

T26 Series Line Voltage Thermostats

The T26 Series line voltage thermostat controls heating and/or cooling units in commercial, industrial, or residential installations. Typical uses are for unit heaters, fan coils, blast coils, electric heat, duct furnaces, or greenhouses.

Models are available with Single-Pole Single-Throw (SPST) or Single-Pole Double-Throw (SPDT) switches rated for a variety of applications. The T26 thermostats are also suitable for low voltage applications.



Figure 1: T26 Thermostat with Vertical Faceplate

Features and Benefits	
<input type="checkbox"/> Narrow Differential	Increases versatility of the thermostats, which may be used on heating and/or cooling over a wide range of voltages (24V, 120V, 240V, or 277V)
<input type="checkbox"/> Line Voltage Components Switch Box Mounted	Provides isolation of electrical circuit from sensing element
<input type="checkbox"/> Models with Limited Ranges Available	Provides energy conservation
<input type="checkbox"/> Adjustable High/Low Range Stops	Allows adjustments within a desired range
<input type="checkbox"/> Enclosed Pennswitch	Provides dust protection for contacts
<input type="checkbox"/> Mounting Plate	Allows easy mounting and wiring without removing the cover

Introduction

IMPORTANT: All T26 Series thermostats are designed for use **only** as operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add devices (safety, limit controls) or systems (alarm, supervisory systems) that protect against, or warn of, control failure.

The T26 standard model thermostats provide SPDT control for heating, cooling, or heating and cooling applications. The T26 has a thermoplastic cover with an Allen-head locking screw to discourage unauthorized tampering.

The thermostat consists of a liquid filled sensing element, which has excellent sensitivity to surrounding air temperature changes. Coupled with a highly efficient diaphragm and lever mechanism, the element operates an enclosed narrow differential Pennswitch.

An adjusting knob and easy-to-read dial allow quick selection of the desired setpoint. The thermostat is supplied with the faceplate installed for vertical mounting and knob adjustment. However, a horizontal faceplate is enclosed for horizontal mounting and knob adjustment if desired.

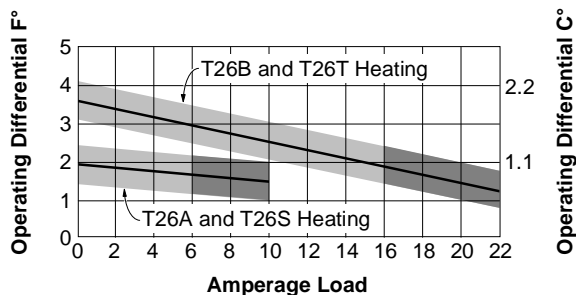
Operating Differential

The operating temperature differential of any self-contained thermostat depends on the following:

- the velocity of air over the thermostat
- the rate of temperature change to which the thermostat is subjected
- the current flowing through the thermostat (amperage load)
- whether the thermostat is operating heating or cooling equipment

Figures 2 and 3 show the operating temperature differentials of the T26 thermostats under various load conditions. The amperage loads are based on the electrical ratings in Table 1. The air velocity was 25 ft/min (0.127 m/sec) and the rate of temperature change was 6 F° (3.3 C°) per hour.

For air velocities greater than 25 ft/min and/or rates of temperature change less than 6 F° (3.3 C°) per hour, the operating differentials will be less than what is shown in Figures 2 and 3.



Note: The dark shading applies to non-inductive loads only.

Figure 2: Operating Differentials for T26A, T26B, and Heating Side for T26S and T26T

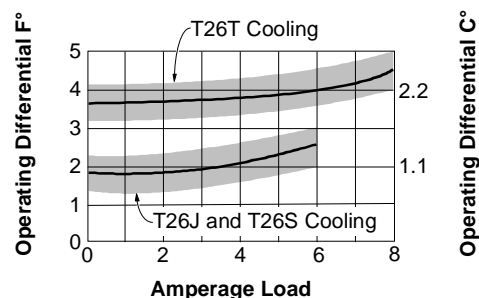


Figure 3: Operating Differential for T26J and Cooling Side for T26S and T26T

The heavy lines in Figures 2 and 3 are the nominal operating temperature differential. Production thermostats may vary from the norm as indicated by the shaded areas.

