 F to 25 F adj.	1 1/2 in.	38 mm	Vertical	Auxiliary ZC and ZR terminals may be used to provide circulator zone control through an R845A Switching Relay. Heat-conductive compound and vertical case.
*	<b>R8182D1111</b>	Use in an intermittent ignition application	High limit: 10 F fixed; Low limit/circulator: 10 F to 25 F adj.	1 1/2 in.	38 mm	Horizontal	Auxiliary ZC and ZR terminals may be used to provide circulator zone control through an R845A Switching Relay. Heat-conductive compound and vertical case.
*	<b>R8182H1070</b>	Use in an intermittent ignition application	High limit: 10 F fixed; Low limit/circulator: 10 F to 25 F adj.	1 1/2 in.	38 mm	Junction box mount	Auxiliary ZC and ZR terminals may be used to provide circulator zone control through an R845A Switching Relay. Heat-conductive compound and horizontal case.

\* TRADELINE models • SUPER TRADELINE models

## Aquastat Part



Product Number	Description	Used With
<b>4074EUS</b>	Bag Assembly containing Quick Connect to Screw Terminal for L8124 or L8148	L8148L8124

## Single and Multifunction Aquastat Parts


Product Number	Type	Description	Bulb Diameter	Lead Length	Leadwire Ending	Leadwire Temperature	Picture
			(inch)	(inch)			
<b>112721</b>	Clip	Clip, 1/2 inch well	—	—	—	—	
<b>120650</b>	—	Heat Conductive Grease	—	—	—	—	
<b>198799Z</b>	Sensor	Outdoor or Supply sensor with 42 in. lead for AQ475, AQ675 or AQ775	3/8 in.	42 in.	Strip & Retain	125 C	
<b>32004955-003</b>	Sensor	Sensor Assembly	—	—	—	—	

# Well Assemblies

## Well Assemblies

Product Number	Description	Materials	Insertion Length	Shell (internal diameter)	Spud Thread Size	Includes	Used With	Picture
121371A	Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. NPT. Includes mounting clamp.	Copper	1 1/2 in.	3/8 in.	1/2 in. x 14 NPT	121371 Mounting Clamp	—	
121371AA	Well clamp assembly with clamp capillary 21371 (1) screws 804644 and nuts 60156	—	1 1/2 in.	3/8 in.	1/2 in. x 14 NPT	121371 Mounting Clamp, Spud Set screw for armored capillary, Plug, and Nut.	—	
121371B	Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. (38 mm) insulation, 3/4 in. NPT. Includes mounting clamp.	Copper	1 1/2 in.	3/8 in.	3/4 in. x 14 NPT	121371 Mounting Clamp	—	
121371E	Stainless steel. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. (38 mm) insulation, 1/2 in. (13 mm) NPT. Includes mounting clamp.	Stainless Steel	1 1/2 in.	3/8 in.	1/2 in. x 14 NPT	121371 Mounting Clamp	—	
121371L	Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 3 in. (76 mm) insulation, 1/2 in. NPT. Includes mounting clamp.	Copper	3 in.	3/8 in.	1/2 in. x 14 NPT	121371 Mounting Clamp	—	
121371M	Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. (38 mm) insulation, 3/4 in. NPT. Includes mounting clamp.	Copper	3 in.	3/8 in.	3/4 in. x 14 NPT	121371 Mounting Clamp	—	
123869A	Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. (38 mm) insulation, 1/2 in. NPT.	Copper	1 1/2 in.	3/8 in.	1/2 in. x 14 NPT	125975 Well Clamp	—	
123870A	Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. (38 mm) insulation, 3/4 in. NPT.	Copper	1 1/2 in.	3/8 in.	3/4 in. x 14 NPT	—	L4081; L4006	
123871A	Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 3 in. (76 mm) insulation, 3/4 in. NPT.	Copper	3 in.	3/8 in.	3/4 in. x 14 NPT	—	—	

# Well Assemblies

Product Number	Description	Materials	Insertion Length	Shell (internal diameter)	Spud Thread Size	Includes	Used With	Picture
123872A	Copper. Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 3 in. (76 mm) insulation, 1/2 in. NPT	Copper	3 in.	3/8 in.	1/2 in. NPT	—	—	
124299AA	Copper. Bulb size: 3/8 in. (10 mm). Well size: 3 in. (76 mm) insertion, 1 1/2 in. (38 mm) insulation, 3/4 in. NPT. Includes set screw with spud for armored capillary with plug.	Copper	1 1/2 in.	3/8 in.	3/4 in. x 14 NPT	Set screw in spud for armored capillary with plug	—	—
138134B/0021	Bulb size: 3/8 in. x 3 in. (10 mm x 76 mm). Well size: 3 in. (76 mm) insertion, 3/4 in. NPT	—	—	—	—	—	—	—

# Integrated Furnace Controls

## Universal Hot Surface Ignition Integrated Furnace Control



The S9200U1000 can be used with conventional thermostats as well as the EnviraCOM™ enabled VisionPRO IAQ and FocusPRO. The S9200U1000 Universal Integrated Furnace Control is intended for residential natural or liquid propane fueled furnaces only. The S9200U1000 EnviraCOM™ communications capability allows its use in twinning applications and enables communication with local and remote diagnostic devices such as the QuickLook hand held device (QuickLook™ 72), EnviraLINK™ web-based application and the W8735D Telephone Access Module (TAM).

