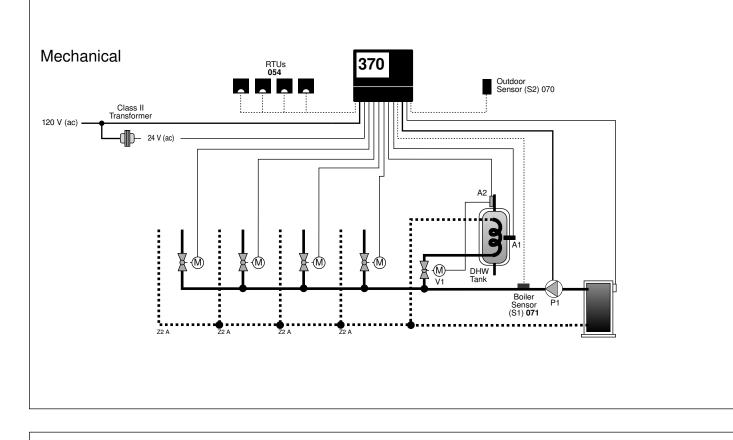
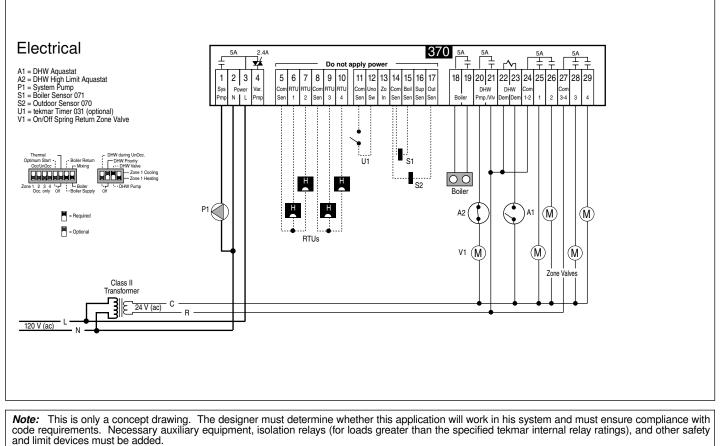
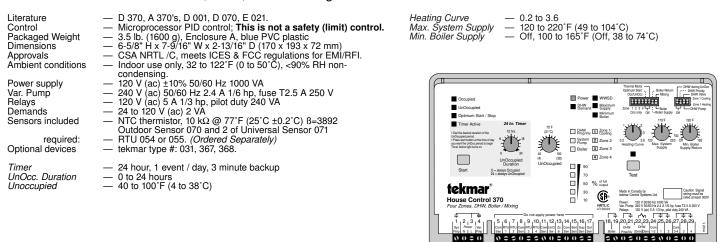


A 370-1 07/99





House Control 370 Four Zones, DHW, Boiler / Mixing



System Operation & Specifications

The House Control 370 controls the space temperature of four heating zones. The required supply water temperature to the zones is controlled by operating a boiler. The 370 also controls the supply of heat to a DHW tank.

Piping and Heat Source Details The system is plumbed with zone valves and a system pump. Either a high mass, low mass or a condensing boiler can be used with this application. Heat is supplied to the DHW tank through a DHW valve (V1).

Warm Weather Shut Down (WWSD) When the outdoor temperature rises above the highest RTU dial setting and the heating zones are satisfied, the 370 shuts down the heating system. The DHW system does, however, continue to operate.

Boiler Operation The 370 uses an outdoor reset strategy together with indoor temperature feedback from the RTUs to adjust the system supply water temperature. When heat is required in the zones, the 370 turns on the system pump (P1). In order to maximize boiler efficiency, the 370 operates the boiler at the lowest possible water temperature. The 370 automatically adjusts the boiler differential to prevent the boiler from short cycling.

Domestic Hot Water (DHW) When the DHW aquastat (A1) calls for heat, the 370 turns on the system pump (P1), opens the DHW valve (V1) and raises the boiler water temperature to at least 180°F (82°C). If *DHW Priority* is chosen, the 370 turns off the zone valves. Once the DHW demand is removed the 370 either performs a DHW Post Purge or a DHW Mixing Purge depending on whether or not the zones require heat.

Zoning Operation The 370 varies the on time of each zone valve based on a 15 minute cycle. The control staggers the operating times of the zones in order to achieve a steady load on the boiler and prevent boiler short cycling.

UnOccupied (Night Setback) Selected zones can be switched into an UnOccupied (Night Setback) mode through either the built-in 24 hr. Timer or by closing an external UnOccupied switch (U1). When the control is switched into UnOccupied mode, an UnOccupied dial is used to set the desired indoor temperature. An Optimum Start / Stop feature can be used to ensure the zones are returned to their Occupied temperatures as the UnOccupied period ends.

Other features Additional control features are listed in the table in the Heating Controls section of the Product Catalog I 000.