Installation

Supplies Needed

- 2 x 4 in. (51 x 102 mm) wall box (field supplied)
- screwdriver (slotted standard)
- marking pencil
- wire strippers

Location Considerations

Locate the T26 thermostat as follows:

- on a partitioning interior wall, and approximately 5 ft (1.5 m) above the floor in a location of average temperature
- away from direct sunlight or radiant heat, outside walls or behind doors, air discharge grills, stairwells, or outside doors
- away from steam or water pipes, warm air stacks, or heated/uncooled areas

Dimensions

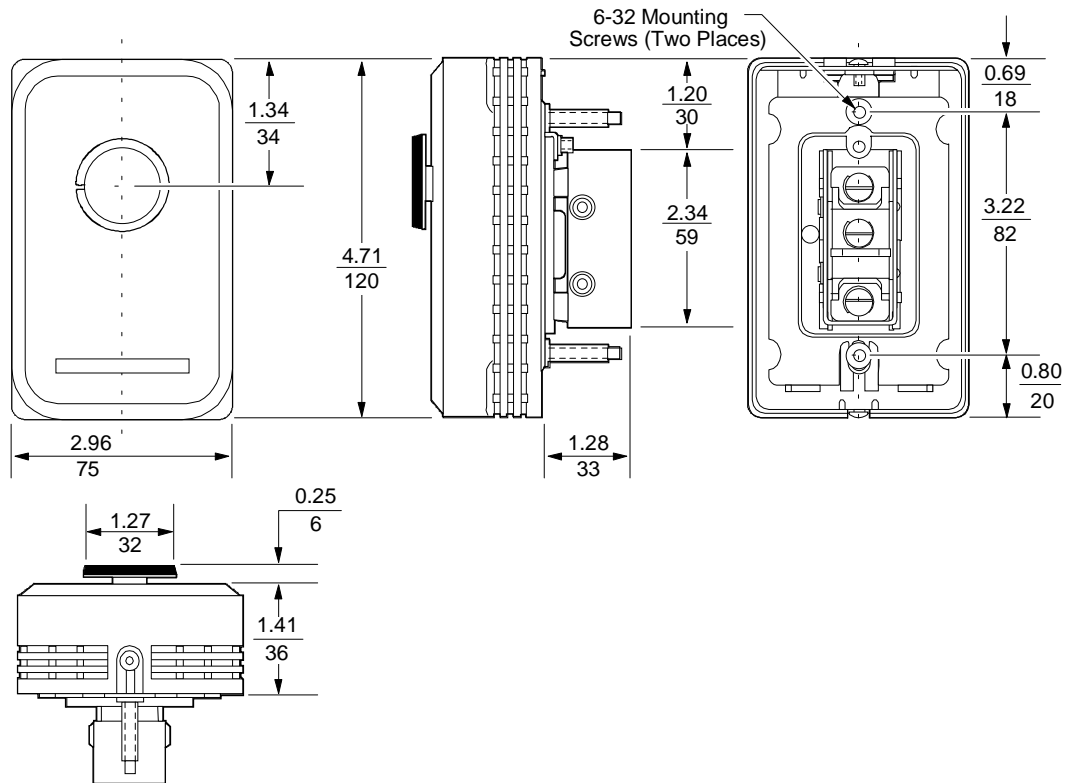


Figure 4: T26 Dimensions (in./mm)

