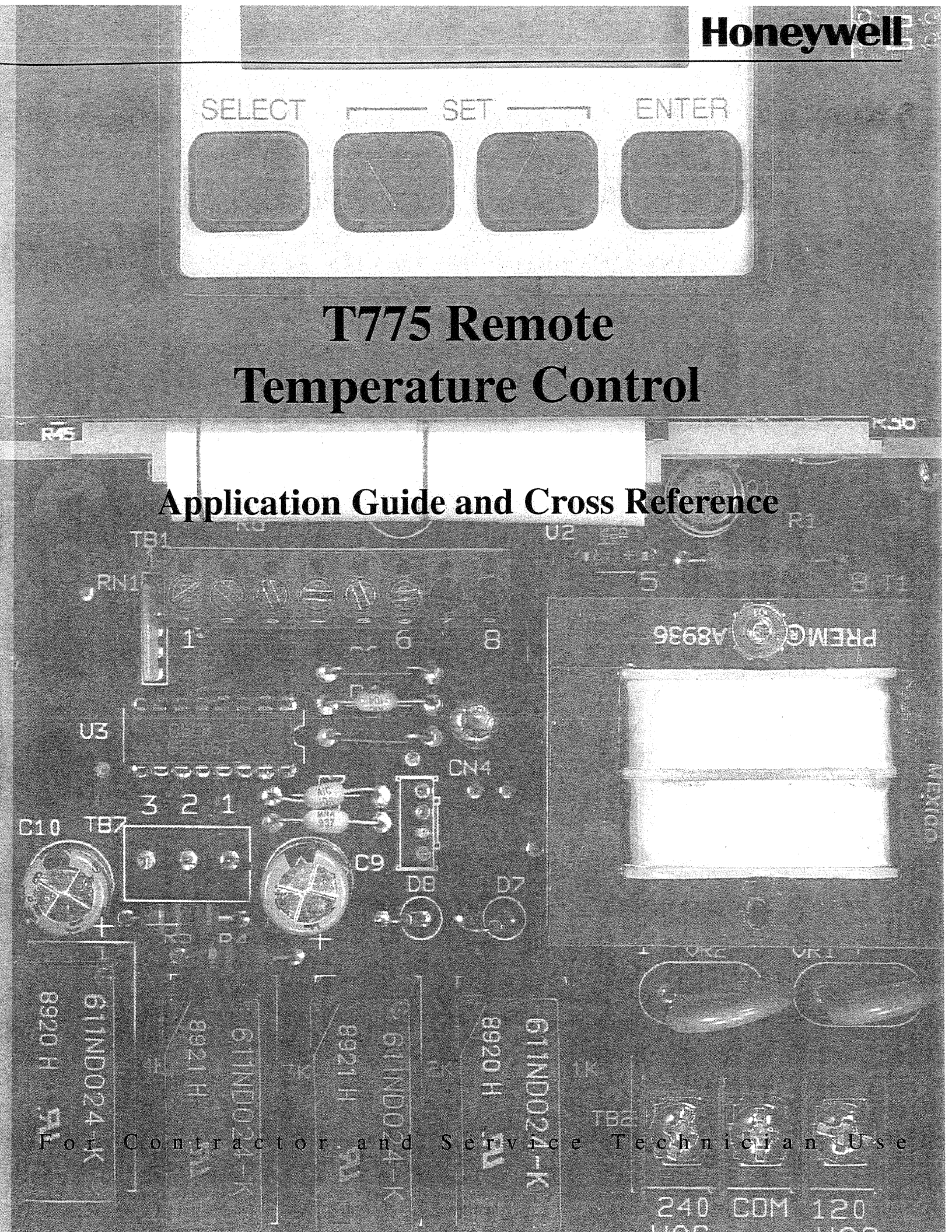
Honeywell



T775 Remote Temperature Control

Application Guide and Cross Reference

For Contractor and Service Technician Use

Table of Contents

T775 Application Tips

Q Can the switching differential be set wider than 35°F?

A Yes. Convert the T775 to the Celsius scale by removing the jumper at the top right on the circuit board. The differential setting can now be 35° C, i.e. 63°F. Note that setpoints programmed in Fahrenheit will not be converted to °C. In other words, 70°F becomes 70° C after scale conversion, therefore requiring reprogramming of the unit to maintain original setpoints.

Q Does the T775 save programmed values if the power is lost?

A Yes. The T775 has an EEPROM that saves all values entered and restores them once power is reapplied.

Q When an output stage is changed from a Heating to Cooling load, do any programmed values change?

A Yes. The setpoint for that stage will remain the same, but the switching differential or throttling range (depending on the type of output) will default back to its default value. This parameter will need to be re-programmed.

Q Why do setpoints 2, 3, & 4 change when a change is made to setpoint 1?

A After inital programming, altering the setpoint for stage 1 up or down will result in a change in setpoints 2, 3, & 4 by the same number of degrees and in the same direction. *However, changing stages 2, 3, or 4 only changes the value for that particular stage* - ***no other setpoints will change.***

Q When I program a T775J it asks for reset ratio A and B. What does it mean?

A Reset ratio A is the total change in temperature of the controlled medium (for example, in heating reset, the boiler water temperature). Reset ratio B is the total change in the outdoor temperature desired to get the Reset ratio A. For example:

If the boiler setpoint is to change from 180°to 130° as the outdoor temperature goes from zero to 60°, Reset ratio is 180°-130°= 50° and Reset ratio B is 60° - 0° = 60° . A complication is that the computer in the T775 is limited to a maximum input value of 30° . This requires that the ratios be divided by a common factor (say 10) so that the numbers are less that 30° . So, if B is 60° and A is 50°, divide both by 10 and input B=6° and A=5°.

Q Must the Reset Ratio be reduced from some value to 1?

A No. As long as the B and A values are between 1 and 30 any value can be used.

Q How are the setpoints defined in the T775?

A The T775 defines the setpoint as the point where the load goes **off**. For example, stage 1 heat is turned on when the temperature <u>falls below</u> the setpoint. and through the differential.

T775 Application Tips

However, "Setpoint" is typically defined as where the load comes **on**. For example, the T874 turns on the heat when room temperature falls to the setpoint.

Q Why does the display count down for 3 1/2 minutes when a T775 is first powered?

A This time delay allows connected equipment to stabilize to prevent erratic equipment operation. Pressing SELECT overrides the countdown.

Q The T775 is first powered and a flashing "5F" appears on the display.

A "5" and "S" look the same on a 7-segment display. This is actually a Sensor Failure error message. Either the sensor is not connected or it is defective. Output stages assigned to this sensor will not operate.

Q Do the relay outputs have time delays?

A No. Delay between on and off points depend on the time for the controlled temperature to rise/fall through the switching differential. The T775 samples temperature every 5 seconds. The sensors also have thermal lag which does not let them react instantly to temperature changes.

Q What is a time constant?

A Time constant is the time taken by a sensor to react to 63.2% of a temperature change. This value varies with sensor material, thermal mass of the sensor housing, and air flow rate over the sensor.

Q What is the time constant for the T775?

A The T775 sensor 193987GA has a time constant of approximately 70 seconds. The T775 also samples every 5 seconds for changes in temperature and updates the LCD display accordingly.

Q Can the T775 operate and control lower than -20°F?

A No. The T775 has an operating range of -20° to +240° and is limited to this range due to the ambient temperature rating of the sensor. If it is used outside these limits, sensor failure will result and the display will flash "SF".

Q Can the T775J be used to provide a modulating output that is reset by the reset ratio and an on/off output that is held constant and not affected by the reset ratio?

A No. The T775J can have both a modulating and on/off output, but both outputs will be affected by the reset ratio. For a typical application like pump control, the present T775J models can not be used without software modification.

T775 Application Tips

Q Can a two-sensor T775 be used as a single-sensor controller?

A Yes. Flip all the DIP switches to the **A** side. The **B** sensor can be used to monitor temperature elsewhere or replaced with a 3k to 4k resistor. If sensor B is left unconnected, the T775 will display SF to indicate that sensor B is disconnected, while controlling loads assigned to sensor A.

Q Can sensors be shared by several T775s to simplify installation or provide more stages?

A Each T775 must be wired to its own sensor(s). However, a benefit of the T775's high accuracy is that there is no more than a 2° differential between any two T775s.

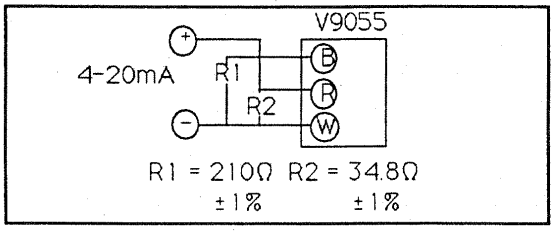
Q Are "Electronic Series 90 "and" 135 Ω Modulating Series 90 the same?

A No. 135Ω Modulating (Mousetrap relay) Series 90 compares current flow between R-B and R-W to determine motor positioning. Electronic Series 90 uses a DC voltage signal to accomplish the same effect on modulating series 90 actuator built since 1983. Just remember: 135Ω Modulating controls can drive electronic series 90 mode motors, but electronic series 90 controls can not drive 135Ω (mousetrap relay) modulating actuators.

Important: Separate transformers need to be used to isolate the power supplies for the T775 and a Modutrol Motor. Without isolated power supplies, the potential to burn-out the control exists.

Q Can "135 ohm" modulating T775 models be used with Modutrol Motors or Step Controllers with electromechanical mousetrap relays?

A No. The T775 uses the same "Electronic Series 90" output as the W973 and W7100. This signal is compatible with SuperMod and electronic series 90 mod motors and can be used as the primary control in all electronic Series 90 circuits. It does not work with mousetrap relays. The T775 can be used with the V9055 by following the diagram below:



Q Can a T775 be powered with d.c. voltage?

A Yes. Connect **+24 Vdc** to "24 Vac" terminal 5 and the negative lead to terminal 6.

Q Can sensors be series-parallel wired to the T775 to provide an average temperature?

A Yes. Sensors can be series-parallel wired to the T775. In order to maintain control accuracy, the number of sensor wired must be of the $\mathbf{n^2}$ power (i.e. 1, 4, 9, 16, etc.).

T775 Application Tips

Q Can the T775 "135 ohm" output be wired to control multiple Mod motors?

A Yes. The T775 uses the same W973, "Electronic Series 90" output and can control multiple motors by appropiate resistor kit or convertor board.

Proportional Offset Error

There are 6 elements to a feedback control loop: control point adjustment; sensor feedback; summing network, error signal, control action, and control output.

