

T23 Series Line Voltage Fan Coil Thermostat

Application

T23 thermostats control heating, cooling, or combination heating and cooling systems. The thermostats can be wired to cycle the system valve(s) and/or the system fan. All units have a fan speed selector switch and a system selector switch.

Typical applications include:

- Two, three, and four pipe heating and/or cooling systems, such as unit heaters or unit ventilators.
- Package Terminal Air Conditioning units (PTAC) where hot or cold water is supplied by a boiler or chiller

Features

- Compact units are dependable, totally enclosed Pennswitches.
- Sensitive liquid charged element and efficient lever mechanism provides close operating, differential without anticipators.
- Integral heavy duty rocker switches provide LOW-MEDIUM-HIGH speed fan selection, and a HEAT-OFF-COOL, or AUTO-OFF system switching.
- A built-in "dial lock" capability discourages turning the thermostat dial to a temperature other than the desired setting.



Fig. 1 – T23A Fan Coil Thermostat.

- High and low temperature stops are a built-in feature of these thermostats.
- Dual voltage capability allows the system fan to be either 120 or 240 V.A.C.

Specifications

Type Number	T23A	Fan Switch LOW-MED-HIGH, System Switch HEAT-OFF-COOL
	T23B	Fan Switch LOW-MED-HIGH, System Switch AUTO-OFF
Range	50 to 90°F (10 to 32°C)	
Differential	Heating	1¾ F° (1.0C°)
	Cooling	2¼ F° (1.3C°)
Voltage	120/240 V. A.C.	
Selector Switches	Heavy Duty Rocker Type	
Sensing Element	Liquid Filled	
Contact Unit	Totally Enclosed Snap-Acting Pennswitch	
Finish	Baked-On Beige Gray Enamel, Faceplate Is Dark Brown and Light Brown	
Temperature Stops	Field Adjustable High and Low Stops	
Material	Base	.050" (1.27 mm) Cold Rolled Steel
	Cover	.035" (0.9 mm) Cold Rolled Steel
Thermometer	Bimetal Type	
Wiring Connection	Screw Type Terminals	
Mounting	Cross Key Hole Slots in Base for Mounting to a Standard Double Outlet Box	
Shipping Weight	Individual Pack	1.5 Lb. (0.68 kg)
	Overpack of 18 Units	28 Lb. (13 kg)

All Series T23 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) that protect against, or systems (alarm, supervisory systems) that warn of control failure.

General Description

The T23 has a pleasing and contemporary style that is adaptable to any decor. The thermometer is a dependable, easy to read, bimetal pointer type.

The liquid charged sensing element is used to detect temperature changes in the surrounding air, and works with a highly efficient diaphragm and lever mechanism to actuate the contact unit. These components

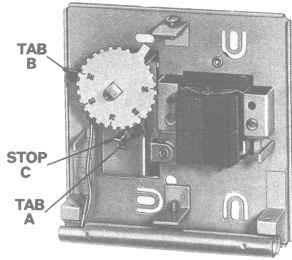


Fig. 2 – Interior view of the T23 thermostat.
Note the tabs and stops.

provide the T23 with a low operating differential and dependable switching action without the necessity of either heating or cooling anticipators.

Elimination of anticipators increases versatility of these thermostats. They may be used on heating and/or cooling over a wide range of current loads, either on 120 V. or 240 V. systems.

The thermostats mount directly to a two-gang wall box. No adapter plate is required. Wiring connections are made to screw type terminals on the back of the thermostat.

Electrical Ratings

Motor Ratings	120 V.	240 V.
A.C. Full Load Amps.	5.8	2.9
A.C. Locked Rotor Amps.	34.8	17.4
Pilot Duty – 125 VA.		
120 to 240 V. A.C.		

Operating Temperature Differential

The operating temperature differential of any room thermostat depends on:

- The current flowing through the thermostat (amperage load);

- the velocity of air over the thermostat; the rate of temperature change to which the thermostat is subjected;
- and whether the thermostat is operating heating or cooling equipment.

The graphs in Figures 3 and 4 show the operating temperature differentials of these thermostats under various electrical load conditions. The air velocity was 25 feet per minute (0.1 m/sec.) and the rate of temperature change was 6F° (3.3C°) per hour. Higher air velocities and/or lower rates of temperature change result in lower operating differentials.

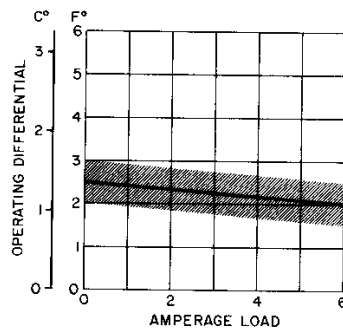


Fig. 3 — Heating operating differential for the T23.

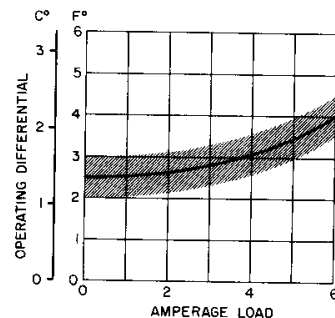


Fig. 4 — Cooling operating differential for the T23.

Optional Constructions

Celsius Dial and Thermometer

Celsius dial and thermometer are supplied, when specified at no extra charge. The dial and thermometer range is 10 to 32°C.

Brand Nameplates

Available on quantity orders. Contact Customer Service.

Repairs and Replacement

Field repairs must not be made except for the knob, faceplate, and cover. For a replacement thermostat or repair parts, contact the nearest Johnson Controls wholesaler.