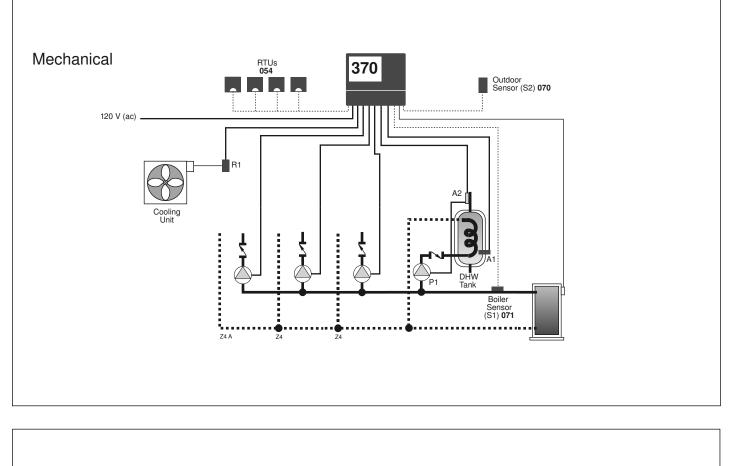


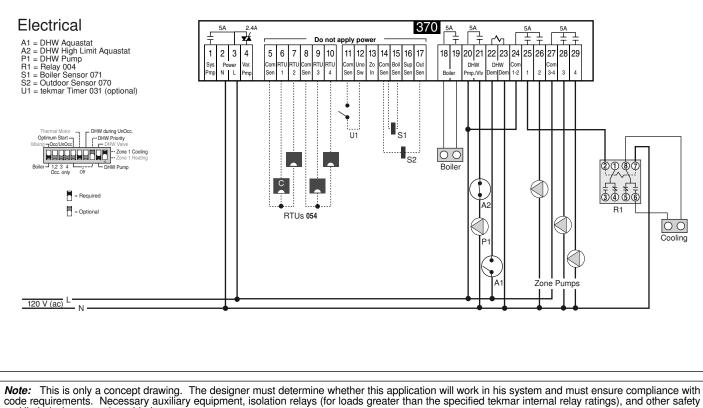


A 370-2 07/95

House Control 370

and limit devices must be added.





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Access Levels

House Control 370 Four Zones, DHW, Boiler / Mixing

Literature Control Packaged Weight Dimensions Approvals Ambient conditions	 D 370, A 370's, D 001, D 070, E 021. Microprocessor PID control; This is not a safety (limit) control. 3.5 lb. (1600 g), Enclosure A, blue PVC plastic 6-5/8" H x 7-9/16" W x 2-13/16" D (170 x 193 x 72 mm) CSA NRTL /C, meets ICES & FCC regulations for EMI/RFI. Indoor use only, 32 to 122'F (0 to 50°C), <90% RH non-condensing. 	Heating Curve — 0.2 to 3.6 Max. System Supply — 120 to 220°F (49 to 104°C) Min. Boiler Supply — Off, 100 to 165°F (Off, 38 to 74°C)
Power supply	— 120 V (ac) ±10% 50/60 Hz 1000 VA	
Var. Pump Relays Demands Sensors included required: Optional devices	 240 V (ac) 50/60 Hz 2.4 A 1/6 hp, fuse T2.5 A 250 V 120 V (ac) 5 A 1/3 hp, pilot duty 240 VA 24 to 120 V (ac) 2 VA NTC thermistor, 10 kΩ @ 77°F (25°C ±0.2°C) β=3892 Outdoor Sensor 070 and 2 of Universal Sensor 071 RTU 054 or 055. (Ordered Separately) tekmar type #: 031, 367, 368. 	Cocupied Cocupied Cocine Starl / Step Timer Active 24 Nr. Timer Timer Active 25 Nr. Timer Timer A
Timer UnOcc. Duration	 24 hour, 1 event / day, 3 minute backup 0 to 24 hours 	UnOccupied (4) (8) 2
Unoccupied	— 40 to 100°F (4 to 38°C)	tekmor* 0 % # % % # % % # % % # % % # # % % # # % % # # % # </td

System Operation & Specifications

The House Control 370 controls the space temperature of four heating zones. The required supply water temperature to the zones is controlled by operating a boiler. The 370 also controls the supply of heat to a DHW tank.

Piping and Heat Source Details The system is plumbed with zone valves and a system pump. Either a high mass, low mass or a condensing boiler can be used with this application. Heat is supplied to the DHW tank through a DHW valve (V1).

Warm Weather Shut Down (WWSD) When the outdoor temperature rises above the highest RTU dial setting and the heating zones are satisfied, the 370 shuts down the heating system. The DHW system does, however, continue to operate.

Boiler Operation The 370 uses an outdoor reset strategy together with indoor temperature feedback from the RTUs to adjust the system supply water temperature. When heat is required in the zones, the 370 turns on the system pump (P1). In order to maximize boiler efficiency, the 370 operates the boiler at the lowest possible water temperature. The 370 automatically adjusts the boiler differential to prevent the boiler from short cycling.

Domestic Hot Water (DHW) When the DHW aquastat (A1) calls for heat, the 370 turns on the system pump (P1), opens the DHW valve (V1) and raises the boiler water temperature to at least 180°F (82°C). If *DHW Priority* is chosen, the 370 turns off the zone valves. Once the DHW demand is removed the 370 either performs a DHW Post Purge or a DHW Mixing Purge depending on whether or not the zones require heat.

Zoning Operation The 370 varies the on time of each zone valve based on a 15 minute cycle. The control staggers the operating times of the zones in order to achieve a steady load on the boiler and prevent boiler short cycling.

UnOccupied (Night Setback) Selected zones can be switched into an UnOccupied (Night Setback) mode through either the built-in 24 hr. Timer or by closing an external UnOccupied switch (U1). When the control is switched into UnOccupied mode, an UnOccupied dial is used to set the desired indoor temperature. An Optimum Start / Stop feature can be used to ensure the zones are returned to their Occupied temperatures as the UnOccupied period ends.

Other features Additional control features are listed in the table in the Heating Controls section of the Product Catalog I 000.



