JOHNSON CONTROLS®

24-3932-15, Rev. A

T-4752
Heating-Cooling Thermostat

The T-4752 is a dual temperature thermostat designed to provide control for both heating and cooling systems. The change from heating to cooling is accomplished with a change in supply pressure.

Models

Action	T-4752 Suffix	Dial	Mounting
15 PSIG Direct Action	-201	Fahrenheit	Horizontal
20 PSIG Reverse Action	-202	Fahrenheit	Vertical
15 PSIG Reverse Action	-205	Fahrenheit	Horizontal
20 PSIG Direct Action	-206	Fahrenheit	Vertical

Factory Calibration

The T-4752 is factory calibrated to send an 8 ± 1 PSIG (56 ± 7 kPa) output signal when the room temperature is at the setting on the dial. The lower element is in control at 15 PSIG (105 kPa) supply pressure and the upper element is in control at 20 PSIG (140 kPa) supply pressure. The switchover point is calibrated at 17.5 PSIG (122 kPa), midway between the usual 15 and 20 PSIG supply pressures.

Mounting

Note: When handling the unit, leave the front of the blisterpack on to protect the instrument until mounting is complete.

Room thermostats can be connected directly with 5/32 in. O.D. polytubing to barbed fittings on the back of the unit. The fittings are marked "S" for supply and "O" for output. If the installation was roughed in with 1/4 in. polyurethane

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Specifications

Supply Pressure	**Lower Element**	13 to 18 PSIG (91 to 126 kPa), Nominal 15 PSIG (105 kPa)
	Upper Element	17 to 25 PSIG (119 to 175 kPa), Nominal 20 PSIG (140 kPa)
Sensitivity		Adjustable from 0.75 to 4.0 PSI/F° (9 to 50 kPa/C°); Factory Set at 2.5 PSI/F° (31 kPa/C°)
Switchover Pressure		Factory Set at 17.5 PSIG (122 kPa), Adjustable 15 to 20 PSIG (105 to 140 kPa)
Air Consumption		20 SCIM (5.5 mL/s)
Output Flow Capacity		400 SCIM (109 mL/s)
Ambient Operating Temperature Limits		-20 to 130°F (-29 to 54°C)
Ambient Storage Temperature Limits		-20 to 150°F (-29 to 66°C)
Air Connections		Barbed Fittings for 5/32 in. O.D. Polytubing

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

tubing, use short lengths of black 5/32 in. tubing as couplers to make the connection. Secure the thermostat tight against the mounting bracket with the hex head screws on the corners of the unit.

If the installation was roughed in with a terminal connector on the mounting bracket, simply fit the barbed fittings into the terminal connector and secure the thermostat tight against the mounting bracket with the hex head screws on the corners of the unit.

If the thermostat is to be installed on an old T-4000 pipehead, install two 1/2 in. long, 5/32 in. pieces of polyurethane tubing on the fittings. Secure the thermostat tight against the mounting bracket and install the unit over the pipehead.

When mounting is complete, attach the HEATING-COOLING labels to the appropriate levers connected to the elements.

Switchover Pressure Adjustment

For dual supply pressures other than 15/20 PSIG, readjust the switchover pressure as follows:

1. Remove the controller from the mounting bracket.

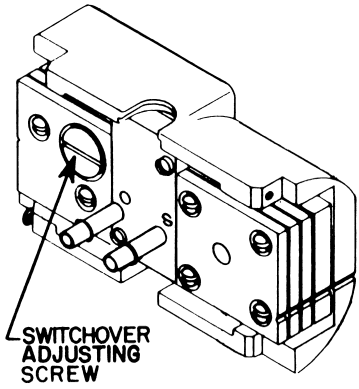

Fig. 1: Back View of Instrument

2. Connect a variable pressure source to the supply connection and attach a gage or a dead-ended chamber to the output connection.

3. Set the supply pressure to the desired switchover point.

4. Slowly turn the switchover adjusting screw (see Fig. 1) clockwise to increase or counterclockwise to decrease the switch point. Always adjust the switchover pressure from the low side. **Note: Do not turn the switchover adjusting screw more than three and one half complete revolutions.**

5. Recheck the switchover point by increasing and decreasing the supply pressure over the switch point to see that the switchover occurs at the desired value.