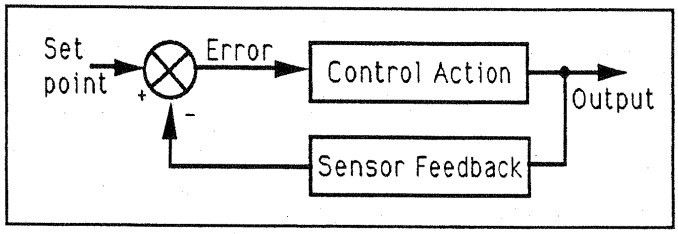


FIG 1: TYPICAL FEEDBACK CONTROL LOOP

Negative feedback control systems work to keep the error signal, the difference between setpoint and measured output, as small as possible. In an on-off control system, there is always an error, forcing the furnace either on or off.

Consider a typical hot water heating system with a modulating thermostat, Modutrol motor, Q618 valve linkage, and V5011 modulating hydronic valve.

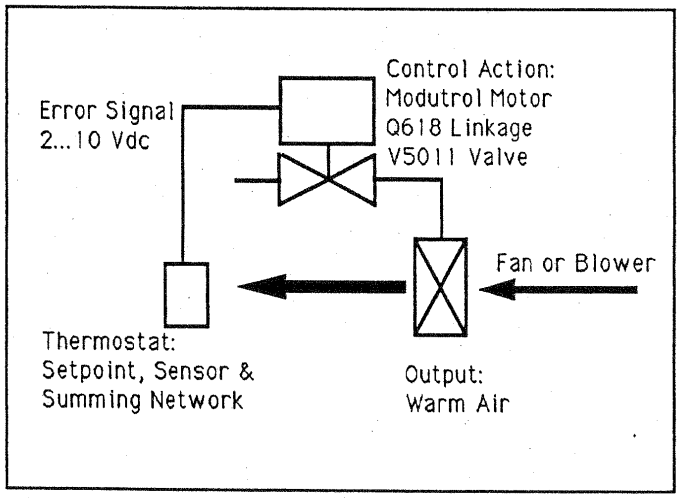


FIG. 2: EXAMPLE CONTROL SYSTEM

This example uses a 2-10Vdc output signal for simplicity. A 2 Vdc ouput will correspond to setpoint and a 10 Vdc output will correspond to setpoint less the proportional band. An 8° proportional band or throttling range will keep arithmetic simple. Referring to figure 3, output sensitivity is 8 V/8° = 1 V/°.

As the room loses heat and temperature drops by 3°, the thermostat output will rise to 5 V. The actuator reacts, opening the valve to about 38%. If this heat gain balances the losses, the fall in temperature will stop. The thermostat output will remain at 5 V and the room temperature will stay at 3° below setpoint.

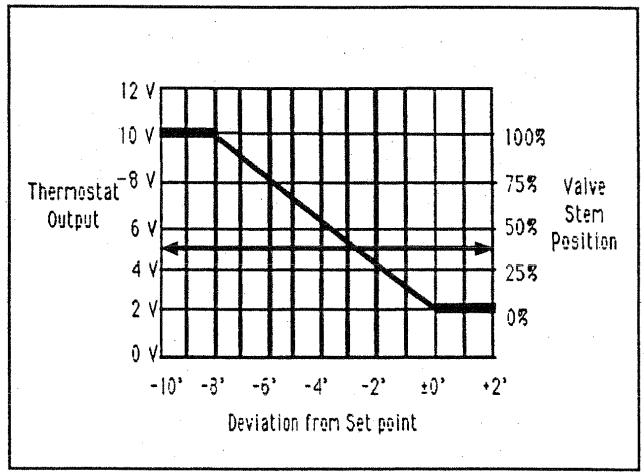


FIG. 3: PROPORTIONAL THERMOSTAT RESPONSE

In fact, every valve position will balance heat losses at some outdoor temperature, resulting in proportional offset error, whose net effect is sometimes called droop.

Set point on a modulating space thermostat is defined as the mid-point of the proportional band in order to minimize the apparent error to the user.

Proportional Bandwidth

If the thermostat's proportional band, or throttling range, is too narrow, the offset error

will result in excess equipment wear as the valve motor "hunts" trying to maintain tight temperature control.

For example, with a throttling range of 2°, the 3° set point deviation would have driven the valve full open. Since this is more heat than the room requires, space temperature would rise, causing the thermostat to reduce its output, closing the valve. In mild weather, the warm-up would be very fast and the system would operate as if it were in an on-off mode.

(A hydronic system with outdoor reset will have constant warm-up rate because the supply water is just warm enough at all outdoor temperatures. This allows use of proportional thermostats with narrower throttling ranges.)

Most people are comfortable over the temperature range of 72 to 78°F as long as the body's heat gain balance the losses. Since a modulating heating system provides heat continuously to the space, some proportional temperature is not a comfort problem.

Of course, by maintaining 72°F minimum space temperature at design conditions, 78°F space temperature results in mild weather. This is an expensive way to run a heating plant.

Integrating Action

"Droop", equipment hunting, and space temperature can all be minimized by summing -- integrating -- the offset errors over time and adding this correction to the output voltage.

For example, consider a thermostat with an integration constant of 1°/minute. If a temperature error of $^1/_4$° exists for 6 minutes, the thermostat would see this as an apparent error of:

0.25°/m x 6 m = 1.5° and would add

1.5° x 1 V/° = 1.5 V to the output signal.

Proportional Deadband

When using integrating action, there must be a deadband around the set point for stable control. All feedback control loops can tolerate some error for limited periods of time. Without this deadband, the integrating action would continuosly reposition the actuator.

T775 Operation

The control deadband on a modulating T775 is fixed at $^1/_8$ of the throttling range. To determine the proportional band setting, choose the maximum allowable temperature swing for the application, e.g: 1° for rooms, and multiply by 8. Figure 4 shows the relationship between the set point, deadband, and throttling range for the T775.

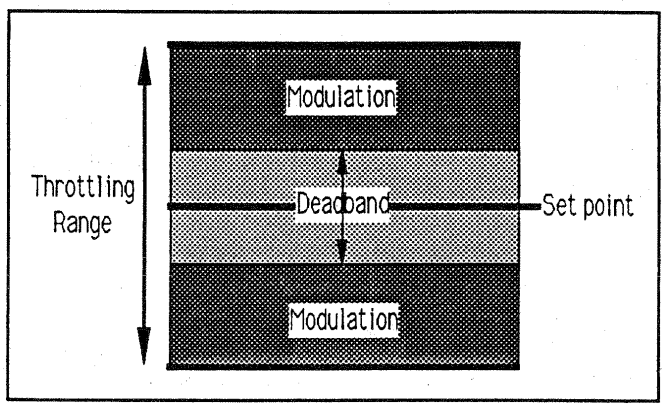


FIG. 4: T775 P+ I CONTROL ALGORITHM

The integration constant for modulating T775s is $^1/_{32}$ of the output sensitivity / 5 seconds. In other words, with a constant 1°F error and 1V/° output sensitivity, the output will be adjusted 1V every 32 seconds.

Finally, the T775 samples temperature and changes its output every 5 seconds. Therefore, an 8°F deviation would be integrated after each 5 second interval by:

$8 \times {}^1/_{1600}$ V/°F s x 5 s x 1 V/° = 0.025 V.

T775 Applications / PRESSURE DEPENDENT VAV BOX CONTROLLER -- T775A

Application Description
The T775A is used in this example to provide floating control to an ML6161 VAV box actuator, input to the W7100, and a single-stage of On/Off reheat.

Sensor Designation
This device application only requires one sensor. Sensor A is sensing zone or room temperature.

Operation
The VAV box cooling damper will float between 78° and 72°. This floating control is achieved by using the two stages of SPDT output. When the third stage of cooling is energized, the adjustable potentiometer between terminals #6 and #7 is bypassed lowering the W7100 discharge air temperature by the amount set on the "Reset" dial. By paralleling the cooling contacts of stage three, additional T775 VAV box controllers will allow any VAV zone to lower the W7100 discharge temperature by the reset amount.

Programming
Step 1: Enter the setpoint #1 to drive the damper Closed (for this example enter 72°)

Step 2: Enter the switching differential #1 for the damper control (for this example enter 2°)

Step 3: Enter the setpoint #2 to drive the damper Open (for this example enter 76°)

Step 4: Enter the switching differential #2 for the damper control (for this example enter 2°)

Step 5: Enter the setpoint #3 for input to the W7100 (for this example enter 73°)

Step 6: Enter the switching differential #3 (for this example enter 2°)

Step 7: Enter the setpoint #4 for the On/Off Heating stage (for this example enter 70°)

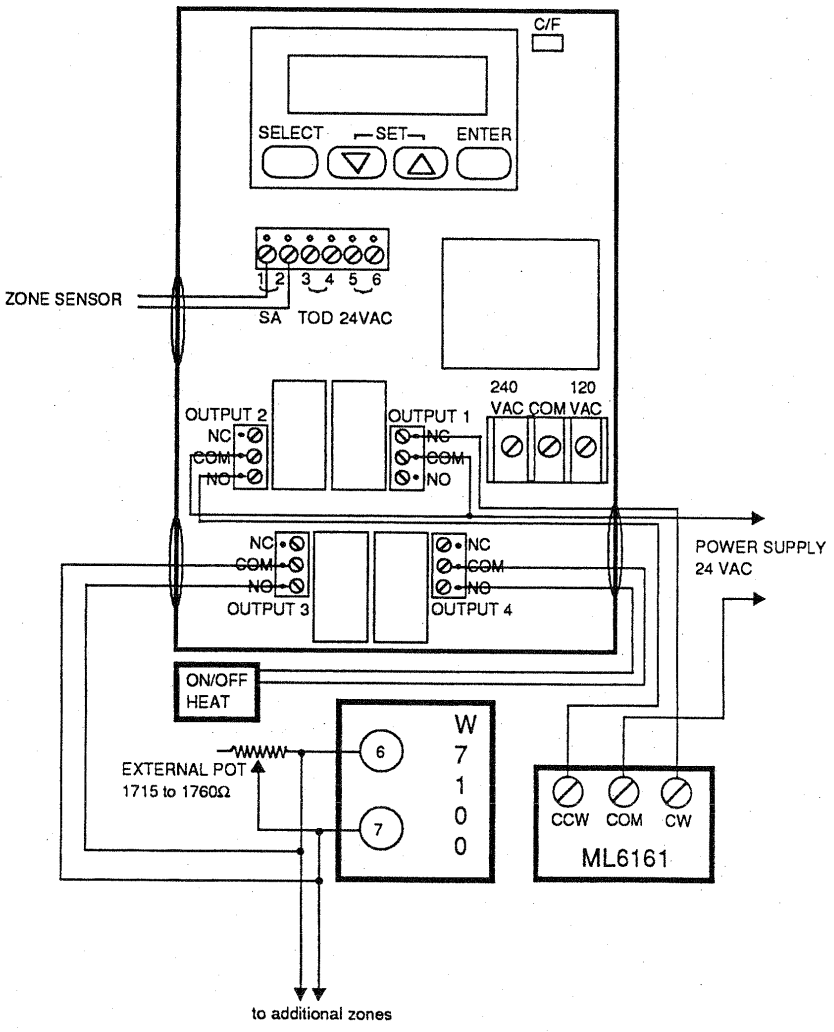
Step 8: Enter the switching differential #4 (for this example enter 2°)