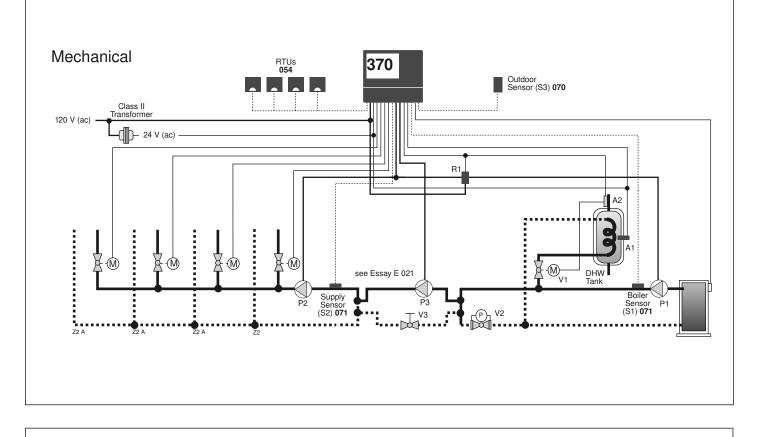


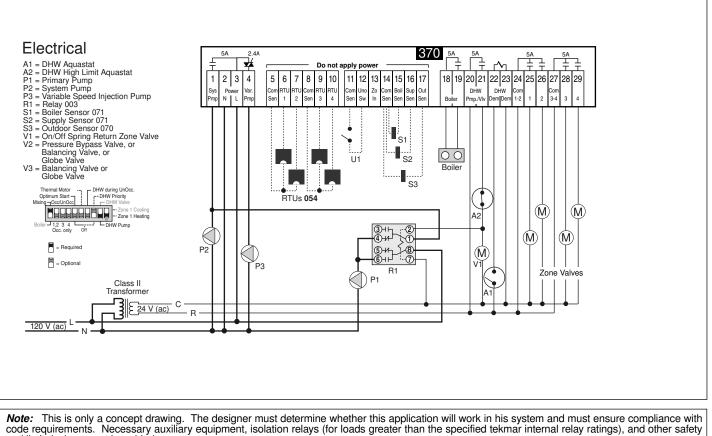


A 370-3 07/95

House Control 370

and limit devices must be added.





House Control 370 Four Zones, DHW, Boiler / Mixing

Literature Control Packaged Weight Dimensions Approvals Ambient conditions	 D 370, A 370's, D 001, D 070, E 021. Microprocessor PID control; This is not a safety (limit) control. 3.5 lb. (1600 g), Enclosure A, blue PVC plastic 6-5/8" H x 7-9/16" W x 2-13/16" D (170 x 193 x 72 mm) CSA NRTL /C, meets ICES & FCC regulations for EMI/RFI. Indoor use only, 32 to 122°F (0 to 50°C), <90% RH non-condensing. 	Heating Curve — 0.2 to 3.6 Max. System Supply — 120 to 220°F (49 to 104°C) Min. Boiler Supply — Off, 100 to 165°F (Off, 38 to 74°C)
Power supply Var. Pump Relays Demands Sensors included required: Optional devices	$\begin{array}{l} -120\ V\ (ac)\pm10\%\ 50/60\ Hz\ 1000\ VA\\ -240\ V\ (ac)\ 50/60\ Hz\ 2.4\ A\ 1/6\ hp,\ fuse\ T2.5\ A\ 250\ V\\ -120\ V\ (ac)\ 5\ A\ 1/3\ hp,\ pilot\ duty\ 240\ VA\\ -24\ to\ 120\ V\ (ac)\ 5\ A\ 1/3\ hp,\ pilot\ duty\ 240\ VA\\ -24\ to\ 120\ V\ (ac)\ 2\ VA\\ -24\ to\ 120\ V\ (ac)\ 2\ VA\\ -24\ to\ 120\ V\ (ac)\ 5\ A\ 1/3\ hp,\ pilot\ duty\ 240\ VA\\ -24\ to\ 120\ V\ (ac)\ 5\ A\ 1/3\ hp,\ pilot\ duty\ 240\ VA\\ -24\ to\ 120\ V\ (ac)\ 5\ A\ 1/3\ hp,\ pilot\ duty\ 240\ VA\\ -24\ to\ 120\ V\ (ac)\ 5\ A\ 1/3\ hp,\ pilot\ duty\ 240\ VA\\ -24\ to\ 120\ V\ (ac)\ 5\ A\ 1/3\ hp,\ pilot\ duty\ 240\ VA\\ -24\ to\ 120\ V\ (ac)\ 5\ A\ 1/3\ hp,\ pilot\ duty\ 240\ VA\\ -24\ to\ 120\ V\ (ac)\ 5\ A\ 1/3\ hp,\ pilot\ duty\ 240\ VA\\ -24\ to\ 120\ V\ (ac)\ 5\ A\ 1/3\ hp,\ pilot\ duty\ 240\ VA\\ -24\ to\ 120\ V\ (ac)\ 5\ A\ 1/3\ hp,\ pilot\ duty\ 240\ VA\\ -24\ to\ 120\ V\ (ac)\ 5\ A\ 1/3\ hp,\ pilot\ duty\ 240\ VA\\ -24\ to\ 120\ V\ (ac)\ 4\ 1/3\ hp,\ pilot\ duty\ 240\ VA\\ -24\ to\ 120\ V\ (ac)\ 5\ A\ 1/3\ hp,\ pilot\ duty\ 240\ VA\\ -24\ buty\ 240\ VA\\ -24\ buty\ 240\ VA\ 240\ VA\\ -24\ buty\ 240\ VA\ 240\ VA\ 240\ VA\\ -24\ buty\ 240\ VA\ 240\ 240\ VA\ 240\ 240\ VA\ 240\ VA\ 240\ VA\ 240\ 240\ VA\ 240\ 240\ VA\ 240\ 240\ VA\ 240\ 240\ 240\ 240\ 240\ 240\ 240\ 240$	Cocupied Cocupi
Timer UnOcc. Duration Unoccupied	 24 hour, 1 event / day, 3 minute backup 0 to 24 hours 40 to 100°F (4 to 38°C) 	Unclosured Start 0* dia bit of *** area 0* dia bit of *** 0*** 0**** 0**

System Operation & Specifications

The House Control 370 controls the space temperature of four heating zones. The required supply water temperature to the zones is controlled by operating a boiler. The 370 also controls the supply of heat to a DHW tank.