- Main burner ignition using a 120V hot surface igniter.
- Flame rectification circuit to monitor flame presence.
- Monitoring of system pressure switch, high temperature limit, and rollout functions.
- Appliance operation/safety requirements controlled via microprocessor.
- Control of a standard induction-type circulating fan motor (based on appliance requirements), in response to a conventional low voltage or EnviraCOM™ thermostat.
- LED system status, performance and diagnostic indication.
- Wire harnesses provided for simple replacement of most IFCs and integration with most heating and cooling appliances.
- Twinning capability.
- EnviraCOM™ communication capability to enable local and/or remote system status, diagnostics, troubleshooting, and HVAC system control.

**Description:** Universal single stage heating and cooling

Product Number	Frequency	Operating Temperature (F)	Operating Temperature (C)	PrePurge	PostPurge
S9200U1000	60 Hz	-40F to 175F	-40C to 79C	30 sec.	15 sec.



## AQ250 Electronic Relay Boiler Control Panel for Hydronic Zoning System



The AQ250 family of AQUATROL Boiler Controls provides simplified, energy-efficient control of single temperature, residential hydronic heating systems. The AQ250 easily converts a single zone heating system into a room-by-room comfort control system, or upgrades a basic, relay-logic zoning system to intelligent Zone of Greatest Demand control for increased energy efficiency with reduced boiler cycling. AQ250 boiler controls can ensure ample supply of hot water for both space heating and priority generation of domestic hot water for bathing, dishes and laundry.

- 1-stage zoning.
- Zoning Control for up to 4 zones as shipped; can be expanded to a total of 16 zones with AQ255 or AQ257 expansion zoning panels and up to 64 zones when used with AQ254 Add-A-Temp panels.
- Line or low-voltage output for zoning equipment (pumps or valves).
- Zone synchronization through Zone or Greatest Demand control.
- Domestic hot water priority and priority override protection.
- Boiler short cycling protection.
- Boiler post purge.
- Freeze protection.
- Pump/valve exercise.
- Automated test feature for quick start-up and simplified troubleshooting.
- Integral 38 VA transformer with self-resetting electronic fuse.
- CSA C/US Certified to CSA and UL Standards, File No. LR76030.

**Application:** Boiler control for hydronic zoning system

**Dimensions, Approximate:** 13 in. wide x 8 in. high x 3 3/8 in. deep  
(33 cm wide x 20.3 cm high x 8.5 cm deep)

**Power Supply:** 120V/60Hz

**User Interface (Setting, Programming):** DIP Switches

**Electrical Connections (Line Voltage):** Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals

**Control and Zoning Panel Temperature Rating:** 32 F to 130 F  
(0 C to 55 C)

**Thermostat Compatibility:** AQ1000 Series 2-wire communicating thermostats

**Zone Module Thermostat input:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating with power link to AQ1000 series thermostat.

**Boiler Heat Post Purge:** Off, 10 seconds to 30 minutes (factory default is 30 seconds)

**Boiler (T-T) Output Rating:** 24Vac, 0.5A, 12VA

**Boiler Differential:** 2F to 41F (1C to 23C), or Auto (minimum 2 minutes on time)

**DHW Pump/Valve Output Rating:** 120 Vac/250 Vac 5A, 1/3HP

**DHW Demand Input:** External dry contacts connection only

**Pump/Valve exercise:** 30 seconds per 2 weeks of space heating inactivity

**Auxiliary Pump Output Rating:** Dry contact output, 120 Vac/250 Vac 5A, 1/3 HP

**Zone Output Contact Rating:** 120 Vac/250 Vac, 5A, 1/3 HP

**ZR-ZC Contact Rating:** 120 to 240 Vac, 1/3 HP

**Sensor Temperature Rating:** -58 F to +230 F (-50 C to +110 C)

**Supply/Return Sensor:** Lead Length: 10 ft. (3050 mm), 10 kohm NTC thermistor at 25 C (77 F) ± 0.5F (±0.3C) up to 500 ft (150 M) using 18 AWG or larger wire, beta=3892.