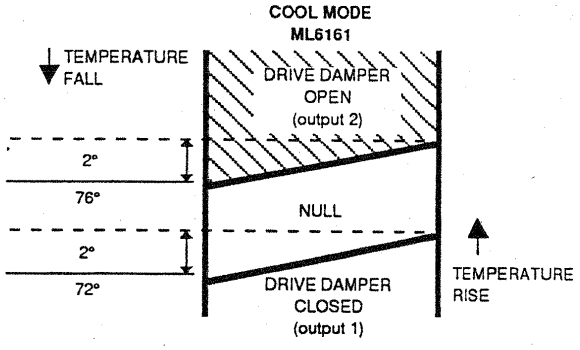
Step 9: Select the operating mode (Heat or Cool) by simultaneously pressing Select & Enter and then using the arrow keys to select the desired mode (for this example select the Cooling mode for stages 1, 2, & 3. Stage 4 should be in the Heating mode)

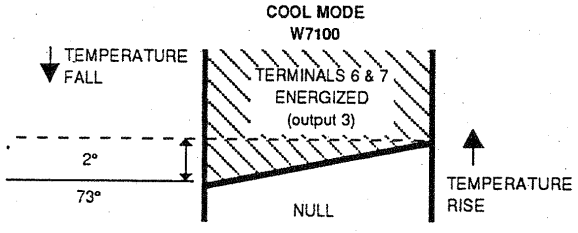
Step 10: Program the W7100 discharge air setpoint between 50-55°; program the Reset amount between 5-10° depending on application and equipment

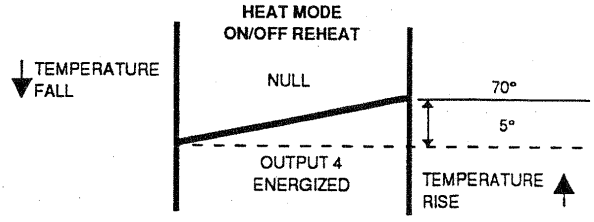
Important: Be careful to press the Enter key once the desired value is selected in order to save that value in the device memory

Wiring
All stages of output should have common wiring source, which may or may not be the same as the T775 power wiring.





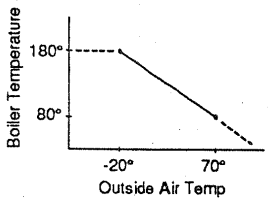




T775 Applications / HOT WATER RESET -- T775J

Sensor Designation
Sensor A is sensing hot water discharge temperature of the boiler
Sensor B is sensing outside air temperature

Desired Condition



When the outside temperature reaches 70°, the desired water temperature of the boiler is 80°. Likewise, when the outside temperature drops to -20°, the hot water temperature needs to be 180°.

Determining the Reset Ratio

The Reset Ratio for the T775 is defined as

$$\frac{\text{Change in Outside temperature}}{\text{Change in Control temperature}} = \frac{B}{A}$$

In this example the Reset ratio is calculated below:

$$\frac{70° - (-20)°}{180° - 80°} = \frac{90°}{100°} = \frac{9°}{10°}$$

Therefore, the Reset ratio is 9:10.

Determining the Reset Direction & Action

The **reset direction** refers to the direction the boiler's water temperature will be reset. This can either be *up* or *down*.

The **reset action** refers to when the actual reset operation will occur. The control will call for a reset operation if the outside temperature changes *above* or *below* the outdoor setpoint (otherwise known as compensation setpoint or threshold).

In this example, when the outside temperature is below -20°, the T775 will no longer reset but control to the nominal setpoint (which in this case is -20°), therefore holding the boiler's water temperature 180°. As the temperature increases above -20°, the T775 will reset the boiler water temperature (boiler water temperature will decrease as outside temperature increases). With this in mind, the Reset DIP switches should be positioned as in the diagram to the right and below.

Switch 1 is the Direction switch
Switch 2 is the Action switch
Switches 3 & 4 are not used

Programming

Step1: Enter the setpoint for the Boiler temperature (for this example enter 180°)

Step 2: Enter the switching Differential for setpoint above (this is adjustable 1-35°; typical value would be 2-5°)

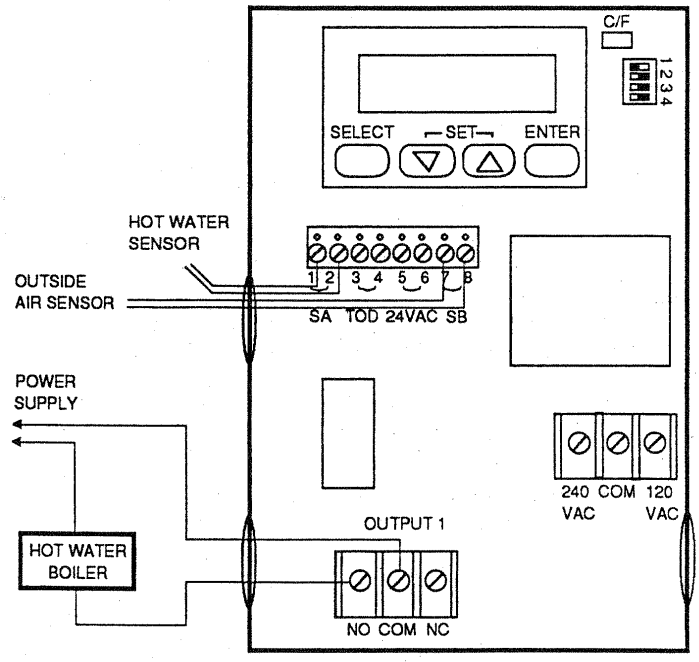
Step 3: Enter the setpoint for the Outside Sensor -- remember this value is the threshold or temperature at which reset will begin (for this example enter -20°)

Step 4: Enter Reset ratio B -- this is the numerator of the total reset ratio (for this example enter 9)

Step 5: Enter Reset ratio A -- this is the denomonator of the total reset ratio (for this example enter 10)

Step 6: Select the operating mode (Heat or Cool) by simultaneously pressing Select & Enter and then using the arrow keys to select the desired mode (for this example select the Heating mode).

Important: By programming the boiler setpoint at 180° the T775 has established 180° as the lowest operating control point that will be allowed when the temperature falls below -20°. As temperature increase above -20°F, the boiler will be reset downward per the reset ratio until some other controller limits the boiler circuit.



Important: Be sure to press the Enter key once the desired value is selected in order to save that value in the device memory

Device Checkout

The T775 performance can be checked out to determine if proper operation exists. This checkout table explains what the boiler's water temperature should be in response to changes outside.

Reset Value of Boiler	Outside Temperature
180°	-20°
158°	0°
136°	20°
113°	40°
100°	70°

Calculating Indoor Temperatures

Setpoint B = -20°
Sensor B = 30°

Reset Ratio B = 9
Reset Ratio A = 10

Reset Direction = Down
Reset Action = Above

Temp Diff = Sensor B - Setpoint B
= 30° - (-20)°
= 50°

This difference in temperature will allow us to calculate the amount of reset and determine the boiler's water temperature.

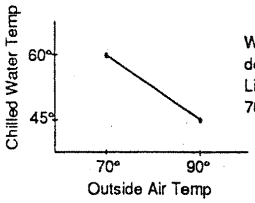
$$\text{Amount of Reset} = \frac{\text{Reset Ratio A}}{\text{Reset Ratio B}} * \text{Temp Diff}$$

In this example, the amount of reset at 30° outside air is 10 (50)/9 = 56° reseting the boiler's setpoint to approximately 124°. Checking this against the table above indicates the device is operating correctly.

T775 Applications / CHILLED WATER RESET -- T775J

Sensor Designation
Sensor A is sensing chilled water temperature of the chiller
Sensor B is sensing outside air temperature

Desired Condition



When the outside temperature reaches 90°, the desired water temperature of the chiller is 45°. Likewise, when the outside temperature drops to 70°, the chilled water temperature needs to be 60°.

Determining the Reset Ratio

The Reset Ratio for the T775 is defined as

$$\frac{\text{Change in Outside temperature}}{\text{Change in Control temperature}} = \frac{B}{A}$$

In this example the Reset ratio is calculated below:

$$\frac{90° - 70°}{60° - 45°} = \frac{20°}{15°} = \frac{4°}{3°}$$

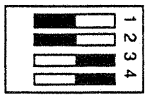
Since values may be between 1 and 30, a reset ratio of 20:15 may be entered with the same effect

Therefore, the Reset ratio is 4:3.

Determining the Reset Direction & Action
The **reset direction** refers to the direction the chiller's water temperature will be reset. This can either be *up* or *down*.

The **reset action** refers to when the actual reset operation will occur. The control will call for a reset operation if the outside temperature changes *above* or *below* the outdoor setpoint (otherwise known as compensation setpoint or threshold).

In this example, when the outside temperature is below 90°, the chiller's water temperature will be increased or reset up. With this in mind, the Reset DIP switches should be positioned as in the diagram to the right and below.