Piping and Heat Source Details The system is plumbed with zone valves and a system pump. Either a high mass, low mass or a condensing boiler can be used with this application. Heat is supplied to the DHW tank through a DHW valve (V1).

Warm Weather Shut Down (WWSD) When the outdoor temperature rises above the highest RTU dial setting and the heating zones are satisfied, the 370 shuts down the heating system. The DHW system does, however, continue to operate.

Boiler Operation The 370 uses an outdoor reset strategy together with indoor temperature feedback from the RTUs to adjust the system supply water temperature. When heat is required in the zones, the 370 turns on the system pump (P1). In order to maximize boiler efficiency, the 370 operates the boiler at the lowest possible water temperature. The 370 automatically adjusts the boiler differential to prevent the boiler from short cycling.

Domestic Hot Water (DHW) When the DHW aquastat (A1) calls for heat, the 370 turns on the system pump (P1), opens the DHW valve (V1) and raises the boiler water temperature to at least 180°F (82°C). If *DHW Priority* is chosen, the 370 turns off the zone valves. Once the DHW demand is removed the 370 either performs a DHW Post Purge or a DHW Mixing Purge depending on whether or not the zones require heat.

Zoning Operation The 370 varies the on time of each zone valve based on a 15 minute cycle. The control staggers the operating times of the zones in order to achieve a steady load on the boiler and prevent boiler short cycling.

UnOccupied (Night Setback) Selected zones can be switched into an UnOccupied (Night Setback) mode through either the built-in 24 hr. Timer or by closing an external UnOccupied switch (U1). When the control is switched into UnOccupied mode, an UnOccupied dial is used to set the desired indoor temperature. An Optimum Start / Stop feature can be used to ensure the zones are returned to their Occupied temperatures as the UnOccupied period ends.

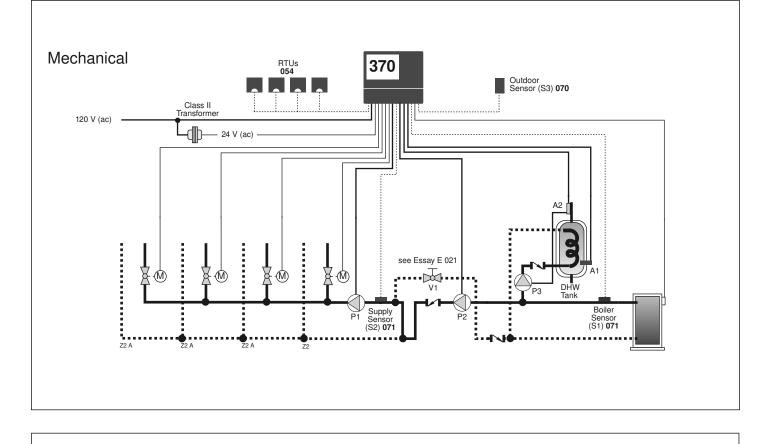
Other features Additional control features are listed in the table in the Heating Controls section of the Product Catalog I 000.