**Heat Demand (Thermostat R-W) Input:** External dry contacts connection only

**B-B Communication Bus Terminals:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.

**R-C Input (on Control and Zoning Modules):** 24 Vac Class II (input on Control and Zoning Modules)

**R-C Output (on transformer):** 38 VA, 24 Vac Class II

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Weight:** 4.9 lbs (2.3 kg)

**Approvals:**

**Canadian Standards Association:** Certified, File No. LR76030

Product Number	Type of Zoning Devices Controlled	Number of Zones Controlled	Boiler Pump (C1-C2) Output Rating	Replacement Parts
AQ2504B2	Pump or 2-wire valve (line voltage)	4 (Communicating)	120 Vac/250 Vac 5A, 1/3HP	AQ1500B0 boiler control module; AQ12C11 supply/return sensor; AQ10X38 24 Vac 38 VA transformer; AQ1554P2 4-zone pump expansion module
AQ2504B4	Zone valve with end switches	4 (Communicating)	120 Vac/250 Vac 5A, 1/3HP	AQ1500B0 boiler control module; AQ1574V4 4-zone valve with end switch expansion module; AQ12C11 supply/return sensor; AQ10X38 24 Vac 38 VA transformer

# AQUATROL Zoning System

## AQ25A Programmable Relay Control Panel for Hydronic Zoning System



The AQ25A family of AQUATROL Boiler Controls provides simplified, energy-efficient control of single-temperature, residential hydronic heating systems. The AQ25A easily converts a single zone heating system into a room-by-room comfort control system, or upgrades a basic, relay-logic zoning system to intelligent Zone of Greatest Demand control for increased energy efficiency with reduced boiler cycling. AQ25A boiler controls can ensure ample supply of hot water for both space heating and priority generation of domestic hot water for bathing, dishes and laundry.

**Application:** Boiler control for hydronic zoning system  
**Dimensions, Approximate:** 16 1/2 in. wide x 8 in. high x 3 3/8 in. deep (42 cm wide x 20.3 cm high x 8.5 cm deep)  
**Power Supply:** 120V/60Hz  
**User Interface (Setting, Programming):** LCD Display and a 7 button Key Pad  
**Electrical Connections (Line Voltage):** Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals  
**Control and Zoning Panel Temperature Rating:** 32 F to 130 F (0 C to 55 C)  
**Thermostat Compatibility:** AQ1000 Series 2-wire communicating thermostats  
**Zone Module Thermostat input:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating with power link to AQ1000 series thermostat.  
**Setback Program:** 7 day, up to 2 setback periods/day.  
**Boiler Heat Post Purge:** Off, 10 seconds to 30 minutes (factory default is 30 seconds)  
**Boiler (T-T) Output Rating:** 24Vac, 0.5A, 12VA  
**Boiler Differential:** 2F to 41F (1C to 23C), or Auto (minimum 2 minutes on time)  
**Boiler Pump (C1-C2) Output Rating:** 120 Vac/250 Vac 5A, 1/3HP  
**DHW Pump/Valve Output Rating:** 120 Vac/250 Vac 5A, 1/3HP  
**DHW Demand Input:** External dry contacts connection only

- Use with AQ1000 2-wire polarity insensitive communicating thermostats.
- Displays outdoor temperature on all AQ1000 Series thermostats when used with an AQ12C10 outdoor sensor (included).
- Intuitive programming interface and armchair programming (can be programmed at your desk and taken to the job site "ready-to-install")
- Customizable control settings and schedules allow for greater level of control and comfort.
- Central Zoning Control for up to 4 zones as shipped; can be expanded to a total of 16 zones with AQ255 or AQ257 expansion zoning panels, and up to 64 zones when used with AQ254 Add-a-Temperature panels.
- Zone synchronization through Zone of Greatest Demand control.
- Domestic hot water priority and priority override protection.
- Line or low-voltage output for zoning equipment (pumps or valves).
- Boiler short cycling protection.
- Boiler post purge.
- Freeze protection.
- Pump/valve exercise.
- Automated test and purge feature for quick start-up and simplified troubleshooting.
- Integral 38 VA transformer with self resetting electronic fuse.
- 2 hour power supply (super-capacitor) to retain day and time settings during power outage.
- Non-volatile EPROM memory retains program settings during power outage.

**Pump/Valve exercise:** 30 seconds per 2 weeks of space heating inactivity  
**Auxiliary Pump Output Rating:** Dry contact output, 120 Vac/250 Vac 5A, 1/3 HP  
**Auxiliary Low Voltage Output Rating:** 24Vac, 0.5A, 12VA  
**Auxiliary (Demand) Input:** External dry contacts connection only  
**Zone Output Contact Rating:** 120 Vac/250 Vac, 0.5A, 12VA  
**Sensor Temperature Rating:** -58 F to +230 F (-50 C to +110 C)  
**Outdoor Sensor: Supply/Return Sensor:** Lead Length: 10 ft. (3050 mm). 10 kohm NTC thermistor at 25 C (77 F) ± 0.5F (±0.3C) up to 500 ft (150 M) using 18 AWG or larger wire, beta=3892.  
**Heat Demand (Thermostat R-W) Input:** External dry contacts connection only  
**B-B Communication Bus Terminals:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.  
**R-C Input (on Control and Zoning Modules):** 24 Vac Class II (input on Control and Zoning Modules)  
**R-C Output (on transformer):** 38 VA, 24 Vac Class II  
**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing  
**Weight:** 5.7 lbs (2.6 kg)  
**Approvals:**  
**Canadian Standards Association:** Certified, File No. LR76030

