Johnson Controls T-3300-1

Johnson Controls T-3300-1 Pneumatic Thermostat Instruction Manual

Model: T-3300-1

1. Introduction

This manual provides essential information for the installation, setup, operation, and maintenance of the Johnson Controls T-3300-1 Pneumatic Thermostat. This device is designed to maintain space comfort by controlling the temperature of air returning to a terminal air conditioning unit. It supports both Direct Acting (DA) and Reverse Acting (RA) configurations, operating within a temperature range of 60 to 150 degrees Fahrenheit.
Please read this manual thoroughly before installation and operation to ensure proper function and safety.

2. Safety Information

WARNING: Installation and servicing must be performed by qualified personnel only. Failure to follow these instructions could result in personal injury or equipment damage.

- Always disconnect power and pneumatic supply before servicing.
- Ensure all connections are secure and leak-free.
- Do not exceed the specified operating pressure or temperature limits.
- Dispose of packaging materials responsibly.

3. Product Components

The Johnson Controls T-3300-1 Pneumatic Thermostat consists of the main control unit, a temperature sensing bulb with capillary tubing, and mounting hardware.

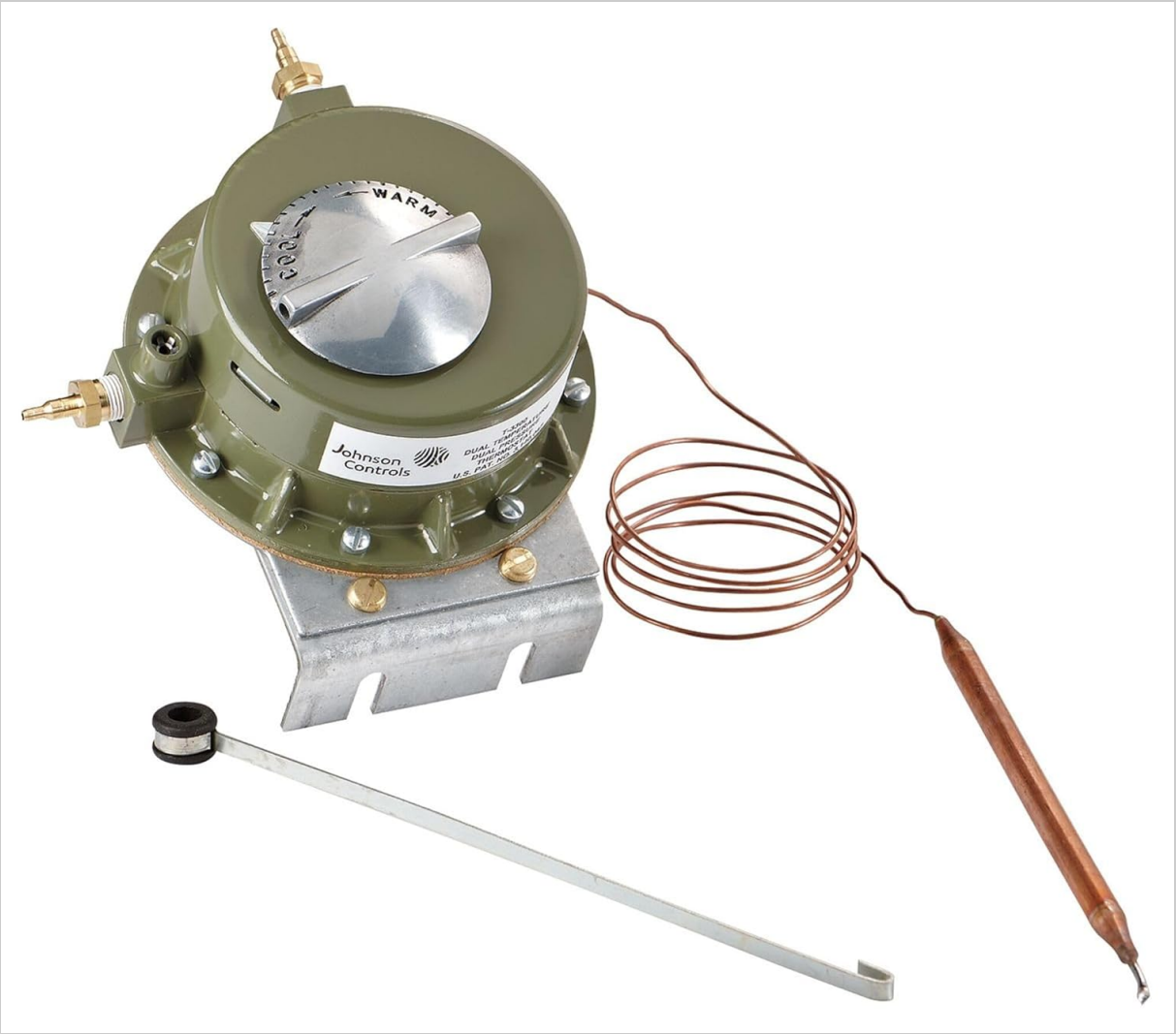

Figure 1: Overview of the Johnson Controls T-3300-1 Pneumatic Thermostat. The image displays the olive-green main control unit with a silver adjustment dial labeled 'COOL' to 'WARM'. Two brass pneumatic connections are visible on the top and left side. A coiled copper capillary tube extends from the unit, terminating in a copper temperature sensing bulb. Below the main unit is a silver mounting bracket and a separate silver lever with a black rubber grommet, likely for calibration or linkage.