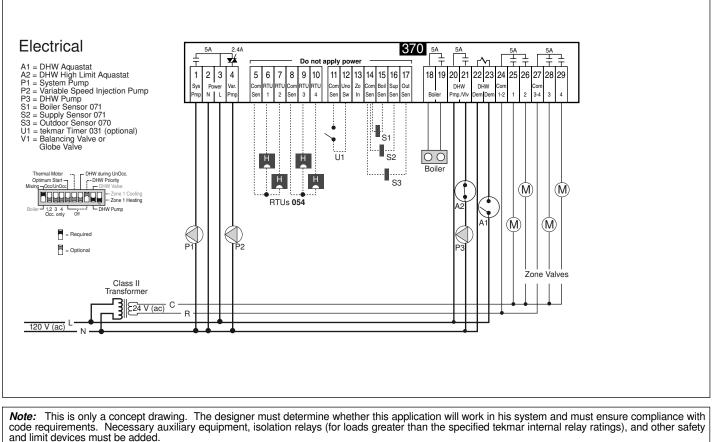






A 370-4 07/95





House Control 370 Four Zones, DHW, Boiler / Mixing

Literature Control Packaged Weight Dimensions Approvals Ambient conditions	 D 370, A 370's, D 001, D 070, E 021. Microprocessor PID control; This is not a safety (limit) control. 3.5 lb. (1600 g), Enclosure A, blue PVC plastic 6-5/8" H x 7-9/16" W x 2-13/16" D (170 x 193 x 72 mm) CSA NRTL /C, meets ICES & FCC regulations for EMI/RFI. Indoor use only, 32 to 122°F (0 to 50°C), <90% RH non-condensing. 	Heating Curve — 0.2 to 3.6 Max. System Supply — 120 to 220°F (49 to 104°C) Min. Boiler Supply — Off, 100 to 165°F (Off, 38 to 74°C)
Power supply Var. Pump Relays Demands Sensors included required: Orticated	 120 V (ac) ±10% 50/60 Hz 1000 VA 240 V (ac) 50/60 Hz 2.4 A 1/6 hp, fuse T2.5 A 250 V 120 V (ac) 5 A 1/3 hp, pilot duty 240 VA 24 to 120 V (ac) 2 VA NTC thermistor, 10 k& @ 77'F (25°C ±0.2°C) β=3892 Outdoor Sensor 070 and 2 of Universal Sensor 071 RTU 054 or 055. (Ordered Separately) 	Coccupied Coccupied
Optional devices Timer UnOcc. Duration Unoccupied	 tekmar type #: 031, 367, 368. 24 hour, 1 event / day, 3 minute backup 0 to 24 hours 40 to 100°F (4 to 38°C) 	The Advances in a second sec

System Operation & Specifications

The House Control 370 controls the space temperature of four heating zones. The required supply water temperature to the zones is controlled by operating a boiler. The 370 also controls the supply of heat to a DHW tank.

Piping and Heat Source Details The system is plumbed with zone valves and a system pump. Either a high mass, low mass or a condensing boiler can be used with this application. Heat is supplied to the DHW tank through a DHW valve (V1).

Warm Weather Shut Down (WWSD) When the outdoor temperature rises above the highest RTU dial setting and the heating zones are satisfied, the 370 shuts down the heating system. The DHW system does, however, continue to operate.

Boiler Operation The 370 uses an outdoor reset strategy together with indoor temperature feedback from the RTUs to adjust the system supply water temperature. When heat is required in the zones, the 370 turns on the system pump (P1). In order to maximize boiler efficiency, the 370 operates the boiler at the lowest possible water temperature. The 370 automatically adjusts the boiler differential to prevent the boiler from short cycling.

Domestic Hot Water (DHW) When the DHW aquastat (A1) calls for heat, the 370 turns on the system pump (P1), opens the DHW valve (V1) and raises the boiler water temperature to at least 180°F (82°C). If *DHW Priority* is chosen, the 370 turns off the zone valves. Once the DHW demand is removed the 370 either performs a DHW Post Purge or a DHW Mixing Purge depending on whether or not the zones require heat.

Zoning Operation The 370 varies the on time of each zone valve based on a 15 minute cycle. The control staggers the operating times of the zones in order to achieve a steady load on the boiler and prevent boiler short cycling.

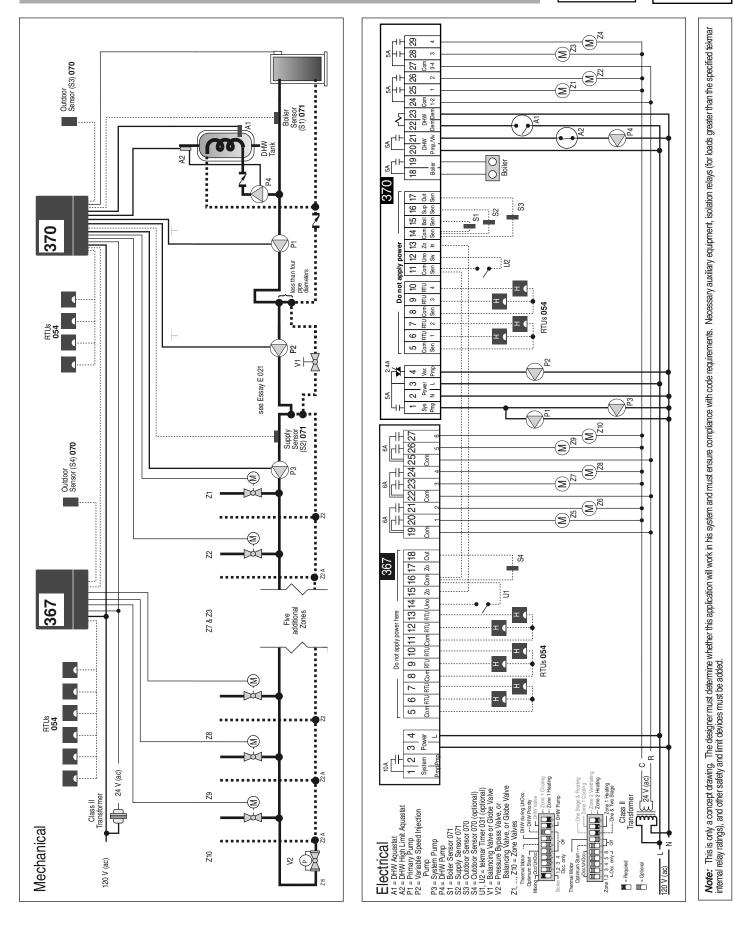
UnOccupied (Night Setback) Selected zones can be switched into an UnOccupied (Night Setback) mode through either the built-in 24 hr. Timer or by closing an external UnOccupied switch (U1). When the control is switched into UnOccupied mode, an UnOccupied dial is used to set the desired indoor temperature. An Optimum Start / Stop feature can be used to ensure the zones are returned to their Occupied temperatures as the UnOccupied period ends.

Other features Additional control features are listed in the table in the Heating Controls section of the Product Catalog I 000.