Switch 1 is the Direction switch
Switch 2 is the Action switch
Switches 3 & 4 are not used

Programming

Step1: Enter the setpoint for the Chilled Water temperature (for this example enter 45°)

Step 2: Enter the switching Differential for setpoint above (this is adjustable 1-35°; typical value would be 4-10°)

Step 3: Enter the setpoint for the Outside Sensor -- remember this value is the threshold or temperature at which reset will begin (for this example enter 90°)

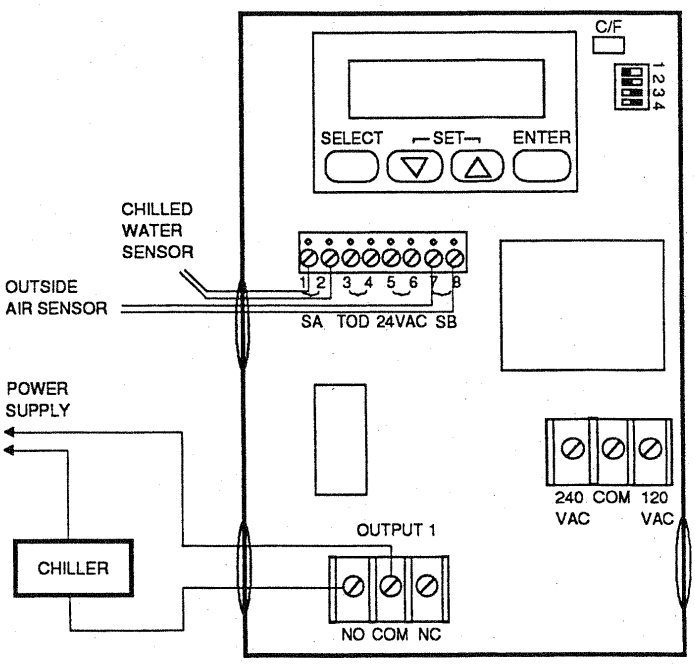
Step 4: Enter Reset ratio B -- this is the numerator of the total reset ratio (for this example enter 4)

Step 5: Enter Reset ratio A -- this is the denomonator of the total reset ratio (for this example enter 3)

Step 6: Select the operating mode (Heat or Cool) by simultaneously pressing Select & Enter and then using the arrow keys to select the desired mode (for this example select the Cooling mode)

Important: Be sure to press the Enter key once the desired value is selected in order to save that value in the device memory

Important: By programming the Chiller setpoint at 45° the T775 has established 45° as the lowest operating control point that will be allowed during reset with the above conditions satisfied



Device Checkout
The T775 performance can be checked out to determine if proper operation exists. This checkout table explains what the chiller's water temperature should be in response to changes outside.

Reset Value of Chiller	Outside Temperature
60°	70°
56.25°	75°
52.5°	80°
48.75°	85°
45°	90°

Calculating Indoor Temperatures

Setpoint B = 90°
Sensor B = 83°

Reset Ratio B = 4
Reset Ratio A = 3

Reset Direction = Up
Reset Action = Below

Temp Diff = Sensor B - Setpoint B
= 83° - 90°
= -7° (this negative sign means reset will only occur if the Reset Action switch is set for reset "below" the outdoor setpoint)

This difference in temperature will allow us to calculate the amount of reset and determine the chilled water temperature.

$$\text{Amount of Reset} = \frac{\text{Reset Ratio A}}{\text{Reset Ratio B}} * \text{Temp Diff}$$

In this example, the amount of reset at 83° outside air is 21/4 = 5.25° reseting the chiller's setpoint to approximately 50°. Checking this against the table above indicates the device is operating correctly.

T775 Applications / RECIPROCATING CHILLER - T775B

Application Description
The T775B is controlling the return water in a reciprocating chiller with fast dump freeze protection and optional N.O. Low pressure cutoff.

Sensor Designation
Sensor A is sensing return water and controlling three stages of cooling. DIP switches 1,2, & 3 are depressed to the left.

Sensor B is sensing discharge water and is controlling one stage of freeze protection. The DIP switch 4 is depressed to the right.

Operation
Return water is one indication of the cooling load in the water loop. For example, the higher the return water temperature the higher the apparent load and more stages of refrigeration or cooling would be required. If a large load is quickly dropped from the loop or for some reason water flow through the chiller is reduced, discharge water temperature may drop rapidly to freezing conditions. Sensor B in the discharge water will prevent damage to the system by "fast-dumping" all cooling stages upon close-to freezing conditions.

Caution
When using terminals 3 and 4 as a Low Pressure Cutoff the Integrating portion (I) of the T775 P+I control algorithm continues to accumulate during a low pressure condition. If the chiller deviates from setpoint for a significant period of time during cutoff, all stages of cooling will be energized until the Integral (NOT SETPOINT) is satisfied when normal operating conditions are restored. If this reaction is not desirable, break power to the T775 to achieve low pressure cutoff.

Programming
Step 1: Enter the setpoint for the first stage of chiller cooling (for this example enter 56°)

Step 2: Enter the switching differential for stage 1 (for this example enter 4°)

Step 3: Enter the setpoint for the second stage of chiller cooling (for this example enter 60°)

Step 4: Enter the switching differential for stage 2 (for this example enter 4°)

Step 5: Enter the setpoint for the third stage of chiller cooling (for this example enter 64°)

Step 6: Enter the switching differential for stage 3 (for this example enter 4°)

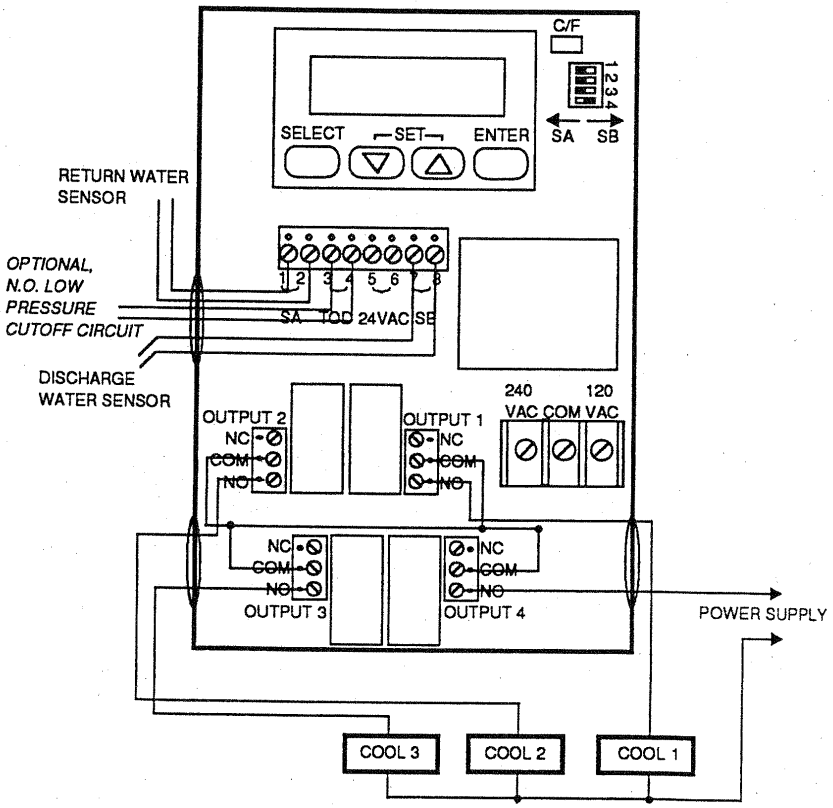
Step 7: Enter the freeze protection setpoint (for this example enter 36°)

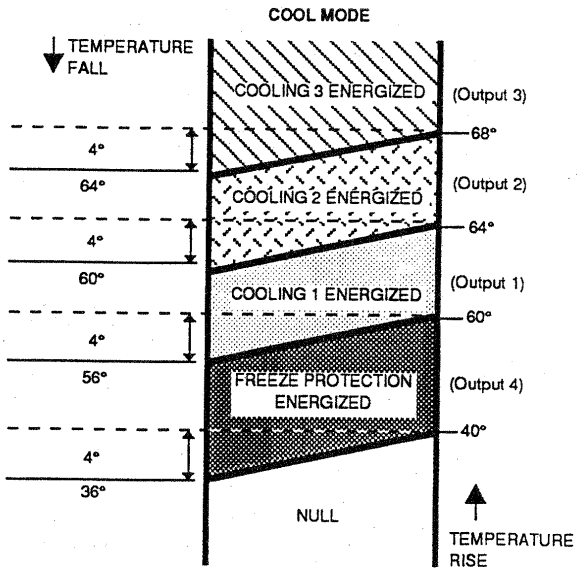
Step 8: Enter the switching differential for freeze protection (for this example enter 4°)

Step 9: Select the operating mode (Heat or Cool) by simultaneously pressing Select & Enter and then using the arrow keys to select the desired mode (for this example select the Cooling mode)

Important: Be careful to press the Enter key once the desired value is selected in order to save that value in the device memory

Wiring
All stages of output should have common wiring source, which may or may not be the same as the T775 power wiring.





T775 Applications / CHILLER,
ROTARY COMPRESSOR -- T775A

Application Description
The T775A is controlling the discharge water temperature of a rotary compressor. The T775 provides an optional low temperature or low pressure cut-out circuit.

Sensor Designation
This device application only requires one sensor. Sensor A is sensing discharge water and controls 1 or 2 compressors.

Operation
The cooling capacity of a Rotary Compressor is controlled by a "Slide Valve" which when moved towards open or closed allows more or less refrigerant into the compressor. "Open" and "Closed" solenoid valves position this "Slide Valve". The T775 will be configured such that two stages will be used to position a single "Slide Valve" in a "floating" mode by controlling the respective solenoid valves. Capacity of rotary compressors may also be controlled by variable speed drives, not covered here.