Mounting and Wiring

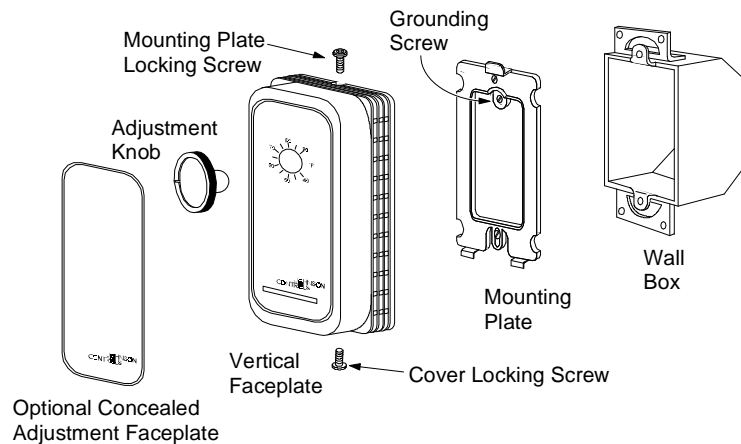


Figure 5: T26 Series Thermostat

IMPORTANT: Do not remove the thermostat cover during installation. The sensing element must be carefully protected against accidental damage. All wiring and mounting can be completed without removing the cover.



CAUTION: Shock hazard. Disconnect power supply before wiring connections are made to avoid electrical shock or possible damage to the equipment.

To install the T26 thermostat:

1. Select the proper mounting location (refer to the *Location Considerations* section) and install a vertical or horizontal wall box approximately 5 feet (1.2 to 1.5 m) above the floor.
2. Run conduit or cable, as required by national and/or local electric codes, from the wall box to the equipment to be controlled. Leave approximately 6 in. (152 mm) of wire for connection to the thermostat terminals.
3. Remove the mounting plate by loosening the mounting plate locking screw (see Figure 5), and lifting and removing the plate from the base.
4. Pull wires through the mounting plate and fasten the plate, grounding screw end up, to the wall box with the screws provided.
5. Strip the wires and connect to the proper terminals on the back of the thermostat. See Figures 6 through 11.

Note: Use the terminal screws furnished (8-32 x 1/4 in. binder head). Substitution of other screws may cause problems in making proper connections.

6. Ground the thermostat to the branch circuit ground as required by National Electric Code and local regulations.
7. Hook the two slots in the thermostat base over the tabs on the mounting plate and swing the thermostat into place. Push the wires back flush into the wall box.
8. Securely tighten the mounting plate locking screw.