A 370-5 07/95



House Control 370 Four Zones , DHW, Boiler / Mixing

Literature Control Packaged Weight Dimensions Approvals Ambient conditions	 D 370, A 370's, D 001, D 070, E 021. Microprocessor PID control; This is not a safety (limit) control. 3.5 lb. (1600 g), Enclosure A, blue PVC plastic 6-5/8" H x 7-9/16" W x 2-13/16" D (170 x 193 x 72 mm) CSA NRTL /C, meets ICES & FCC regulations for EMI/RFI. Indoor use only, 32 to 122°F (0 to 50°C), <90% RH non-condensing. 	Heating Curve — 0.2 to 3.6 Max. System Supply — 120 to 220°F (49 to 104°C) Min. Boiler Supply — Off, 100 to 165°F (Off, 38 to 74°C)
Power supply	— 120 V (ac) ±10% 50/60 Hz 1000 VA	
Var. Pump Relays	 — 240 V (ac) 50/60 Hz 2.4 A 1/6 hp, fuse T2.5 A 250 V — 120 V (ac) 5 A 1/3 hp, pilot duty 240 VA 	Optimum Start Boler Return
Demands	- 24 to 120 V (ac) 2 VA	UnOccupied Diffusion Succession State Stat
Sensors included	— NTC thermistor, 10 kΩ @ 77°F (25°C ±0.2°C) β=3892	Optimum Start / Stop Occonly Ott -Bolar Stopy Ott
required:	Outdoor Sensor 070 and 2 of Universal Sensor 071 — RTU 054 or 055. (Ordered Separately)	Timer Active 24 hr. Timer -out to selend action the 12 hrs. 27°5 Underseind action the 12 hrs. 27°C DHAY I Cooper 1 PropViv I Cooper 1 DHAY I COOPER 1 DH
Optional devices	- tekmar type #: 031, 367, 368.	+Prus add tar at the fine of all tars and tars
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Timer UnOcc. Duration	 24 hour, 1 event / day, 3 minute backup 0 to 24 hours 	Start 0 - sharp Occupied 90 Start 24 - sharp Occupied 70 Test
Unoccupied	— 40 to 100°F (4 to 38°C)	50. 9/ of bit
		House Control 370 bit winn mark te winn winn mark te winn winn mark te winn winn winn winn winn winn winn win
		Un 56223 Releys 120 V (ac) 5 A 1/3 hp. piet day 240 VA
		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 5 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 5 10 12 8 00 12 12 10 10 10 10 10 10 10 10 10 10 10 10 10

System Operation & Specifications

The House Control 370 controls the space temperature of four heating zones. The required supply water temperature to the zones is controlled by operating a boiler. The 370 also controls the supply of heat to a DHW tank.

Piping and Heat Source Details The system is plumbed with zone valves and a system pump. Either a high mass, low mass or a condensing boiler can be used with this application. Heat is supplied to the DHW tank through a DHW valve (V1).

Warm Weather Shut Down (WWSD) When the outdoor temperature rises above the highest RTU dial setting and the heating zones are satisfied, the 370 shuts down the heating system. The DHW system does, however, continue to operate.

Boiler Operation The 370 uses an outdoor reset strategy together with indoor temperature feedback from the RTUs to adjust the system supply water temperature. When heat is required in the zones, the 370 turns on the system pump (P1). In order to maximize boiler efficiency, the 370 operates the boiler at the lowest possible water temperature. The 370 automatically adjusts the boiler differential to prevent the boiler from short cycling.

Domestic Hot Water (DHW) When the DHW aquastat (A1) calls for heat, the 370 turns on the system pump (P1), opens the DHW valve (V1) and raises the boiler water temperature to at least 180°F (82°C). If *DHW Priority* is chosen, the 370 turns off the zone valves. Once the DHW demand is removed the 370 either performs a DHW Post Purge or a DHW Mixing Purge depending on whether or not the zones require heat.

Zoning Operation The 370 varies the on time of each zone valve based on a 15 minute cycle. The control staggers the operating times of the zones in order to achieve a steady load on the boiler and prevent boiler short cycling.

UnOccupied (Night Setback) Selected zones can be switched into an UnOccupied (Night Setback) mode through either the built-in 24 hr. Timer or by closing an external UnOccupied switch (U1). When the control is switched into UnOccupied mode, an UnOccupied dial is used to set the desired indoor temperature. An Optimum Start / Stop feature can be used to ensure the zones are returned to their Occupied temperatures as the UnOccupied period ends.

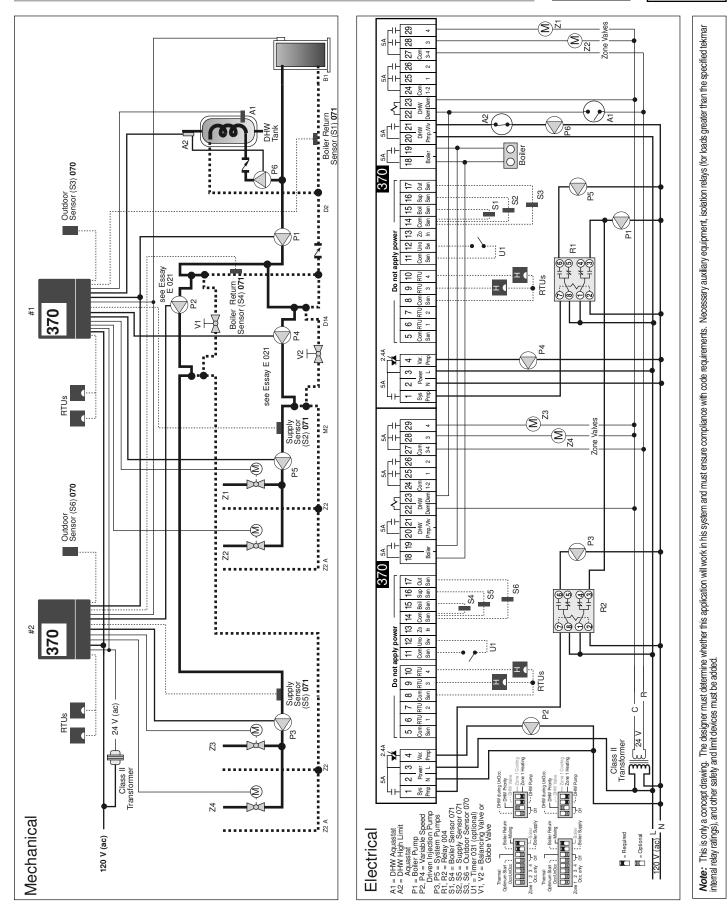
Other features Additional control features are listed in the table in the Heating Controls section of the Product Catalog I 000.