Product Number	Type of Zoning Devices Controlled	Number of Zones Controlled	Replacement Parts
AQ25A4B2	Pump or 2-wire valve (line voltage)	4 (Communicating)	AQ15A0B0 boiler control module; AQ12C11 supply/return sensor; AQ12C10 outdoor sensor; AQ10X38 24 Vac 38 VA transformer; AQ1554P2 4-zone pump expansion module
AQ25A4B4	Zone valve with end switches	4 (Communicating)	AQ15A0B0 boiler control module; AQ1574V4 4-zone valve with end switch expansion module; AQ12C11 supply/return sensor; AQ12C10 outdoor sensor; AQ10X38 24 Vac 38 VA transformer

## AQ251 Electronic Boiler Reset Control Panel for Hydronic Zoning System



The AQ251 family of AQUATROL Boiler Reset Controls provides simplified, energy-efficient outdoor temperature compensated control of single temperature, residential hydronic heating systems. The AQ251 easily converts a single zone heating system into a room-by-room comfort control system, or upgrades a basic, relay-logic zoning system to intelligent Zone of Greatest Demand control with outdoor reset for increased energy efficiency with reduced boiler cycling. AQ251 boiler controls can ensure ample supply of hot water for both space heating and priority generation of domestic hot water for bathing, dishes and laundry.

- Displays outdoor temperature on all thermostats when used with an AQ12C10 outdoor sensor (included).

**Application:** Boiler reset control for hydronic zoning system

**Power Supply:** 120V/60Hz

**User Interface (Setting, Programming):** LCD Display and a 7 button Key Pad

**Electrical Connections (Line Voltage):** Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals

**Control and Zoning Panel Temperature Rating:** 32 F to 130 F (0 C to 55 C)

**Thermostat Compatibility:** AQ1000 Series 2-wire communicating thermostats

**Setback Program:** 7 day, up to 2 setback periods/day.

**Boiler Design Temperature:** 80F to 210F (26C to 99C)

**Boiler (Supply) Max. Control Temperature:** OFF, 59F to 180F (OFF, 15C to 82C)

**Boiler (Supply) Max. Control Temperature:** (OFF, 120F to 225 F) OFF, 49C to 107 C

**Boiler Heat Post Purge:** Off, 10 seconds to 30 minutes (factory default is 30 seconds)

**Boiler (T-T) Output Rating:** 24Vac, 0.5A, 12VA

**Boiler Differential:** 2F to 41F (1C to 23C), or Auto (minimum 2 minutes on time)

**Boiler Pump (C1-C2) Output Rating:** 120 Vac/250 Vac 5A, 1/3HP

**DHW Pump/Valve Output Rating:** 120 Vac/250 Vac 5A, 1/3HP

**DHW Demand Input:** External dry contacts connection only

**Outdoor Low Design Control Temperature:** -60F to 32F (-51C to 0C)

**Return Minimum Control Temperature:** 80 F to 180 F (27C to 82C)

- Intuitive programming interface and armchair programming (can be programmed at your desk and taken to the job site "ready-to-install")
- Customizable control settings and schedules allow for greater level of control and comfort.
- Central programming of zone set points and setback.
- 1-stage zoning.
- Zoning Control for up to four zones as shipped; can be expanded to a total of 16 zones with AQ255 or AQ257 expansion zoning panels, and up to 64 zones by using AQ254 Add-a-Temperature expansion panels.
- Outdoor temperature compensation (reset), or Load reset based on indoor temperature feedback.
- Zone synchronization through Zone of Greatest Demand control.
- Domestic hot water priority and priority override protection.
- Line or low-voltage output for zoning equipment (pumps or valves).
- Boiler short cycling protection.
- Boiler post purge.
- Freeze protection.
- Pump/valve exercise.
- Automated test and purge feature for quick start-up and simplified troubleshooting.
- Integral 38 VA transformer with self resetting electronic fuse.
- 2 hour power supply (super-capacitor) to retain day and time settings during power outage.
- Non-volatile EPROM memory retains program settings during power outage.

**Pump/Valve exercise:** 30 seconds per 2 weeks of space heating inactivity

**Auxiliary Pump Output Rating:** Dry contact output, 120 Vac/250 Vac 5A, 1/3 HP

**Auxiliary Low Voltage Output Rating:** 24Vac, 0.5A, 12VA

**Auxiliary (Demand) Input:** External dry contacts connection only

**WWSD (Warm Weather Shut Down) Temperature:** Off, 35 F to 100 F (Off, 1 C to 38 C)

**Sensor Temperature Rating:** -58 F to +230 F (-50 C to +110 C)

**Supply/Return Sensor:** Lead Length: 10 ft. (3050 mm). 10 kohm NTC thermistor at 25 C (77 F) ± 0.5F (±0.3C) up to 500 ft (150 M) using 18 AWG or larger wire, beta=3892.