Programming
Step 1: Enter the setpoint for the first compressor controlling *Close* solenoid valve (for this example enter 53°)

Step 2: Enter the switching differential for the above solenoid valve (for this example enter 2°)

Step 3: Enter the setpoint for the first compressor controlling *Open* solenoid valve (for this example enter 55°)

Step 4: Enter the switching differential for the above solenoid valve (for this example enter 2°)

Step 5: Enter the setpoint for the second compressor controlling *Close* solenoid valve (for this example enter 56°)

Step 6: Enter the switching differential for the above solenoid valve (for this example enter 2°)

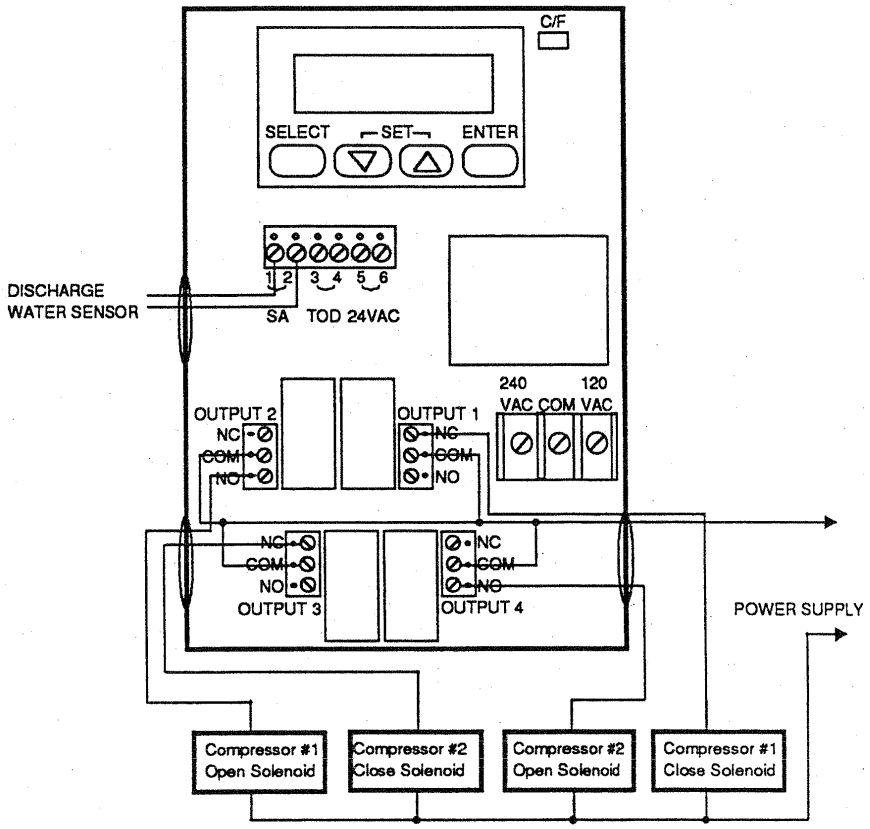
Step 7: Enter the setpoint for the second compressor controlling *Open* solenoid valve (for this example enter 58°)

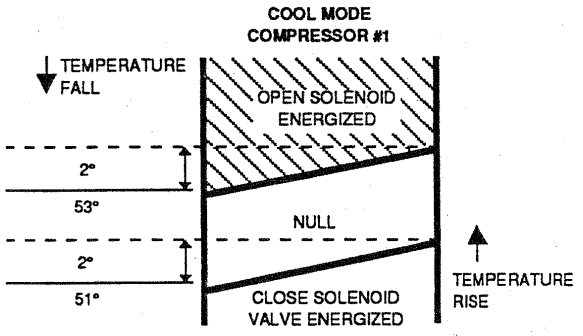
Step 8: Enter the switching differential for the above solenoid valve (for this example enter 2°)

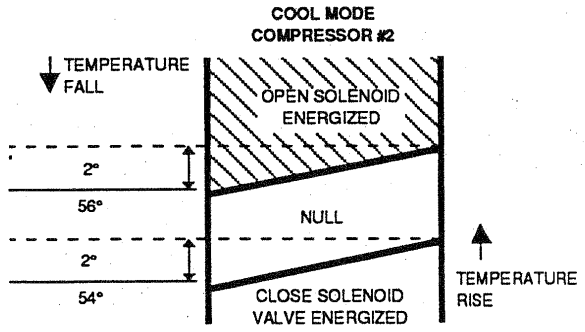
Step 9: Select the operating mode (Heat or Cool) by simultaneously pressing Select & Enter and then using the arrow keys to select the desired mode (for this example select the Cooling mode for all stages)

Important: Be careful to press the Enter key once the desired value is selected in order to save that value in the device memory

Wiring
All stages of output should have common wiring source, which may or may not be the same as the T775 power wiring.







T775 Applications / MULTISTAGE BOILER CONTROL -- T775B

Application Description
The T775B is providing multistage boiler control based on the boiler's discharge water temperature. The T775B utilizes its fourth output for primary pump enabling based on outside air temperature.

Sensor Designation
Sensor A is sensing discharge water and controls 3 boilers.

Sensor B is sensing outside air temperature and primary pump control.

Operation
As the heating load increases, additional stages of heat will cycle On as the boiler water temperature decreases. The T775B will stages three boilers to provide sufficient heating. The primary circulating pump will only be energized during times of normal heating requirements and is controlled from the fourth output stage contacts.

Programming
Step 1: Enter the setpoint for the discharge water temperature for boiler #1 (for this example enter 150°)

Step 2: Enter the switching differential for boiler #1 (for this example enter 15°)

Step 3: Enter the setpoint for the discharge water temperature for boiler #2 (for this example enter 170°)

Step 4: Enter the switching differential for boiler #2 (for this example enter 15°)

Step 5: Enter the setpoint for the discharge water temperature for boiler #3 (for this example enter 190°)

Step 6: Enter the switching differential for boiler #3 (for this example enter 15°)

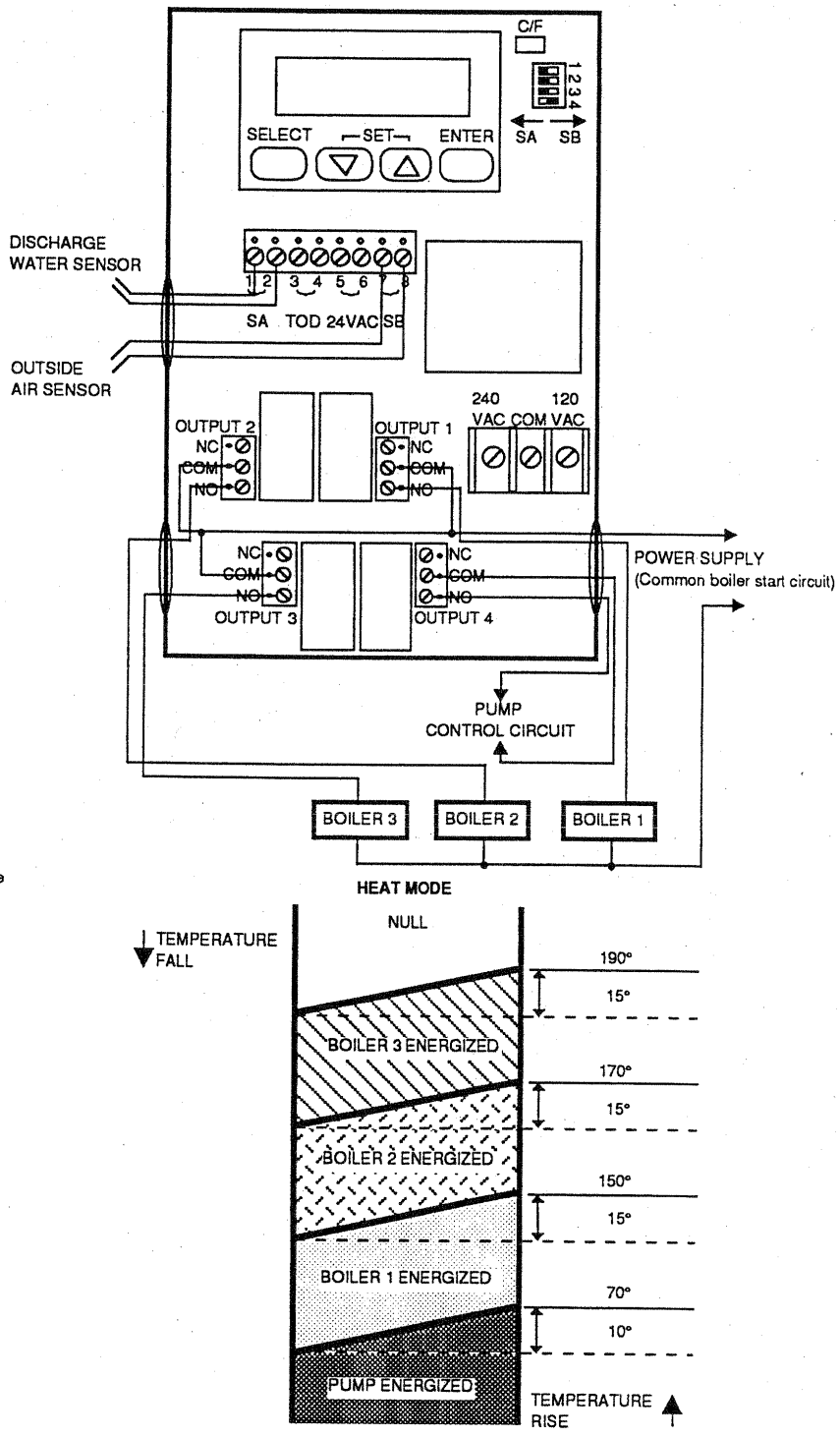
Step 7: Enter the setpoint for the primary pump control (for this example enter 70°)

Step 8: Enter the switching differential for the primary pump (for this example enter 10°)

Step 9: Select the operating mode (Heat or Cool) by simultaneoulsy pressing Select & Enter and then using the arrow keys to select the desired mode (for this example select the Heating mode for all stages)

Important: Be careful to press the Enter key once the desired value is selected in order to save that value in the device memory

Wiring
All stages of output should have common wiring source, which may or may not be the same as the T775 power wiring.



T775 Applications / ML984 Operation with T775E

Application Description
The T775 Electronic Series 90 output models controlling ML984 valve actuators or M984 damper actuators.

Operation
The T775's output is shown wired for modulating cooling by using the R and W (pins 2 & 1 respectively) terminals. A 240Ω resistor is required for proper operation and is placed across the B and W (pins 3 & 1 respectively) terminals on the actuator. The B leg of the T775 should remain open.