tekmar Control Systems Ltd., Canada tekmar Control Systems, Inc., U.S.A. Head Office: 5100 Silver Star Road Vernon, B.C. Canada V1B 3K4 Tel. (250) 545-7749 Fax. (250) 545-0650 Web Site: www.tekmarcontrols.com 



A 370-7

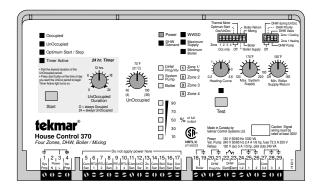


House Control 370 Four Zones , DHW, Boiler / Mixing

Literature Control Packaged Weight Dimensions Approvals Ambient conditions Power supply Var. Pump Relays Demands Sensors included required: Optional devices	 D 370, A 370's, D 001, D 070, E 021. Microprocessor PID control; This is not a safety (limit) control. 3.5 lb. (1600 g), Enclosure A, blue PVC plastic 6.5/8" H x 7-9/16" W x 2-13/16" D (170 x 193 x 72 mm) CSA NRTL /C, meets ICES & FCC regulations for EMI/RFI. Indoor use only, 32 to 122'F (0 to 50°C), <90% RH non-condensing. 120 V (ac) ±10% 50/60 Hz 1000 VA 240 V (ac) 50/60 Hz 2.4 A 1/6 hp, fuse T2.5 A 250 V 120 V (ac) 5 A 1/3 hp, pilot duty 240 VA 24 to 120 V (ac) 2 VA NTC thermistor, 10 kΩ @ 77'F (25'C ±0.2'C) β=3892 Outdoor Sensor 070 and 2 of Universal Sensor 071 RTU 054 or 055. (Ordered Separately) tekmar type #: 031, 367, 368.
Optional devices	tekinar type #. 001, 007, 000.
Timer UnOcc. Duration Unoccupied	 24 hour, 1 event / day, 3 minute backup 0 to 24 hours 40 to 100°F (4 to 38°C)

Heating Curve Max. System Supply Min. Boiler Supply

— 0.2 to 3.6
 — 120 to 220°F (49 to 104°C)
 — Off, 100 to 165°F (Off, 38 to 74°C)



Two House Control 370's combine to provide two mixed supply temperatures and domestic hot water (DHW).

Piping and Heat Source Details The system is piped in a primary-secondary piping arrangement. The Variable Speed Driven Injection pumps (P2 and P4) inject heat from the boiler loop to the system loops. Balancing valves or globe valves (V1 and V2) may be required for optimum control operation as described in Essay E 021. The zone valves are plumbed in a direct return piping arrangement. Either a high mass boiler or a low mass boiler can be used with this application. Heat is supplied to the DHW tank through the DHW pump (P6).

Warm Weather Shut Down (WWSD) When the outdoor temperature rises above the highest RTU dial setting and the heating zones are satisfied, each 370 shuts down its portion of the heating system. The DHW system continues to operate.

Mixing Operation The 370's use an Outdoor Reset Strategy together with Indoor Temperature Feedback from the RTU's to adjust the system supply water temperatures. When heat is required in any of the zones, the 370 turns on the primary pump (P1) and the system pump (P3 or P5). The Variable Speed Driven Injection Pump (P2 or P4) is then controlled to supply the required system supply water temperature while protecting the boiler from excessively low return water temperatures and protecting the system from excessively high supply water temperatures.

Domestic Hot Water (DHW) When the DHW aquastat (A1) calls for heat, the 370 (#1) enables the DHW pump (P6) and both controls close their *Boiler* contacts in order to provide heat to the DHW tank. If *DHW Priority* is chosen, the 370's turn off the variable speed injection pumps (P2 and P4). Once the DHW demand is removed, the controls either perform a DHW Post Purge or a DHW Mixing Purge depending on whether or not any of the zones require heat.

Zoning Operation The 370's vary the on time of each zone valve based on a 15 minute cycle. The controls coordinate the operating times of the zones in order to achieve a steady load on the boiler and prevent boiler short cycling.

UnOccupied (Night Setback) Selected zones can be switched into an UnOccupied (Night Setback) mode through either the built-in 24 Hr. Timers or by closing an external switch (U1) such as a Timer 031. When a 370 is switched into UnOccupied mode, its *UnOccupied* dial is used to set the desired indoor temperature. An Optimum Start / Stop feature can be used to ensure the zones are returned to their Occupied temperatures as the UnOccupied period ends.