**B-B Communication Bus Terminals:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.

**R-C Input (on Control and Zoning Modules):** 24 Vac Class II (input on Control and Zoning Modules)

**R-C Output (on transformer):** 38 VA, 24 Vac Class II

**Heat Demand (Thermostat R-W) Input:** External dry contacts connection only

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing  
**Weight:** 4.9 lbs (2.3 kg)

**Approvals:**

**Canadian Standards Association:** Certified, File No. LR76030

Product Number	Type of Zoning Devices Controlled	Number of Zones Controlled	Dimensions, Approximate		Weight		Replacement Parts
			(inch)	(mm)	(lb)	(kg)	
AQ2511B0	Pump	1 (Non-communicating)	13 in. wide x 8 in. high x 3 3/8 in. deep	33 cm wide x 20.3 cm high x 8.5 cm deep	4.9 lbs	2.3 kg	AQ1510B0 boiler reset module; AQ12C11 supply/return sensor; AQ12C10 outdoor sensor; AQ10X38 24 Vac 38 VA transformer
AQ2514B2	Pump or 2-wire valve	4 (Communicating)	16 1/2 in. wide x 8 in. high x 3 3/8 in. deep	42 cm wide x 20.3 cm high x 8.5 cm deep	5.7 lbs	2.6 kg	AQ1510B0 boiler reset module; AQ12C11 supply/return sensor; AQ12C10 outdoor sensor; AQ10X38 24 Vac 38 VA transformer; AQ1554P2 4-zone pump expansion module
AQ2514B4	Zone valve with end switch	4 (Communicating)	16 1/2 in. wide x 8 in. high x 3 3/8 in. deep	42 cm wide x 20.3 cm high x 8.5 cm deep	5.7 lbs	2.6 kg	AQ1510B0 boiler reset module; AQ1574V4 4-zone valve with end switch expansion module; AQ12C11 supply/return sensor; AQ12C10 outdoor sensor; AQ10X38 24 Vac 38 VA transformer

# AQUATROL Zoning System

## AQ252 Universal Injection/Mixing Boiler Reset Control Panel for Hydronic Zoning System



The AQ252 family of AQUATROL Universal Injection/Mixing Boiler Reset Controls provides simplified, energy-efficient outdoor temperature compensated control of single-temperature, residential hydronic heating systems. The AQ252 easily converts a single zone heating system into a room-by-room comfort control system, or upgrades a basic, relay-logic zoning system to intelligent Zone of Greatest Demand control with outdoor reset for increased energy efficiency with reduced boiler cycling. AQ252 boiler controls can ensure ample supply of hot water for both space heating and priority generation of domestic hot water for bathing, dishes and laundry.

- Controls one boiler loop and one mixed temperature loop.
- Use of variable speed injection pump or motorized mixing valve for mixed temperature loop control.

**Application:** Controls one boiler and one mixing (either variable speed injection or floating valve mixing) loop in a hydronic zoning system.