6. Remove the gage and tubing and replace the instrument on the mounting bracket.

Set Point Adjustment When Heating Set Point and Cooling Set Point are Identical (See Fig. 2)

Lower Element

1. Furnish 15 PSIG (105 kPa) supply pressure to the instrument.

2. Note the temperature at the element.

3. Turn the set point dial to that temperature.

4. Turn the lower calibration screw to provide an output pressure equal to the mid spring range of the controlled device.

Upper Element

1. Furnish 20 PSIG (140 kPa) supply pressure to the instrument.

2. Repeat steps 2 through 4 above on the upper element.

3. Turn the set point dial to the desired temperature.

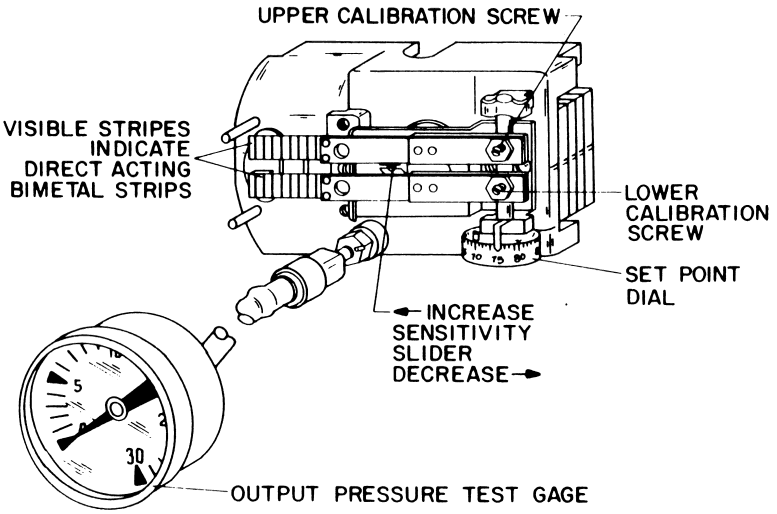

Fig. 2: T-4752 Adjustments

Set Point Adjustment When Cooling Set Point is Different Than Heating Set Point Shown on the Dial (See Fig. 2)

Lower Element

1. Furnish 15 PSIG (105 kPa) supply pressure to the instrument.
2. Note the temperature at the element.
3. Turn the set point dial to that temperature.
4. Turn the lower calibration screw to provide an output pressure equal to the mid spring range of the controlled device.
5. Turn the set point dial to the desired temperature.

Upper Element

1. Furnish 20 PSIG (140 kPa) supply pressure to the instrument.
2. Repeat steps 2 through 4 above on the upper element.
3. Turn the set point dial to the desired temperature.
4. Turn the set point dial down the number of degrees difference between the heating set point and the desired cooling set point.
5. Turn the upper calibration screw to provide a pressure equal to the mid spring range of the controlled device.
6. Turn the set point dial back to the heating set point.

Operational Checkout

1. Furnish 15 PSIG (105 kPa) supply pressure to the instrument.
2. Slowly increase the dial setting.
3. Check for a gradual decrease in output pressure on the direct acting (DIR) model or increase in output pressure on the reverse acting (REV) model.
4. Slowly decrease the dial setting.
5. Check for a gradual increase in output pressure on the DIR model or decrease in output pressure on the REV model.
6. Repeat the procedure on the upper element using 20 PSIG (140 kPa) supply pressure.
7. If a pressure buildup and drop is not observed as mentioned above, refer to Repair Information.

Sensitivity Adjustment

The T-4752 is factory set at 2.5 ± 0.5 PSI/F° (31 ± 6 kPa/C°). Some situations may require a sensitivity adjustment for proper instrument operation. To do so, move the sensitivity slider to the left to increase or to the right to decrease the sensitivity setting. If the output pressure changes do to moving the slider, restore the output pressure to its original value by turning the adjustment screw on the slider clockwise to decrease or counterclockwise to increase the pressure (see Fig. 2). **Note: This screw is not intended for set point calibration.**

Repair Information

If the T-4752 fails to operate within its specifications, refer to the Counterline Catalog for the appropriate repair parts.

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