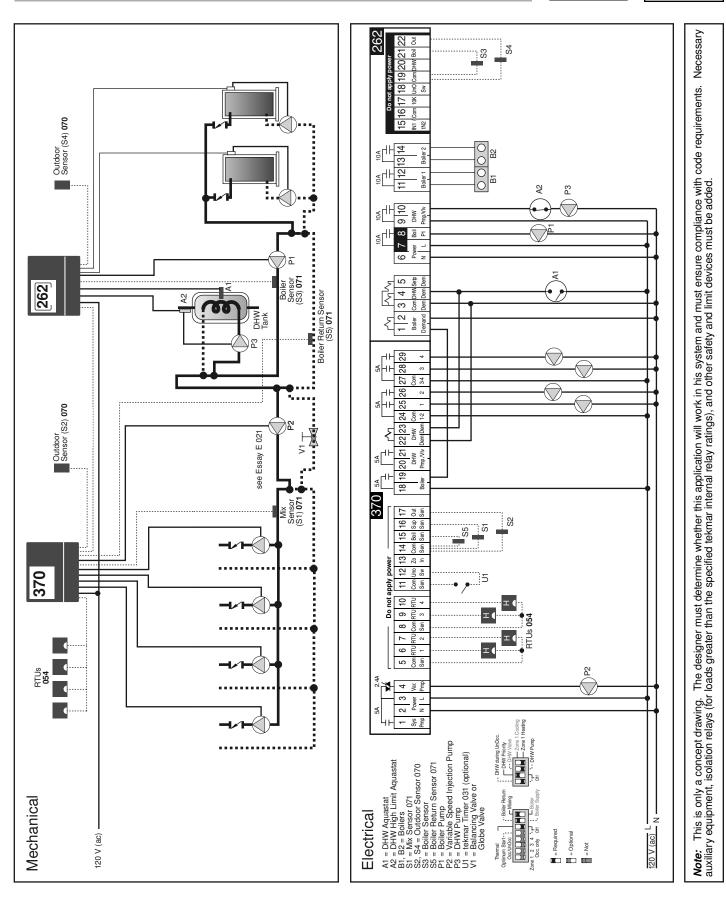
Additional Functions Additional functions are listed in the table in the Heating Controls section of the Product Catalog I 000 and the Application Catalog A 000.







A 370-8



House Control 370 Four Zones, DHW, Boiler / Mixing

Literature Control Packaged Weight Dimensions Approvals Ambient conditions	 D 370, A 370's, D 001, D 070, E 021. Microprocessor PID control; This is not a safety (limit) control. 3.5 lb. (1600 g), Enclosure A, blue PVC plastic 6-5/8" H x 7-9/16" W x 2-13/16" D (170 x 193 x 72 mm) CSA NRTL /C, meets ICES & FCC regulations for EMI/RFI. Indoor use only, 32 to 122°F (0 to 50°C), <90% RH non-condensing. 	Heating Curve — 0.2 to 3.6 Max. System Supply — 120 to 220°F (49 to 104°C) Min. Boiler Supply — Off, 100 to 165°F (Off, 38 to 74°C)
Power supply Var. Pump Relays Demands Sensors included required: Optional devices Timer UnOcc. Duration Unoccupied	 120 V (ac) ±10% 50/60 Hz 1000 VA 240 V (ac) 50/60 Hz 2.4 A 1/6 hp, fuse T2.5 A 250 V 120 V (ac) 5 A 1/3 hp, pilot duty 240 VA 24 to 120 V (ac) 2 VA NTC thermistor, 10 kΩ @ 77°F (25°C ±0.2°C) β=3892 Outdoor Sensor 070 and 2 of Universal Sensor 071 RTU 054 or 055. (<i>Ordered Separately</i>) tekmar type #: 031, 367, 368. 24 hour, 1 event / day, 3 minute backup 0 to 24 hours 40 to 100°F (4 to 38°C) 	Concepted Concepted

System Operation & Specifications

The Boiler Control 262 and the House Control 370 combine to provide full outdoor reset to four zones of heating using Room Temperature Units (RTU's) as well as Domestic Hot Water (DHW) operation and staging and rotation of two boilers. The output of the variable speed injection pump is modulated to mix down the boiler supply water temperature to the mixed zones and protect the boiler from flue gas condensation. The boiler operates at the required temperature in order to satisfy all loads.

Heat Source Details The heat source can be either a high mass or low mass non-condensing boiler.

Piping Details Room Temperature Unit (RTU) controlled zone pumps are piped into the mixed loop. The variable speed injection pump is piped in primary / secondary in order to isolate the boiler loop flow rate from the mixed loop flow rate. The DHW tank is also piped into the boiler loop using primary / secondary. Heat is supplied to the DHW tank through a DHW pump. The boiler pump (P1) ensures flow past the variable speed injection pump and DHW pump take-offs.

Heating Zones The air temperatures in the mixed zones are controlled using RTU's. The House Control 370 uses PID (proportional, integral, derivative) air temperature control and synchronizes the operation of the zones to provide more even loading of the mixed system. The 370 uses its Boiler contact terminals to send a Boiler Demand to the 262 when the mixed zones require heat.

DHW Demand When the DHW aquastat (A1) calls for heat, The 262 turns on both the DHW pump (P3) and the boiler pump (P1) and raises the boiler water temperature to at least the DHW XCHG temperature setting. The House Control 370 can provide DHW Priority by turning off the variable speed injection pump (P2).

Boiler Demand When heat is required in the mixed zones, The House Control 370 provides a Boiler Demand to the 262. The 262 turns on the boiler pump (P1). The mix supply water temperature is based on the Heating Curve setting and indoor temperature feedback from the House Control 370. The variable speed injection pump is then controlled to supply the required mixed supply water temperature. Whenever the boiler is firing, the variable speed injection pump is also modulated to protect the boiler from excessively low water temperatures.

All control functions and specifications are listed in the Product Catalog I 000 and Data Brochure D 370 & D 262.