**Dimensions, Approximate:** 16 1/2 in. wide x 8 in. high x 3 3/8 in. deep (42 cm wide x 20.3 cm high x 8.5 cm deep)

**Power Supply:** 120V/60Hz

**User Interface (Setting, Programming):** LCD Display and a 7 button Key Pad

**Electrical Connections (Line Voltage):** Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals

**Control and Zoning Panel Temperature Rating:** 32 F to 130 F (0 C to 55 C)

**Thermostat Compatibility:** AQ1000 Series 2-wire communicating thermostats

**Setback Program:** 7 day, up to 2 setback periods/day.

**Boiler Design Temperature:** 80F to 210F (26C to 99C)

**Boiler (Supply) Max. Control Temperature:** OFF, 59F to 180F (OFF, 15C to 82C)

**Boiler (Supply) Max. Control Temperature:** (OFF, 120F to 225 F) OFF, 49C to 107 C

**Boiler Heat Post Purge:** Off, 10 seconds to 30 minutes (factory default is 30 seconds)

**Boiler (T-T) Output Rating:** 24Vac, 0.5A, 12VA

**Boiler Differential:** 2F to 41F (1C to 23C), or Auto (minimum 2 minutes on time)

**Boiler Pump (C1-C2) Output Rating:** 120 Vac 5A, 1/3HP

**DHW Pump/Valve Output Rating:** 120 Vac 5A, 1/3HP

**DHW Demand Input:** External dry contacts connection only

**Outdoor Low Design Control Temperature:** -60F to 32F (-51C to 0C)

**Return Minimum Control Temperature:** 80 F to 180 F (27C to 82C)

**Variable Speed Injection Pump Output:** Triac modulated; 120 Vac, 2.1A, 1/6HP

**Pump/Valve exercise:** 30 seconds per 2 weeks of space heating inactivity

- Use with AQ1000 2-wire polarity insensitive communicating thermostats.
- Allows display of outdoor temperature on all thermostats when used with an AQ12C10 outdoor sensor (included).
- Intuitive programming interface and armchair programming (can be programmed at your desk and taken to the job site "ready-to-install")
- Customizable control settings and schedules allow for greater level of control and comfort.
- Central set-back schedules available.
- 1-stage zoning.
- Zoning Control for up to four zones as shipped; can be expanded to a total of 16 zones with AQ255 or AQ257 expansion zoning panels, and up to 64 zones by using AQ254 Add-a-Temperature expansion panels.
- Outdoor temperature compensation (reset), or Load reset based on indoor temperature feedback.
- Zone synchronization through Zone of Greatest Demand control.
- Domestic hot water priority and priority override protection.
- Line or low-voltage output for zoning equipment (pumps or valves).
- Boiler short cycling protection.
- Boiler post purge.
- Freeze protection.
- Pump/valve exercise.
- Boiler shock prevention from cold water returning to boiler.
- Automated test and purge feature for quick start-up and simplified troubleshooting.
- Integral 38 VA transformer with self resetting electronic fuse.
- 4 hours power supply (super capacitor) to retain day and time settings during power outage.
- Non-volatile EPROM memory retains program settings during power outage.

**Secondary Pump Output Rating:** 120 Vac 5A, 1/3HP

**Auxiliary Pump Output Rating:** Dry contact output, 120 Vac/250 Vac 5A, 1/3 HP

**Auxiliary Low Voltage Output Rating:** 24Vac, 0.5A, 12VA

**Auxiliary (Demand) Input:** External dry contacts connection only

**WWSD (Warm Weather Shut Down) Temperature:** Off, 35 F to 100 F (Off, 1 C to 38 C)

**Sensor Temperature Rating:** -58 F to +230 F (-50 C to +110 C)

**Supply/Return Sensor:** Lead Length: 10 ft. (3050 mm). 10 kohm NTC thermistor at 25 C (77 F)  $\pm 0.5F$  ( $\pm 0.3C$ ) up to 500 ft (150 M) using 18 AWG or larger wire, beta=3892.

**Mixing Valve (Com,O,C) Output:** 24Vac rated dry contacts

**Secondary Loop Mixing (Supply) Design Temp Range:** 70 F to 210 F (21 C to 99 C)

**Secondary Loop Mixing (Supply) Max Control Temp Range:** 80 F to 210 F (27 C to 99 C)

**Secondary Loop Return Min Control Temp Range:** 80 F to 180 F (27 C to 82 C)

**Secondary Loop Mixing (Supply) Min Control Temp Range:** 35 F to 150 F (2 C to 66 C)

**Heat Demand (Thermostat R-W) Input:** External dry contacts connection only

**B-B Communication Bus Terminals:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.

**R-C Input (on Control and Zoning Modules):** 24 Vac Class II (input on Control and Zoning Modules)

**R-C Output (on transformer):** 38 VA, 24 Vac Class II

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Weight:** 4.9 lbs (2.3 kg)

**Approvals:**

**Canadian Standards Association:** Certified, File No. LR76030

# AQUATROL Zoning System

Product Number	Type of Zoning Devices Controlled	Number of Zones Controlled	Weight		Replacement Parts
			(lb)	(kg)	
AQ2524M2	Pump or 2-wire valve (line voltage)	4 (Communicating)	6.0 lbs	2.7 kg	AQ1520M0 universal injection/mixing boiler reset module; AQ12C11 supply/return sensor; AQ12C10 outdoor sensor; AQ10X38 24 Vac 38 VA transformer; AQ1554P2 4-zone pump expansion module
AQ2524M4	Zone valve with end switches	4 (Communicating)	6.0 lbs	2.7 kg	AQ1520M0 universal injection/mixing boiler reset module; AQ1574V4 4-zone valve with end switch expansion module; AQ12C11 supply/return sensor; AQ12C10 outdoor sensor; AQ10X38 24 Vac 38 VA transformer

## AQ254 Add-a-Temperature Injection/Mixing Expansion Control Panel for Hydronic Zoning System



The AQ254 Add-a-Temperature Expansion Control is used in conjunction with AQ250, AQ25A, AQ251 and AQ252 Control panels. It provides one additional loop temperature control capability for the AQ2000 control panel it is connected to and expands the total network capacity by up to 16 zones when used with AQ255 and/or AQ257 zoning panels.

- Acts as an add-on control panel to the Main (AQ250, AQ25A, AQ251, AQ252) Control panel.
- Allows each of the 16 zones connected to it to be assigned to the primary or secondary loop.
- Up to 3 AQ254 panels can be added to the same hydronic system controlled by the same Main Control panel.
- Displays outdoor temperature on all thermostats when used with an AQ12C10 outdoor sensor (not included).
- Mixed loop temperature is controlled by a variable speed injection pump or motorized mixing valve.
- Intuitive programming interface and armchair programming (can be programmed at your desk and taken to the job site "ready-to-install")
- Customizable mixing control settings allow for greater level of control and comfort.
- Zone synchronization through Zone of Greatest Demand control.
- Integral 38 VA transformer with self resetting electronic fuse.