Programming
Step 1: Enter the setpoint for stage one

Step 2: Enter the throttling range for the stage one

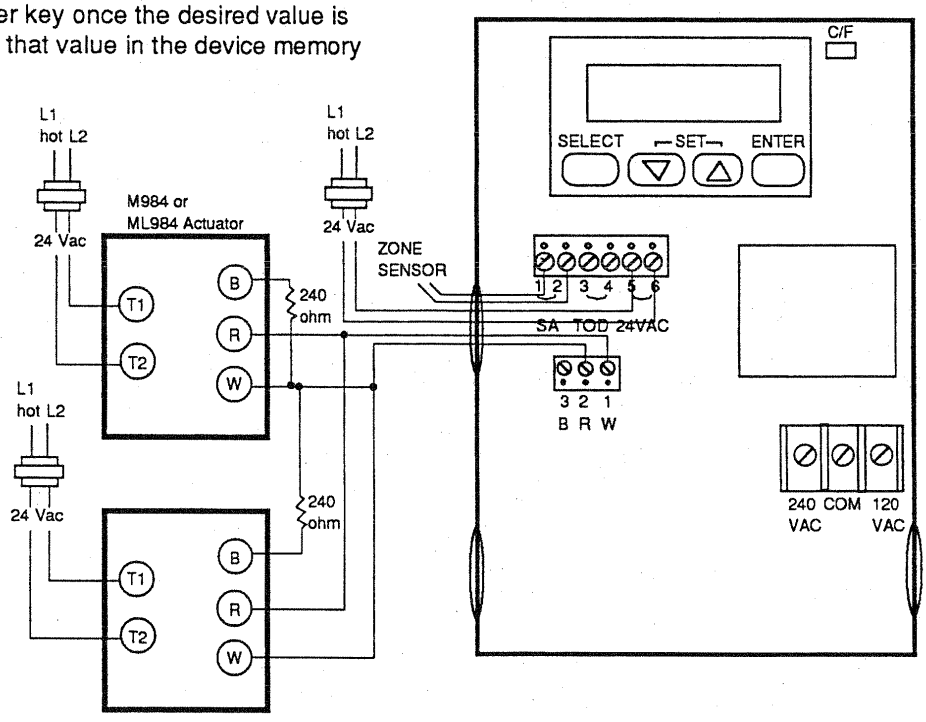
Step 3: Program the desired mode of operation - i.e. Heat or Cool

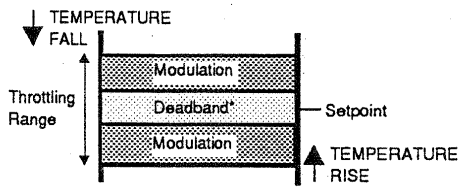
The ML984 can operate in either modulating Cooling or Heating and should be connected to the T775 as shown and programmed for the proper operation. **Do not reverse the R, B, or W terminals on the T775 or ML984 to change from Heat to Cool or vice versa.**

Wiring
Separate transformers are required for both the T775 and ML984 when operating on 24 Vac.

Important
Be sure to press the Enter key once the desired value is selected in order to save that value in the device memory

NOTE: Use up to (4) M984s or ML984s. DO NOT MIX M984s and ML984s.





* Deadband is 1/8 of throttling range

T775 Applications / EVAPORATIVE COOLER -- T775A

Application Description
As the temperature of the sump water rises, the T775A sequentially cycles on the spray pump valve and two stages of fans. If the water temperature in the sump drops below 40°F, the T775A energizes a sump dump drain valve to prevent system freeze up.

Sensor Designation
This device application only requires one sensor. Sensor A is sensing sump water temperature.

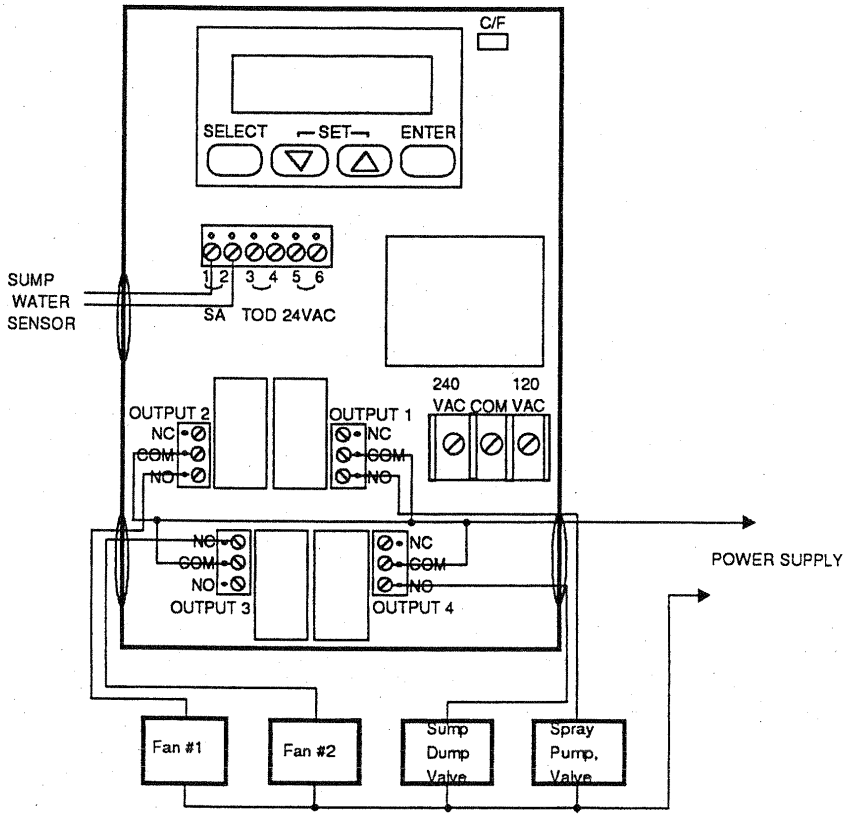
Operation
The sump water temperature rises above Cooling Stage 1 Setpoint plus differential (65°F) to bring on the spray pump valve. If the temperature continues to rise, Cooling Stage 2 (70°F) and 3 (75°F) energize the evaporation fans as needed.

The sump water freeze up protection is provided by Heating Stage 4. If the sump water temperature drops below 40°F (Setpoint minus the differential).

Programming
Stage 1: Configured as Cool,
Set 60°F, Diff. 5°
Controls Spray Water Pump and/or Valve
Stage 2: Configured as Cool,
Set 65° F, Diff. 5°
Controls Fan # 1
Stage 3: Configured as Cool,
Set 70°F, Diff. 5°
Controls Fan # 2
Stage 4: Configured as Heat.
Set 50°F, Diff. 10°
Controls Dumping of Sump at Freeze Condition

Important
Be careful to press the Enter key once the desired value is selected in order to save that value in the device memory

Wiring
All stages of output should have common wiring source, which may or may not be the same as the T775 power wiring.



T775 Applications / WATER SOURCE HEATPUMP LOOP WATER CONTROLLER -- T775A

Application Description

Water is circulated in a loop to remove waste heat and cool from a multiple heat pump system. The T775A controls heating and cooling systems to maintain the loop water temperature between preset upper and lower limits. Alarms are sounded to annunciate abnormally high or low water temperatures.

Sensor Designation

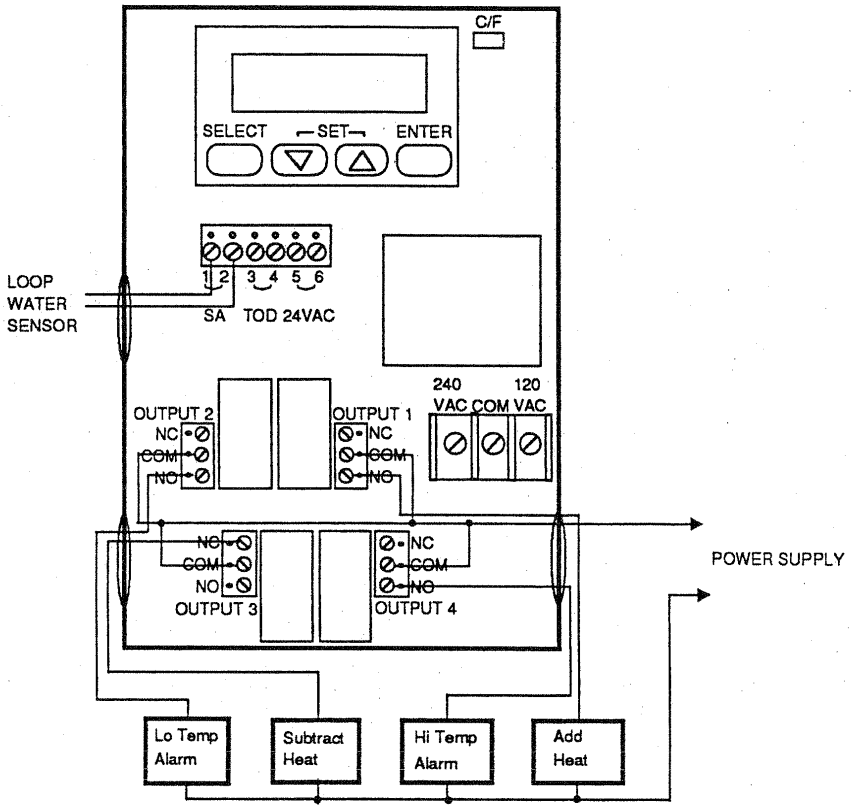
This device application only requires one sensor. Sensor A is mounted in a well, located in the main loop water line before the Water Source Heatpump take-offs.

Operation

If the loop water temperature drops to 55°F, heat is added to the system by the boiler (Stage 1). If the temperature drops further, Stage 2 sounds the low temperature alarm at 54°F.

If the loop water temperature rises to 95°F, Stage 3 brings on cooling. If the temperature rises to 96°F, Stage 4 powers the high temperature alarm.

NOTE: If no alarms are present, Stage 2 and 4 may be used as additional heating and cooling stages.



Programming

Stage 1: Configured as Heat,
Set 65°, Diff. 10°
Enables Boiler Circuit
Stage 2: Configured as Heat,
Set 55° F, Diff. 1°
Low Temprature Alarm Circuit
Stage 3: Configured as Cool,
Set 85°F, Diff. 10°
Enables Cooling Circuit (Heat Extraction)
Stage 4: Configured as Cool.
Set 95°F, Diff. 1°
High Temperature Alarm Circuit

Setpoints may differ according to equipment manufacturers, see their recommendations.

Important

Be careful to press the Enter key once the desired value is selected in order to save that value in the device memory

Wiring

All stages of output should have common wiring source, which may or may not be the same as the T775 power wiring.