- **Main Control Unit:** The primary housing containing the pneumatic control mechanism and temperature adjustment dial.
- **Temperature Adjustment Dial:** Located on the front of the main unit, used to set the desired temperature.
- **Pneumatic Connections:** Ports for connecting the air supply and control lines.
- **Capillary Tube and Sensing Bulb:** A thin copper tube connected to a bulb, which senses the ambient air temperature.
- **Mounting Bracket:** For securing the thermostat to a surface.

4. Installation

4.1 Mounting the Thermostat

1. Select a suitable mounting location that accurately reflects the space temperature and is free from drafts, direct sunlight, or heat sources.
2. Secure the mounting bracket to the wall or panel using appropriate fasteners.
3. Attach the main control unit to the mounting bracket.

4.2 Connecting Pneumatic Lines

1. Connect the main air supply line (typically 15 PSIG for Direct Acting or 20 PSIG for Reverse Acting) to the designated supply port.
2. Connect the control line to the appropriate output port, leading to the controlled device (e.g., damper actuator, valve).
3. Ensure all pneumatic connections are tight to prevent air leaks.

4.3 Positioning the Sensing Bulb

Position the temperature sensing bulb in the return air stream or the area where temperature control is desired. Ensure the bulb is not obstructed and can accurately sense the air temperature.

5. Setup and Calibration

5.1 Initial Power-Up

Once installation is complete, restore the pneumatic air supply. The thermostat will begin to respond to temperature changes.

5.2 Setting the Desired Temperature

Rotate the adjustment dial on the front of the thermostat to set the desired temperature. Turn towards 'COOL' for lower temperatures or 'WARM' for higher temperatures. The specific temperature scale may vary based on calibration.

5.3 Calibration (If Required)

If precise temperature control is critical, or if the thermostat's reading appears inaccurate, professional calibration may be necessary. Refer to the detailed service manual or contact a qualified HVAC technician for calibration procedures. This typically involves adjusting internal mechanisms to match a known reference temperature.

6. Operation

The T-3300-1 thermostat operates by sensing the air temperature via its capillary tube and bulb. Based on the setpoint and the sensed temperature, it modulates the pneumatic output pressure to control a connected device, thereby maintaining the desired space comfort.

- **Direct Acting (DA):** As temperature rises, output pressure increases.
- **Reverse Acting (RA):** As temperature rises, output pressure decreases.

The thermostat continuously adjusts its output to counteract temperature deviations from the setpoint.

7. Maintenance

The Johnson Controls T-3300-1 is designed for reliable operation with minimal maintenance. However, periodic checks can ensure optimal performance.

- **Cleaning:** Periodically clean the exterior of the thermostat and ensure the sensing bulb is free from dust and debris. Use a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Pneumatic Connections:** Inspect pneumatic connections for any signs of leaks. Tighten connections if necessary.

- **Air Supply Quality:** Ensure the pneumatic air supply is clean and dry to prevent internal component fouling.
- **Recalibration:** If the thermostat's accuracy degrades over time, recalibration by a qualified technician may be required.

8. Troubleshooting

This section addresses common issues you might encounter with your T-3300-1 thermostat.

Problem	Possible Cause	Solution
Thermostat not responding to temperature changes.	No pneumatic air supply; Leaking connections; Damaged sensing bulb/capillary.	Verify air supply; Check and tighten connections; Inspect sensing bulb for damage (replace if necessary).
Inaccurate temperature control.	Improper calibration; Sensing bulb improperly located; Drafts or heat sources affecting bulb.	Recalibrate by qualified personnel; Relocate sensing bulb; Shield bulb from external influences.
Constant air leak from thermostat.	Loose pneumatic fittings; Internal diaphragm or valve issue.	Tighten fittings; Contact qualified technician for internal repair or replacement.

For issues not listed here or if troubleshooting steps do not resolve the problem, contact Johnson Controls technical support or a certified HVAC professional.

9. Specifications

Feature	Detail
Model Number	T-3300-1
Product Type	Pneumatic Thermostat
Operating Range	60 to 150 Degrees Fahrenheit
Action	Direct Acting (DA) / Reverse Acting (RA)
Direct Acting Supply Pressure	15 PSIG
Reverse Acting Supply Pressure	20 PSIG
Dimensions (L x W x H)	7.0" x 7.0" x 5.0" (Approximate package dimensions, actual unit may vary slightly)
Weight	3 Pounds (Approximate)
Color	Green
Controller Type	Push Button (Refers to adjustment dial)
Special Feature	Auto Changeover (Functionality)

10. Warranty and Support

For warranty information, technical support, or service inquiries, please refer to the official Johnson Controls website or contact their customer service department. Keep your purchase receipt and model number (T-3300-1) handy when contacting support.

Johnson Controls is committed to providing high-quality products and support.