T26 Series Line Voltage Thermostats Product/ Technical Bulletin

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Application

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

Narrow differential

Increases versatility of the thermostats, which may be used on heating and cooling over a wide range of voltages (24V, 120V, 240V, or 277V)

Line voltage components switch box mounted

Provides isolation of electrical circuit from sensing element

Models with limited ranges available

Provides energy conservation

Adjustable high/low range stops

Allows adjustments within a desired range

Enclosed Pennswitch

Provides dust protection for contacts

Mounting plate

Allows easy mounting and wiring without removing the cover

Introduction

Important: Use T26 series thermostats only as an operating control. Where failure or malfunction of the T26 thermostats could lead to personal injury or property damage to the controlled equipment or other property, additional precautions must be designed into the control system. Incorporate and maintain other devices, such as supervisory or alarm systems or safety or limit controls, intended to warn of or protect against failure or malfunction of the T26 thermostats.

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.

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 amperage load current flowing through the thermostat
- whether the thermostat is operating heating or cooling equipment

See Figures 2 and 3 for 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 is 25 ft/min (0.127 m/s) and the rate of temperature change is 6°F (3.3°C) per hour.

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

The heavy lines in Figures 2 and 3 are the nominal operating temperature differential. Production

thermostats may vary from the norm as the shaded areas indicate.

Figure 2: Operating differentials for T26A, T26B, and heating side for T26S and T26T

Installation

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, See Location Considerations. Install a vertical or horizontal wall box approximately 5 ft (1.2 m to 1.5 m) above the floor.
2. Run conduit or cable, as required by national and 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, and lifting and removing the plate from the base. See Figure 5.
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 in. 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.

Supplies needed

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

Location considerations

Locate the T26 thermostat in a position that meets the following conditions.

- 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

Adjustments

For concealed dial models with the cover removed, line up the dial setting that you want with the reference mark on the base of the thermostat. See Figure 12. Place the setting at the 9 o'clock position when the thermostat you hold is vertical.

Range stops

You can adjust high and low range stops. 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 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". See Figure 12.
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 normal operating setpoint.

Ordering information

Table 1: T26 ordering information

Item	Product code number
Thermostat, SPST, heating	T26A
Thermostat, SPST, heavy duty heating	T26B
Thermostat, SPST, cooling	T26J

Table 1: T26 ordering information

Item	Product code number
Thermostat, SPDT, heating, cooling, or heating and cooling	T26S
Thermostat, SPDT, heavy duty heating, cooling, or heating and cooling	T26T

Table 2: Faceplate ordering information for T26 thermostats with plastic cover

Kit number	Mounting position	Adjustment type	Thermometer cutout	Temperature scale
PLT333-1R	Vertical	Knob	Yes	Fahrenheit
PLT333-2R	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

Note: PLT333-1R can only be used with plastic cover assembly, which was made available in the Fall of 1989.

Note: Supplied with standard PLT333-2R 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 it directly over the faceplate on the cover.

Thermostat guards

Plastic, wire, or cast aluminum guards are available at extra cost. Refer to 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. You can also use these plates with the T22, T25, T80, W43, and W45. The 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°F to 75°F (4°C to 24°C) and the T26A-15 with a range of 40°F to 65°F (4°C to 18°C). The cooling models are the T26J-7 with a range of 75°F to 90°F (24°C to 32°C) and the T26J-9 with a range of 78°F to 90°F (26°C to 32°C). Other limited settings are available on quantity orders.

Replacement parts

Table 3: T26 replacement parts

Item	Product code number
Cover assembly for knob adjustment models with thermometer, °F Scale, and Vertical faceplate **Note:** 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

Technical specifications

Table 4: T26 technical specifications

Specifications	Description	
Product	T26 Series Line Voltage Thermostats	
Contact ratings	See Table 1.	
Measurement range	Thermostat	40°F to 90°F (4°C to 32°C)
	Thermometer	50°F to 90°F (10°C to 32°C)
Ambient operating temperatures	0°F to 105°F (-18°C to 46°C)	

Table 4: T26 technical specifications

Specifications	Description	
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 in. x 4 in. (51 mm x 102 mm) wall box	
Wiring terminals	Large 8-32 in. 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 in. x 2.96 in. x 2.87 in. (120 mm x 75 mm x 73 mm)	
Shipping weight	1.0 lb (0.45 kg)	

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