Ordering Information

To order, specify Product Number when available. If not available, specify:

1. T23 for a thermostat with knob adjustment.
2. Optional construction details as required:
 - a. Bimetal thermometer.
 - b. Celsius dial and thermometer.
 - c. Brand nameplate.
 - d. Low-Medium-High or High-Low fan switch.

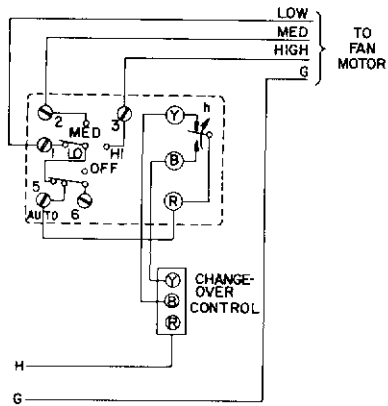
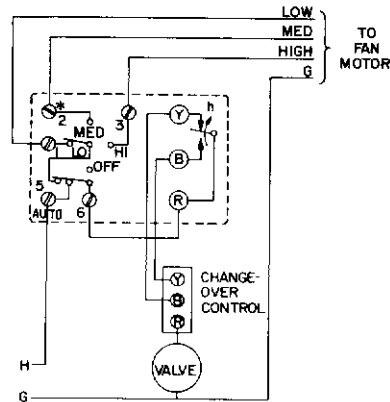


Fig. 5 — T23B thermostat cycles fan on both heat and cool. Wired with an A19CAC SPDT automatic changeover control.



*Terminal #2 is not used when the T23B switch plate shows "high" and "low" fan positions.

Fig. 7 — T23B thermostat cycles valve, with continuous fan. Wired with an A19CAC SPDT automatic changeover control.

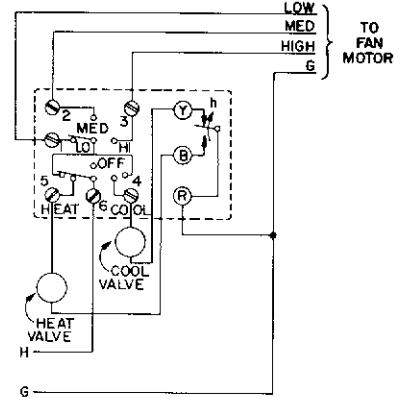


Fig. 9 — T23A thermostat cycles heating or cooling valve with continuous fan.

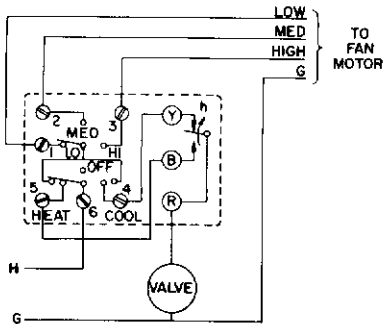


Fig. 6 — T23A thermostat cycles valve, with continuous fan.

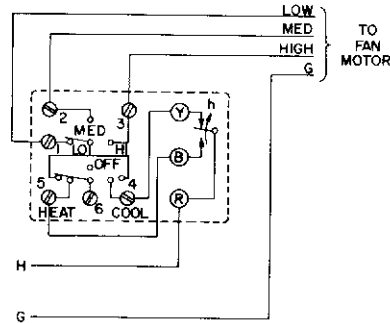


Fig. 8 — T23A thermostat cycles fan in heat or cool position.

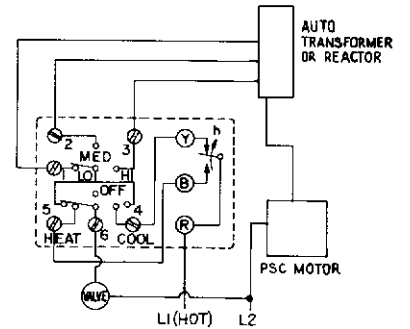
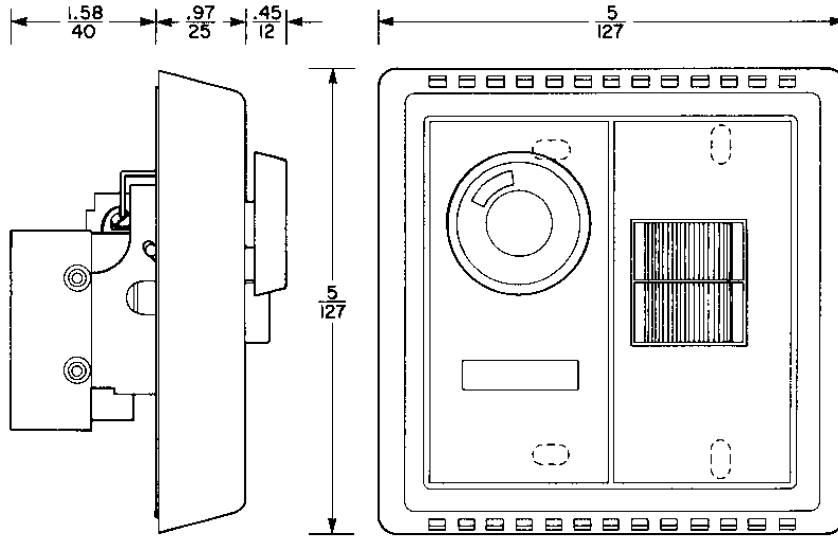


Fig. 10 — Typical wiring diagram for use with permanent split capacitor type fan motor.



Dimensions $\frac{\text{In}}{\text{mm}}$

Performance specifications appearing herein are nominal and are subject to accepted manufacturing tolerances and application variables.

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CONTROLS**

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