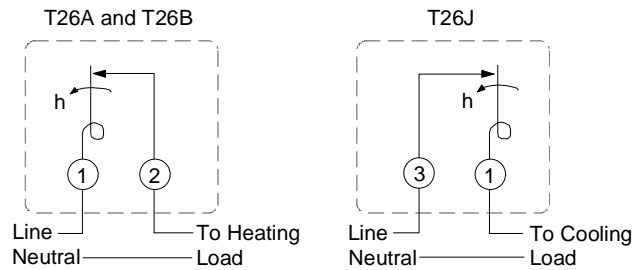


Figure 6: Internal Diagram of T26A, T26B, and T26J

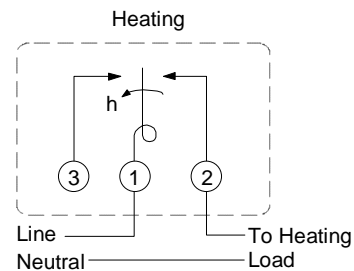


Figure 7: T26S, T26T Wired for Heating Application

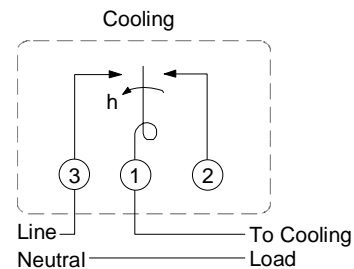


Figure 8: T26S, T26T Wired for Cooling Application

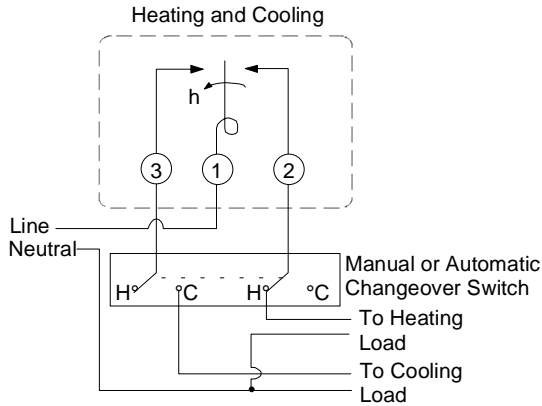


Figure 9: T26S, T26T Wired for Heating and Cooling with Manual or Automatic Changeover Switch

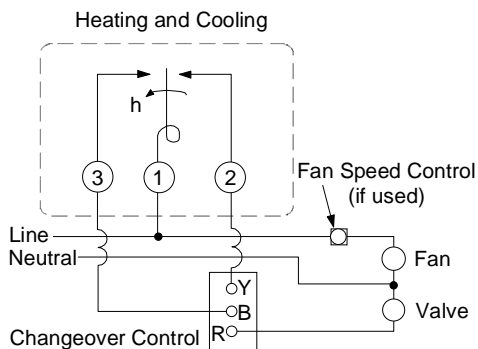


Figure 10: T26S, T26T on Fan Coil Unit with Cycling Valve and Continuous Fan (Terminal markings shown for A19CAC changeover control.)

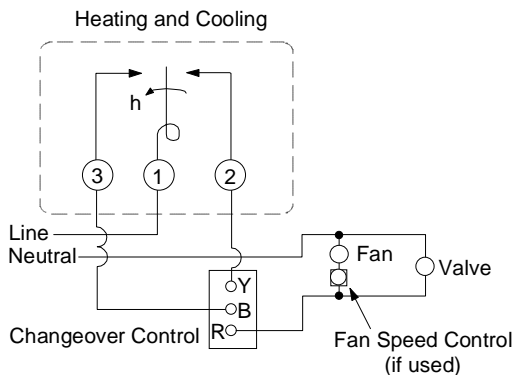


Figure 11: T26S, T26T on Fan Coil Unit with Cycling Fan and Valve (Terminal markings shown for A19CAC changeover control.)

Table 1: Electrical Ratings

T26A, T26S				
Motor Ratings	120V	208V	240V	277V
AC Full Load Ampere	6.0	3.5	3.0	--
AC Locked Rotor Ampere	36.0	21.0	18.0	--
AC Non-inductive Ampere	10.0	10.0	10.0	10.0
Pilot Duty - 125 VA, 24 to 277 VAC				
T26B and Heating Side of T26T				
AC Full Load Ampere	16.0	9.2	8.0	--
AC Locked Rotor Ampere	96.0	55.2	48.0	--
AC Non-inductive Ampere	22.0	22.0	22.0	22.0
Pilot Duty - 125 VA, 24 to 277 VAC				
Cooling Side of T26T				
AC Full Load Ampere	8.0	8.0	8.0	
AC Locked Rotor Ampere	48.0	48.0	48.0	
Pilot Duty - 125 VA, 24 to 277 VAC				
T26J				
AC Full Load Ampere	6.0	3.5	3.0	
AC Locked Rotor Ampere	36.0	21.0	18.0	
Pilot Duty - 125 VA, 24 to 277 VAC				

Adjustments

For concealed dial models (with cover removed), the desired dial setting should be lined up with the reference mark on the base of the thermostat. (See Figure 12.) This will place the desired setting at the 9 o'clock position when the thermostat is held vertically.

Range Stops

High and low range stops can be field adjusted as desired. Use the following procedures to set the high and low range stops.

Note: Energy conservation models have a fixed factory-set limited range. The stops are not field adjustable.