Hydronic Controls

**Application:** Expanded zone control and mixed loop temperature control in a hydronic zoning system. Mixed loop target temperature is reset by either outdoor temperature or calculated system load based on indoor temperature feedback. Mixing is target controlled by a variable speed injection pump or motorized mixing valve.

**Dimensions, Approximate:** 9 1/2 in. wide x 8 in. high x 3 3/8 in. deep (24 cm wide x 20.3 cm high x 8.5 cm deep)

**Power Supply:** 120V/60Hz

**Electrical Connections (Line Voltage):** Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals

**Control and Zoning Panel Temperature Rating:** 32 F to 130 F (0 C to 55 C)

**Thermostat Compatibility:** AQ1000 Series 2-wire communicating thermostats

**Variable Speed Injection Pump Output:** Triac modulated; 120 Vac, 2.1A, 1/6HP

**Secondary Pump Output Rating:** 120 Vac 5A, 1/3HP

**Auxiliary Pump Output Rating:** Dry contact output, 120 Vac/250 Vac 5A, 1/3 HP

**Sensor Temperature Rating:** -58 F to +230 F (-50 C to +110 C)

**Secondary Loop Mixing (Supply) Design Temp Range:** 70 F to 210 F (21 C to 99 C)

**Secondary Loop Mixing (Supply) Max Control Temp Range:** 80 F to 210 F (27 C to 99 C)

**Secondary Loop Return Min Control Temp Range:** 80 F to 180 F (27 C to 82 C)

**Secondary Loop Mixing (Supply) Min Control Temp Range:** 35 F to 150 F (2 C to 66 C)

**B-B Communication Bus Terminals:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.

**R-C Input (on Control and Zoning Modules):** 24 Vac Class II (input on Control and Zoning Modules)

**R-C Output (on transformer):** 38 VA, 24 Vac Class II

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Weight:** 3.9 lbs (1.8 kg)

**Approvals:**

**Canadian Standards Association:** Certified, File No. LR76030

Product Number	Mixing Valve (Com,O,C) Output	Replacement Parts	User Interface (Setting, Programming)
AQ2541E0	24 Vac rated dry contacts	AQ12C11 supply/return sensor for mixed loop. AQ1540E0 Add-A-Temperature expansion control module AQ10X38 24 Vac 38 VA transformer	LCD Display and a 3 button Key Pad

# AQUATROL Zoning System

## AQ255 and AQ257 Zoning Expansion Panel for Hydronic Zoning System



The AQ255 and AQ257 family of AQUATROL Expansion Zoning panels work with AQ2000 Boiler Control Panels and AQ1000 Communicating Thermostat to control up to 4 space heating zones (or 8, for the AQ2558P2X Panel). Can be combined with additional expansion zoning panels and an AQ2000 control panel for a total of 16 space heating zones.

**Application:** Zoning control for hydronic zoning system  
**Dimensions, Approximate:** 9 1/2 in. wide x 8 in. high x 3 3/8 in. deep (24 cm wide x 20.3 cm high x 8.5 cm deep)  
**User Interface (Setting, Programming):** DIP Switches  
**Electrical Connections (Line Voltage):** Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals  
**Control and Zoning Panel Temperature Rating:** 32 F to 130 F (0 C to 55 C)  
**Thermostat Compatibility:** AQ1000 Series 2-wire communicating thermostats  
**Zone Module Thermostat input:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating with power link to AQ1000 series thermostat.

- AQ257 for zoning with zone valves with end switches
- AQ255 for zoning with pumps or zone valves without end switches.
- Allows zone synchronization through Zone of Greatest Demand control.
- Auto test function to test zones at system start up. It allows for operator controlled testing of zones; includes pause/restart capability.
- LED lights for easy diagnostic of zone operation.
- Allows zoning with either “Normally Open” or “Normally Closed” zone valves.
- Adjacent zoning panels can operate different zone equipment - one panel may control 4 pumps while another may control 4 zone valves.
- Easily switch from zone valves to pumps with same zoning module - just flip one DIP switch. Ensure correct voltage is applied (120 Vac for pumps, 24 Vac for valves)
- R-C transformer and B-B data bus terminal connections and network communication for easy expansion.
- Zones can be set to energize a parallel group pump via Aux Out dry contacts on main control panel (AQ250, AQ25A, AQ251, AQ252) or expansion control panel (AQ254).
- 38 VA Transformer with self resetting electronic fuse.