Honeywell Remote Temperature Control Cross Reference

OLD CONTROL	MANUFACTURER	TEMP. °F RANGE	SWITCH ACTION	CAP LENGTH	RECOMMENDED HONEYWELL ELECTROMECHANICAL REPLACEMENT	HONEYWELL WELL # (ORDER SEP.)	RECOMMENDED HONEYWELL ELECTRONIC REPLACEMENT	HONEYWELL WELL # (ORDER SEP.)	COMMENTS
A19ABA-40	Johnson	-30 to 100	spst	No cap	T4031A1073	1/2"-123869A	T775A-100	1/2"-121371A	T775 temp is -20 to 240°F
						3/4"-123870A		3/4"-121371B	T775 is rated at 9.8 amps at 120v
A19ABC-4	Johnson	50-130	spdt	8'	T675A1425	1/2"-112622AA	T775A1001	1/2"-121371A	
						3/4"-112630AA		3/4"-121371B	
A19ABC-24	Johnson	-30 to 100	spdt	8'	T6031A1136	1/2"-123869A	T775A1001	1/2"-121371A	
						3/4"-123870A		3/4"-121371B	
A19ABC-36	Johnson	-30 to 100	spdt	20'	T6031A1060	1/2"-123869A	T775A1001	1/2"-121371A	
						3/4"-123870A		3/4"-121371B	
A19ABC-37	Johnson	-30 to 100	spdt	10'	T6031A1060	1/2"-123869A	T775A1001	1/2"-121371A	
						3/4"-123870A		3/4"-121371B	
A19AAC-4	Johnson	0 to 80	spdt	6'	T6031A1136	1/2"-123869A	T775A1001	1/2"-121371A	
						3/4"-123870A		3/4"-121371B	
A19AAD-5	Johnson	30 to 50	spst	6'	T4031H1003	None	T775A1001	1/2"-121371A	
								3/4"-121371B	
A19AAD-12	Johnson	-30 to 50	spst	7'	T6031A1136	1/2"-123869A	T775A1001	1/2"-121371A	
						3/4"-123870A		3/4"-121371B	
A19AAF-12	Johnson	25 to 225	spdt	10'	T6031D1007	1/2"-123869A	T775A1001	1/2"-121371A	
					(40 to180°F)	3/4"-123870A		3/4"-121371B	
A19AAF-20	Johnson	-30 to 100	spdt	6'	T6031A1136	1/2"-123869A	T775A1001	1/2"-121371A	
						3/4"-123870A		3/4"-121371B	
A19AAF-21	Johnson	40 to 90	spdt	6'	T6031A1136	1/2"-123869A	T775A1001	1/2"-121371A	
						3/4"-123870A		3/4"-121371B	
A19ACA-14	Johnson	-30 to 100	spst	6'	L480G1044 (20-60°F)	None	T775A1001	1/2"-121371A	Add S445A1010 to convert
								3/4"-121371B	T775 to manual reset
A19ACA-15	Johnson	-30 to 100	spst	10'	L480G1044	None	T775A1001	1/2"-121371A	Add S445A1010 to convert T775
								3/4"-121371B	to manual reset
A19ADB-1	Johnson	100 to 240	spst	6'	L4008E1156 (110-290°F)	121371L(3" insul)	T775A1001	1/2"-121371A	Add S445A1010 to convert T775
								3/4"-121371B	to manual reset
A19AAB-4	Johnson	30 to 110	spst	6'	T675A1425 (55-175°F)	1/2"-112622AA	T775A1001	1/2"-121371A	
						3/4"-112630AA		3/4"-121371B	
A19AAC-9	Johnson	100 to 240	spdt	6'	L6008A1192	121371L (3" insul)	T775A1001	1/2"-121371A	
								3/4"-121371B	
A28AA-8	Johnson	-30 to 50	2-spdt	6'	T678A1437 (0-110°F)	1/2"-112622AA	T775A1019	1/2"-121371A	T678 rated at 8A@120v
						3/4"-112630AA		3/4"-121371B	
A28AA-9	Johnson	20 to 80	2-spdt	6'	T678A1437	1/2"-112622AA	T775A1019	1/2"-121371A	
						3/4"-112630AA		3/4"-121371B	
A28AA-28	Johnson	30 to 110	2-spdt	6'	T678A1478 (fast	None	T775A1019+3-193987GA or C7100A1015		
					response)				
A28AA-29	Johnson	-30 to 110	2-spdt	8'	T678A1627	1/2"-112622AA	T775A1019	1/2"-121371A	
					(0-100°F)	3/4"-112630AA		3/4"-121371B	

Honeywell Remote Temperature Control Cross Reference

OLD CONTROL	MANUFACTURER	TEMP. °F RANGE	SWITCH ACTION	CAP LENGTH	RECOMMENDED HONEYWELL ELECTROMECHANICAL REPLACEMENT	HONEYWELL WELL # (ORDER SEP.)	RECOMMENDED HONEYWELL ELECTRONIC REPLACEMENT	HONEYWELL WELL # (ORDER SEP.)	COMMENTS
A28AA-36	Johnson	40 to 90	2-spdt	6'	T678A1437	1/2"-112622AA	T775A1019	1/2"-121371A	
					(0-100°F)	3/4"-112630AA		3/4"-121371B	
A28AA-37	Johnson	60 to 140	2-spdt	6'	T678A1445	1/2"-112622AA	T775A1019	1/2"-121371A	
					(55-175°F)	3/4"-112630AA		3/4"-121371B	
A28AJ-4	Johnson	20 to 80	2-spdt	6'	T678A1437	1/2"-112622AA	T775A1019	1/2"-121371A	
					(0-100°F)	3/4"-112630AA		3/4"-121371B	
A28KA-1	Johnson	0-150	2-spdt	10'	T678A1437 (0-100°)	1/2"-112622AA	T775C1009	1/2"-121371A	T678 has no weather proof
					or T678A1445 (55-175)	3/4"-112630AA		3/4"-121371B	enclosure
A28MA-1	Johnson	40-120	2-spdt	6'	T678A1437 (0-100°)	1/2"-112622AA	T775C1009	1/2"-121371A	T678 has no weather proof
					or T678A1445 (55-175)	3/4"-112630AA		3/4"-121371B	enclosure
A28MA-2	Johnson	40-120	2-spdt	6'	T678A1437 (0-100°)	1/2"-112622AA	T775C1009	1/2"-121371A	T678 has no weather proof
					or T678A1445 (55-175)	3/4"-112630AA		3/4"-121371B	enclosure
A36AHA-50	Johnson	55-95	4-spdt	18"	CR71B1054	112620BB	T775A1035	1/2"-121371A	CR71B is solid state
					(0-60°F)			3/4"-121371B	
A36AHA-52	Johnson	55-95	4-spdt	6'	CR71B1054	112620BB	T775A1035	1/2"-121371A	CR71B is solid state
					(0-60°F)			3/4"-121371B	
A36AHA-58	Johnson	0-70	4-spdt	15'	CR71B1054	112620BB	T775A1035	1/2"-121371A	CR71B is solid state
					(0-60°F)			3/4"-121371B	
A36AHB-33	Johnson	0-70	4-spdt	15'	CR71B1054	112620BB	T775A1035	1/2"-121371A	CR71B is solid state
					(0-60°F)			3/4"-121371B	
A80ABA-1	Johnson	-20 to 50	135ohm	6'	T991A2044	121371Q	T775E1015	1/2"-121371A	T991 has 5' cap. Other
								3/4"-121371B	models available
A80ABA-2	Johnson	10 to 90	135ohm	6'	T991A1426	112622AA	T775E1015	1/2"-121371A	T991 has 5' cap. Other
								3/4"-121371B	models available
A80ABA-3	Johnson	60 to 140	135ohm	6'	T991A1244	121371Q	T775E1015	1/2"-121371A	T991 has 5' cap. Other
								3/4"-121371B	models available
A80ABA-4	Johnson	120 to 200	135ohm	6'	T915C1928	112622AA	T775E1015	1/2"-121371A	T915 has 5' cap. Other
								3/4"-121371B	models available
A80ABA-5	Johnson	190 to 260	135ohm	6'	T991A1061	112622AA	T775E1015	1/2"-121371A	
							(-20 to 240°F)	3/4"-121371B	
A80ABA-22	Johnson	85 to 245	135ohm	6'	T915D1273	112622AA	T775E1015	1/2"-121371A	
							(-20 to 240°F)	3/4"-121371B	
A80ACA-1	Johnson	60 to 140	135ohm	6'	None		T775A1001+4074EAU		
A80ACA-7	Johnson	10 to 90	135ohm	6'	T915B1002	None	T775A1001+4074EAU		
A80ADA-1	Johnson	10 to 90	135ohm	6'	T915F1008	None	T775A1001+4074EAU		
A80ADA-2	Johnson	60 to 140	135ohm	6'	None		T775A1001+4074EAU		
1609-90	White Rodgers	-20 to 50	spst	8'	T4031A1073	1/2"-123869A	T775A1001	1/2"-121371A	
						3/4"-123870A		3/4"-121371B	
1609-101	White Rodgers	-30 to 90	spst	5'	T4031A1073	1/2"-123869A	T775A1001	1/2"-121371A	
						3/4"-123870A		3/4"-121371B	

Honeywell Remote Temperature Control Cross Reference

OLD CONTROL	MANUFACTURER	TEMP. °F RANGE	SWITCH ACTION	CAP LENGTH	RECOMMENDED HONEYWELL ELECTROMECHANICAL REPLACEMENT	HONEYWELL WELL # (ORDER SEP.)	RECOMMENDED HONEYWELL ELECTRONIC REPLACEMENT	HONEYWELL WELL # (ORDER SEP.)	COMMENTS
1609-102	White Rodgers	-30 to 90	spst	8'	T4031A1073	1/2"-123869A	T775A1001	1/2"-121371A	
						3/4"-123870A		3/4"-121371B	
1609-103	White Rodgers	-30 to 90	spst	10'	T4031A1073	1/2"-123869A	T775A1001	1/2"-121371A	
					(8' cap)	3/4"-123870A		3/4"-121371B	
1609-104	White Rodgers	-30 to 90	spst	20'	T6031A1060	1/2"-123869A	T775A1001	1/2"-121371A	
						3/4"-123870A		3/4"-121371B	
1609-105	White Rodgers	-30 to 90	spst	5'	T4031A1073	1/2"-123869A	T775A1001	1/2"-121371A	
						3/4"-123870A		3/4"-121371B	
1609-106	White Rodgers	-30 to 90	spst	5'	T675A1706	None	T775A1001	1/2"-121371A	Fast response element
					(0-100°F)			3/4"-121371B	
1609-114	White Rodgers	20 to 90	spst	8'	T4031A1073	1/2"-123869A	T775A1001	1/2"-121371A	
						3/4"-123870A		3/4"-121371B	
1687-9	White Rodgers	-30 to 90	spdt	8'	T6031A1136	1/2"-123869A	T775A1001	1/2"-121371A	
						3/4"-123870A		3/4"-121371B	
2A38-14	White Rodgers	20 to 120	spdt	20'	T675A1565	1/2"-112622AA	T775A1001	1/2"-121371A	
					(0-100°F)	3/4"-112630AA		3/4"-121371B	
230-22	White Rodgers	20 to 120	spst	8'	T4031C1004	1/2"-123869A	T775A1001	1/2"-121371A	
					(40-180°F)	3/4"-123870A		3/4"-121371B	
230-22	White Rodgers	20 to 120	spst	8'	T4031C1004	1/2"-123869A	T775A1001	1/2"-121371A	
					(40-180°F)	3/4"-123870A		3/4"-121371B	
241-2	White Rodgers	20 to 90	spst	8'	T4031A1073	1/2"-123869A	T775A1001	1/2"-121371A	
						3/4"-123870A		3/4"-121371B	
241-16	White Rodgers	20 to 90	spst	8'	T4031A1073	1/2"-123869A	T775A1001	1/2"-121371A	
						3/4"-123870A		3/4"-121371B	
445-6	White Rodgers	20 to 90	spdt	5'	T6031A1136	1/2"-123869A	T775A1001	1/2"-121371A	
						3/4"-123870A		3/4"-121371B	
16A35-3	White Rodgers	N/A	spst	7'	T4031K1006	None	None	None	Ice-Trol
1050-1	White Rodgers				Select T475 with	1/2" 121371P	T775J1001		Reset Controllers
					Correct ratio	3/4" 121371Q			
TC282	Barber Colman	10 to 90	3-spdt	6'	CR71B1054 (0-60°F)	112620BB	T775A1027		
TC-282-20	Barber Colman	10 to 90	3-spdt	20'	CR71B1054 (0-60°F)	112620BB	T775A1027		
TC-288	Barber Colman	10 to 90	4-spdt	6'	CR71B1054 (0-60°F)	112620BB	T775A1027		
TC-4111	Barber Colman	-40 to 120	spdt	6'	T6031A1136	1/2"-123869A	T775A1001		
					(-30 to 90°F)	3/4"-123870A	(-20 to 240°F)		
TC-4111-020	Barber Colman	-40 to 120	spdt	20'	T6031A1136	1/2"-123869A	T775A1001	1/2"-121371A	
					(-30 to 90°F)	3/4"-123870A		3/4"-121371B	