High Range Stop

1. Set the adjustment knob to the maximum desired temperature setting.
2. Pull the adjustment knob off the thermostat cover.
3. Loosen the bottom cover screw and remove the cover.
4. While holding the dial firmly in place, keeping the setting in line with the reference mark, depress the tab "A" (see Figure 12) and rotate it clockwise until it is against the stop pin "C".
5. Release the tab making sure it fits into the nearest notch.
6. Replace the thermostat cover, tighten the bottom cover screw, and replace the adjustment knob.
7. Rotate adjustment knob to desired normal operating setpoint.

Low Range Stop

1. Set the adjustment knob to the minimum desired temperature setting.
2. Pull the adjustment knob off the thermostat cover.
3. Loosen the bottom cover screw and remove the cover.
4. While holding the dial firmly in place, keeping the setting in line with the reference mark, depress the tab "B" (see Figure 12) and rotate it counterclockwise until it is against the stop pin "C".
5. Release the tab making sure it fits into the nearest notch.
6. Replace the thermostat cover, tighten the bottom cover screw, and replace the adjustment knob.
7. Rotate adjustment knob to desired normal operating setpoint.

Dial Lock

The high range stop and low range stop can be set to keep the adjustment knob from rotating. To lock the dial:

1. Set the adjustment knob to the desired temperature setting.
2. Pull the adjustment knob off the thermostat cover.
3. Loosen the bottom cover screw and remove the cover.

4. While holding the dial firmly in place, keeping the setting in line with the reference mark, depress the tab "A" and rotate it clockwise until it is against the stop pin "C." Depress the tab "B" and rotate it counterclockwise until it is against the stop pin "C." See Figure 12.
5. Make sure each tab fits into the notch closest to the stop.
6. Replace the thermostat cover, tighten the bottom cover screw, and replace the adjustment knob.

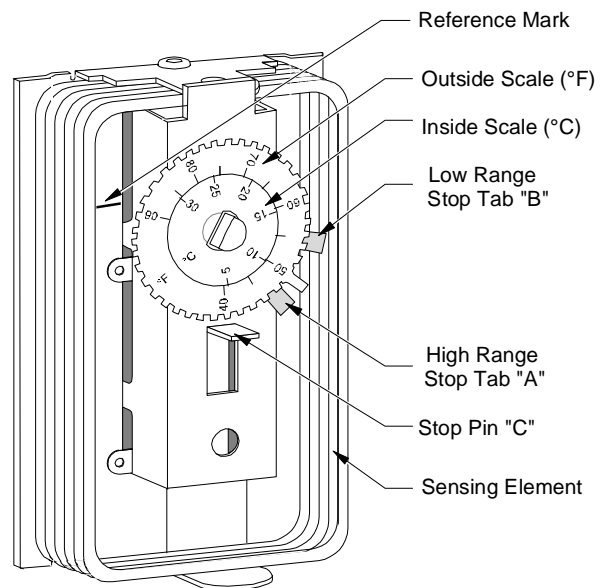


Figure 12: T26 Thermostat Range Tabs and Stop

Checkout Procedure

Before applying power, make sure installation and wiring connections are according to job specifications.

After all necessary adjustments and electrical connections have been made, put the system into operation and observe at least three complete operating cycles before leaving the installation.

Repairs and Replacement

Field repairs must not be made except for replacement of the adjustment knob, cover, faceplate, or mounting plate. Refer to *Table 4: Replacement Parts* for replacement part ordering information. For a replacement T26, contact the nearest Johnson Controls representative.

Ordering Information

Table 2: Ordering Information

Item	Product Code Number
Thermostat, SPST, Heating	T26A
Thermostat, SPST, Heavy Duty Heating	T26B
Thermostat, SPST, Cooling	T26J
Thermostat, SPDT, Heating, Cooling, or Heating and Cooling	T26S
Thermostat, SPDT, Heavy Duty Heating, Cooling, or Heating and Cooling	T26T

Table 3: Faceplate Ordering Information (For T26¹ Thermostats with Plastic Cover)