**Zone Output Contact Rating:** 120 Vac/250 Vac, 5A, 1/3 HP  
**B-B Communication Bus Terminals:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.  
**R-C Input (on Control and Zoning Modules):** 24 Vac Class II (input on Control and Zoning Modules)  
**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing  
**Weight:** 2.1 lbs (1 kg)  
**Approvals:**  
**Canadian Standards Association:** Certified, File No. LR76030

Product Number	Type of Zoning Devices Controlled	Number of Zones Controlled	Weight		Replacement Parts
			(lb)	(kg)	
AQ2554P2X	Pump or 2-wire valve (line voltage)	4 (Communicating)	2.1 lbs	1 kg	AQ1554P2 4-zone pump expansion module
AQ2554V2	2-wire valve (24 Vac)	4 (Communicating)	3.9 lbs	1.8 kg	AQ10X38 24 Vac 38 VA transformer; AQ1554P2 4-zone pump expansion module
AQ2558P2X	Pump or 2-wire valve (line voltage)	8 (Communicating)	2.6 lbs	1.3 kg	AQ1554P2 4-zone pump expansion module
AQ2574V4	Zone valve with end switch (24 Vac)	4 (Communicating)	3.9 lbs	1.8 kg	AQ1574V4 4-zone pump expansion module; AQ10X38 24 Vac 38 VA transformer

# AQUATROL Zoning System

## AQ2000 Series Replacement Control Modules



AQ150



AQ15A, AQ151, AQ152

Replacement modules for the AQ2000 controls

**Electrical Connections (Line Voltage):** Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals

**Control and Zoning Panel Temperature Rating:** 32 F to 130 F (0 C to 55 C)

**Boiler Heat Post Purge:** Off, 10 seconds to 30 minutes (factory default is 30 seconds)

**Boiler (T-T) Output Rating:** 24Vac, 0.5A, 12VA

**Boiler Differential:** 2F to 41F (1C to 23C), or Auto (minimum 2 minutes on time)

**DHW Demand Input:** External dry contacts connection only

**Pump/Valve exercise:** 30 seconds per 2 weeks of space heating inactivity

**Heat Demand (Thermostat R-W) Input:** External dry contacts connection only

**B-B Communication Bus Terminals:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.

**R-C Input (on Control and Zoning Modules):** 24 Vac Class II (input on Control and Zoning Modules)

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Weight:** 0.5 lbs (0.23 kg)

**Approvals:**

**Canadian Standards Association:** Certified, File No. LR76030

Product Number	Type of Zoning Devices Controlled	Mixing Valve (Com,O,C) Output	Dimensions, Approximate		Weight		User Interface (Setting, Programming)
			(inch)	(mm)	(lb)	(kg)	
AQ15A0B0	Loop pump	—	7 1/8 in. wide x 2 1/2 in. high x 4 1/4 in. deep	18 cm wide x 94 cm high x 10.09 cm deep	1.0 lbs	0.5 kg	LCD Display and a 7 button Key Pad
AQ1500B0	Loop pump	—	3 1/2 in. wide x 2 1/2 in. high x 4 1/4 in. wide	9 cm wide x 94 cm high x 10.09 cm deep	0.5 lbs	0.23 kg	DIP Switches
AQ1510B0	Loop pump	—	7 1/8 in. wide x 2 1/2 in. high x 4 1/4 in. deep	18 cm wide x 94 cm high x 10.09 cm deep	1.0 lbs	0.5 kg	LCD Display and a 7 button Key Pad
AQ1520M0	Loop pump	24Vac rated dry contacts	7 1/8 in. wide x 2 1/2 in. high x 4 1/4 in. deep	18 cm wide x 94 cm high x 10.09 cm deep	1.0 lbs	0.5 kg	LCD Display and a 7 button Key Pad

Hydronic Controls

## AQ2000 Series Replacement Control Module



Replacement module for the AQ2000 controls

**Dimensions, Approximate:** 3 1/2 in. wide x 2 1/2 in. high x 4 1/4 in. deep (9 cm wide x 94 cm high x 10.09 cm deep)

**Electrical Connections (Line Voltage):** Wire-clamp screw terminals, Maximum 2 x 14 AWG each on line voltage terminals

**Control and Zoning Panel Temperature Rating:** 32 F to 130 F (0 C to 55 C)

**Pump/Valve exercise:** 30 seconds per 2 weeks of space heating inactivity

**B-B Communication Bus Terminals:** Low voltage, Class II, 2-wire polarity-insensitive, digital communicating link to other Control or Zoning modules.

**R-C Input (on Control and Zoning Modules):** 24 Vac Class II (input on Control and Zoning Modules)

**Operating Humidity Range (% RH):** 5 to 90% RH, non-condensing

**Weight:** 0.5 lbs (0.23 kg)

**Approvals:**

**Canadian Standards Association:** Certified, File No. LR76030

Product Number	Type of Zoning Devices Controlled	Mixing Valve (Com,O,C) Output	Weight		User Interface (Setting, Programming)
			(lb)	(kg)	
AQ1540E0	Loop pump	24Vac rated dry contacts	0.7 lbs	0.3 kg	LCD Display and a 3 button Key Pad