Honeywell Remote Temperature Control Cross Reference

OLD CONTROL	MANUFACTURER	TEMP. °F RANGE	SWITCH ACTION	CAP LENGTH	RECOMMENDED HONEYWELL ELECTROMECHANICAL REPLACEMENT	HONEYWELL WELL # (ORDER SEP.)	RECOMMENDED HONEYWELL ELECTRONIC REPLACEMENT	HONEYWELL WELL # (ORDER SEP.)	COMMENTS
TC4112	Barber Colman	100 to 260	spdt	6'	L6008A1192	121371A	T775A1001		T775 is -20 to 240°F
					(100-240°F)				
TC4115	Barber Colman	-40 to 120	spdt	6'	T6031A1136	1/2"-123869A	T775A1001		
					(-30 to 90°F)	3/4"-123870A			
TC4151	Barber Colman	70 to 120	spdt	30'	T475A1057	1/2" 121371P	T775J1001	1/2"-121371A	Reset controllers
						3/4" 121371Q		3/4"-121371B	
TC4152	Barber Colman	70 to 120	spdt	30'	T475A1032	1/2" 121371P	T775J1001		Reset Controllers
						3/4" 121371Q			
TC4211	Barber Colman	-40 to 120	spdt	6'	T678A1437	1/2"-112622AA	T775A1019		
					(0-100°F)	3/4"-112630AA			
TC4251	Barber Colman	70 to 120	spdt	30'	T678B1014	1/2"-112622AA	T775J1076	1/2"-121371A	Reset controller
						3/4"-112630AA		3/4"-121371B	
TC4252	Barber Colman	70 to 120	spdt	30'	T678B1006	1/2"-112622AA	T775J1076	1/2"-121371A	Reset controller
						3/4"-112630AA		3/4"-121371B	
TC4316	Barber Colman	-40 to 120	spdt	6'	None	----	T775B1000	1/2"-121371A	
								3/4"-121371B	
TC4416	Barber Colman	-40 to 120	2-spdt	6'	None	None	T775B1026	1/2"-121371A	
								3/4"-121371B	
TC5131	Barber Colman	34 to 60	spdt	20'	L480B1239	None	T775A1001	1/2"-121371A	
								3/4"-121371B	
TC5141	Barber Colman	34 to 60	spdt	20'	L480G1044	None	T775A1001	1/2"-121371A	Add S445A1010 to convert
								3/4"-121371B	T775 to manual reset

Honeywell Remote Temperature Control Cross Reference

OLD HONEYWELL CONTROL	TEMP (°F) RANGE	SWITCH ACTION OR OUTPUT	CAP LENGTH	COMMENTS	RECOMMENDED HONEYWELL ELECTRONIC REPLACEMENT	HONEYWELL WELL# (ORDER SEP.)	COMMENTS
L480B1239	20-60	spdt	20'		T775A1001	1/2"-121371A	
						3/4"-121371B	
L480G1044	20-60	spst	20'	Manual Reset	T775A1001	1/2"-121371A	
						3/4"-121371B	
T4031A1008	-30 to 50	spst	5'		T775A1001	1/2"-121371A	T775 range is -20 to 240°F
						3/4"-121371B	
T4031A1016	-30 to 50	spst	5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T4031A1073	-30 to 90	spst	8'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T4031C1004	40 to 180	spst	7.5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T4031C1012	40 to 180	spst	5.5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T4031E1009	40 to 180	spst	5.5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T4031F1007	40 to 180	spst	5.5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T4031H1003	35 to 45	spst	5.5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T4031J1016	35 to 45	spst	5.5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T475A1016	70 to 140	spst	10/30	Reset	T775J1001	1/2"-121371A	
						3/4"-121371B	
T475A1032	70 to 140	spst	10/30	Reset	T775J1001	1/2"-121371A	
						3/4"-121371B	
T475A1057	70 to 140	spst	10/30	Reset	T775J1001	1/2"-121371A	
						3/4"-121371B	
T6031A1011	15 to 90	spdt	5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T6031A1029	-30 to 90	spdt	8'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T6031A1045	-30 to 50	spdt	5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T6031A1052	-30 to 50	spdt	5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T6031A1060	-30 to 90	spdt	20'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T6031A1086	-35 to 30°C	spdt	8'		T775A1001	1/2"-121371A	
						3/4"-121371B	

Honeywell Remote Temperature Control Cross Reference

OLD HONEYWELL CONTROL	TEMP (°F) RANGE	SWITCH ACTION OR OUTPUT	CAP LENGTH	COMMENTS	RECOMMENDED HONEYWELL ELECTRONIC REPLACEMENT	HONEYWELL WELL# (ORDER SEP.)	COMMENTS
T6031A1136	-30 to 90	spdt	8'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T6031A1250	-20 to 100	spdt	5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T6031C1009	40 to 180	spdt	5.5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T6031C1025	0 to 90	spdt	5.5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T6031C1033	40 to 180	spdt	5.5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T6031C1041	5 to 80°C	spdt	5.5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T6031C1058	100 to 240	spdt	5' Stainless		T775A1001	1/2"-121371E	Use stainless well
						3/4"-121371F	
T6031D1007	40 to 180	spdt	7.5' armored		T775A1001	1/2"-121371A	Protect sensor wires
						3/4"-121371B	
T6031D1015	40 to 180	spdt	5.5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T6031D1031	0 to 70	spdt	5.5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T6031D1049	30 to 270	spdt	5.5'		T775A1001	1/2"-121371A	T775 range is -20 to 240°F
						3/4"-121371B	
T6031E1004	40 to 180	spdt	5.5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T6031F1010	55 to 90	spdt	5.5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T6031G1000	0 to 90	spdt	6'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T6031J1003	55 to 85	spdt	5.5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T6031K1001	15 to 75	spdt	5.5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T675A1045	0 to 100	spdt	20' Stainless		T775A1001	1/2"-121371E	Use stainless well
						3/4"-121371F	
T675A1102	160 to 260	spdt	20'		T775A1001	1/2"-121371A	T775 range is -20 to 240°F
						3/4"-121371B	
T675A1136	0 to 100	spdt	20'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T675A1243	75 to 125°C	spdt	5'		T775A1001	1/2"-121371A	
						3/4"-121371B	

Honeywell Remote Temperature Control Cross Reference

OLD HONEYWELL CONTROL	TEMP (°F) RANGE	SWITCH ACTION OR OUTPUT	CAP LENGTH	COMMENTS	RECOMMENDED HONEYWELL ELECTRONIC REPLACEMENT	HONEYWELL WELL# (ORDER SEP.)	COMMENTS
T675A1425	55 to 175	spdt	20'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T675A1441	55 to 175	spdt	20' Stainless		T775A1001	1/2"-121371E	Use stainless well
						3/4"-121371F	
T675A1458	55 to 175	spdt	5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T675A1508	0 to 100	spdt	5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T675A1516	0 to 100	spdt	5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T675A1524	55 to 175	spdt	20'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T675A1532	160 to 260	spdt	5'		T775A1001	1/2"-121371A	T775 range is -20 to 240°F
						3/4"-121371B	
T675A1540	55 to 175	spdt	5'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T675A1565	0 to 100	spdt	20'		T775A1001	1/2"-121371A	
						3/4"-121371B	
T675A1706	0 to 100	spdt	5'	Fast response	T775A1001+C7100A1015		Clip Capacitor
T675A1722	55 to 75	spdt	5'	Fast response	T775A1001+C7100A1015		Clip Capacitor
T675A1771	55 to 75	spdt	5'	Fast response	T775A1001+C7100A1015		Clip Capacitor
T675A1854	10 to 110	spdt	5'	Fast response	T775A1001+C7100A1015		Clip Capacitor
T675B1002	30 to 50	spdt	10'	Manual reset	T775A1001	1/2"-121371A	Add S445A1010 to convert T775 to
						3/4"-121371B	manual reset
T675B1010	30 to 50	spdt	20'	Manual reset	T775A1001	1/2"-121371A	Add S445A1010 to convert T775 to
						3/4"-121371B	manual reset
T675B1028	-20 to 50	spdt	10'	Manual reset	T775A1001	1/2"-121371A	Add S445A1010 to convert T775 to
						3/4"-121371B	manual reset
T675F1032	80 to 220	spdt	10'	Averaging	T775A1001+3-193987GA		
					or C7100A1015		
T678A1015	0 to 100	2-spdt	20'		T775A1019	1/2"-121371A	
						3/4"-121371B	
T678A1080	160 to 260	2-spdt	5'		T775A1019	1/2"-121371A	
						3/4"-121371B	
T678A1163	-15 to 35°C	2-spdt	20'		T775A1019	1/2"-121371A	
						3/4"-121371B	
T678A1361	55 to 175	2-spdt	20'		T775A1019	1/2"-121371A	
						3/4"-121371B	
T678A1437	0 to 100	2-spdt	5'		T775A1019	1/2"-121371A	
						3/4"-121371B	
T678A1445	55 to 175	2-spdt	5'		T775A1019	1/2"-121371A	
						3/4"-121371B	

Notes:

Notes:

Honeywell

Home and Building Control
Honeywell Inc.
1985 Douglas Drive North
Golden Valley, MN 55422-3992

Helping You Control Your World