Kit Number	Mounting Position	Adjustment Type	Thermometer Cutout	Temperature Scale
PLT333-1R ¹	Vertical	Knob	Yes	Fahrenheit
PLT333-2R ²	Horizontal	Knob	Yes	Fahrenheit
PLT333-3R	Vertical	Concealed	Yes	Fahrenheit
PLT333-4R	Horizontal	Concealed	Yes	Fahrenheit
PLT333-5R	Vertical	Knob	Yes	Celsius
PLT333-6R	Horizontal	Knob	Yes	Celsius
PLT333-9R	Horizontal	Concealed	No	n/a
PLT333-12R	Vertical	Concealed	No	n/a

¹ Can only be used with plastic cover assembly, which was made available in the Fall of 1989.

² Supplied with standard wholesaler models (vertical is factory installed).

Accessories

Faceplates

Faceplates are available in separate kits for on-the-job installation. All plates have peel-off backing strips. See Table 3 for faceplate ordering information. Faceplates must be ordered in quantities of ten.

Brand Name Faceplates

Brand name faceplates are available on quantity orders. Contact Customer Service.

Concealed Adjustment Faceplates

Concealed adjustment faceplates are available on factory order at no extra cost. For field changeover, use the concealed faceplate kit and install directly over the faceplate on the cover.

Thermostat Guards

Plastic, wire, or cast aluminum guards are available at extra cost. See the GRD Series in the *Johnson Controls HVAC/Refrigeration Controls Catalog*.

Double Control Trim Plates

Double control trim plates are available for vertical mounting of T26 thermostats side-by-side on a three gang vertical box. These plates may also be used with T22, T25, T80, W43, and W45. Dimensions are 5-1/2 in. high by 9-1/8 in. long (140 mm high by 232 mm long). Order Part No. PLT231-1R.

Energy Conservation Models

Thermostats are available with limited heating or cooling ranges. The standard heating models are the T26A-14 with a range of 40 to 75°F (4 to 24°C) and the T26A-15 with a range of 40 to 65°F (4 to 18°C). The cooling models are the T26J-7 with a range of 75 to 90°F (24 to 32°C) and the T26J-9 with a range of 78 to 90°F (26 to 32°C). Other limited settings are available on quantity orders.

Replacement Parts

Table 4: Replacement Parts

Item	Product Code Number
Cover Assembly for Knob Adjustment Models with Thermometer, °F Scale, Vertical Faceplate (Horizontal Faceplate Supplied Unassembled)	CVR88A-600R
Thermoplastic Push On Adjustment Knob	KNB26A-600R
Thermostat Mounting Plate	PLT51A-602R
Mounting Plate for Thermostat and Selector Switch	PLT61A-600
Double Gang Box Mounting Plate	PLT231-1R

Specifications

Product	T26 Series Line Voltage Thermostats
Contact Ratings	See Table 1.
Measurement Range	Thermostat:: 40 to 90°F (4 to 32°C) Thermometer: 50 to 90°F (10 to 32°C)
Differential	Mechanical: Approximately 0.7°F (0.4°C) Operating: See Figures 2 and 3.
Ambient Operating Temperatures	0 to 105°F (-18 to 46°C)
Sensing Element	Liquid Filled
Thermometer	Bi-metal Type
Switch	Snap-acting Contacts in a Dust-protected Enclosure
Material	Base: 0.050 in. (1.27 mm) Cold Rolled Steel Cover: Beige Thermoplastic
Finish	Base: Zinc Plate Dichromate Dipped Cover: Brown Markings on Gold Anodized Aluminum
Mounting	Vertical or Horizontal 2 x 4 in. (51 x 102 mm) Wall Box
Wiring Terminals	Large 8-32 x 1/4 in. Binder Head Screws
Agency Listings	UL Guide No. XAPX; File E6688 CSA Class No. 4813 02; File LR948
Dimensions (H x W x D)	4.71 x 2.96 x 2.87 in. (120 x 75 x 73 mm)
Shipping Weight	1.0 lb (0.45 kg)

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.



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