

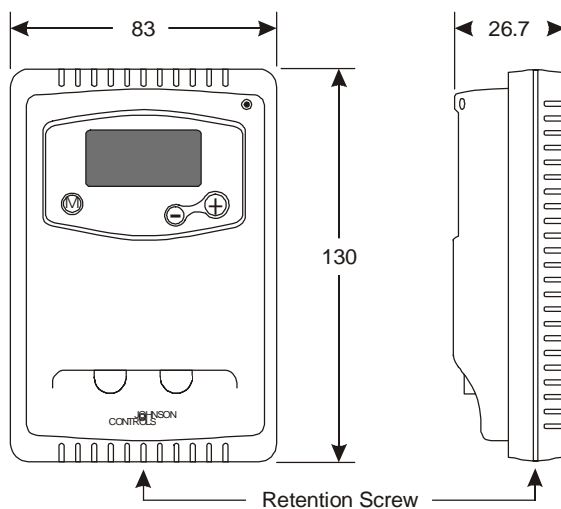
T6000 Series Digital Fan Coil Thermostats (120VAC Model)

Application

IMPORTANT: Use this T6000 Series Digital Fan Coil Thermostat only as an operating control. Where failure or malfunction of the T6000 Series thermostat could lead to personal injury or property damage to the controlled equipment or other property, additional precautions must be designed into the 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 T6000 Series thermostat.

The T6123 (Auto-Heat-Cool-Fan) and T6223 (Heat-Cool-Fan) Digital Fan Coil Thermostats feature local temperature control (High, Medium, and Low fan speeds) within fan coil operations. Select the temperature scale and setpoint, the mode, and the differential values to control the Heating, Ventilating, and Air Conditioning (HVAC) system that maintains the desired room temperature. The optional Occupied/Unoccupied feature saves energy by enlarging the acceptable temperature range.

The T6000 features a Liquid Crystal Display (LCD), one mode (M) selection button and two adjustment buttons (+ and -), and both fan speed and Off/On slide switches. (See Figure 1.)



**Figure 1: T6000 Series Thermostat Dimensions,
in. (mm)**

Typical thermostat applications are:

- fan coil units
- electric heaters
- air handling units

Installation

Install the T6000 where the occupant can read the display and adjust the setpoint easily. Situate the thermostat where the temperature is representative of the general room conditions. Avoid installing the T6000 near cold or warm air drafts, radiant heat, on an outside wall, or in direct sunlight.

IMPORTANT: Do not install this thermostat in condensing, wet, or damp environments. Moisture may cause damage to the thermostat.

Parts Included

One T6000 Series Digital Fan Coil Thermostat.

Mounting

Mount the T6000 Series thermostat to a 75 x 75 x 35 or a 55 x 105 x 48 mm wallbox. (See Figure 2.)

Follow the instructions in *Removing the Base* and then proceed to the *Wallbox Mounting* and the *Wiring* sections.

Note: All T6000 Series models require two No. M3 x 20 mounting screws (not included).

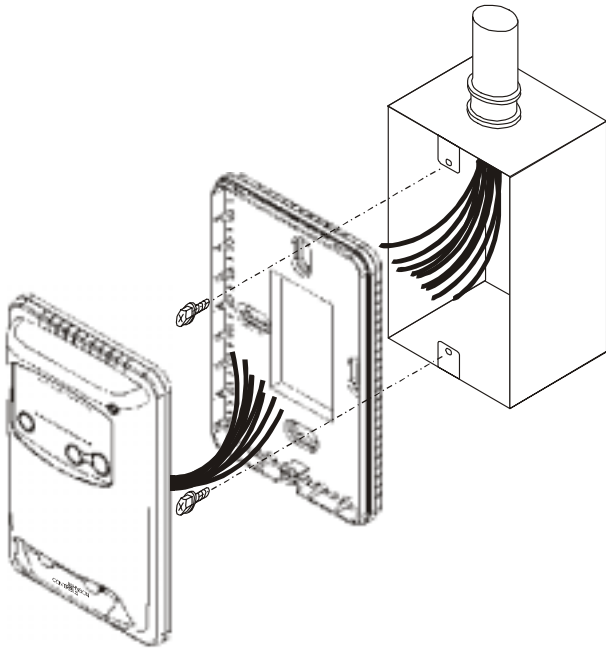


Figure 2: Exploded view

Removing the Base

Loosen (but do not remove) the single Phillips-Head retaining screw at the bottom of the case to swing the thermostat slightly away from the base. By gently sliding it upward, the thermostat hinge hooks come away from the hinge slots at the top of the mounting base to provide easy access for mounting and wiring. The Printed Circuit Board (PCB) is attached inside the cover with color-coded wires connected to the PCB, hanging through the opening near the middle of the mounting base.

IMPORTANT: Do not remove PCB from the enclosure cover. Removing the PCB from the enclosure cover voids the product warranty.

Wallbox Mounting

WARNING: Risk of Electrical Shock. Disconnect power supply before making electrical connections. Contact with components carrying hazardous voltage can cause electrical shock and may result in severe personal injury or death.

To mount the T6000 Series Thermostat, :

1. pull the external wiring from the wall through the rectangular opening in the base.
2. fasten the base to the wallbox using the appropriate two holes, as shown in Figure 3 and two No. M3 x 20 screws.

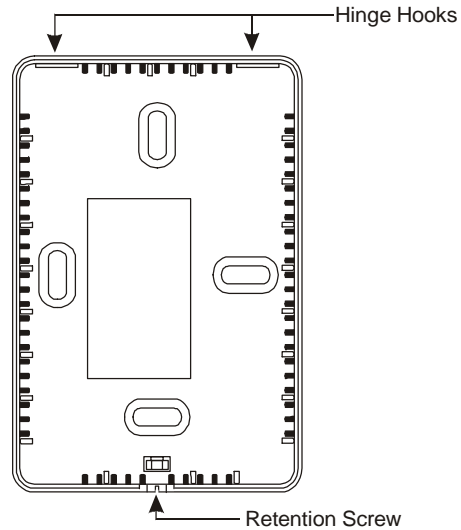


Figure 3: T6000 Series Base Mounting Dimensions

3. proceed to the *Wiring* section for the correct configuration for the application and unit.

Wiring

WARNING: Risk of Electrical Shock. Ground the thermostat according to local, national, and regional regulations. Failure to ground the thermostat may result in electrical shock and severe personal injury or death.

WARNING: Risk of Electrical Shock and Property Damage. Insulate and secure each unused wire lead before applying power to the thermostat. Failure to insulate and secure each unused wire lead may result in property damage, electrical shock, and severe personal injury or death.

CAUTION: Risk of Property Damage. Do not apply power to the system before checking all wiring connections. Short circuited or improperly connected wires may result in permanent damage to the equipment.

IMPORTANT: Make all wiring connections in accordance with local, national, and regional regulations. Do not exceed the T6000 Series thermostat's electrical ratings.

WARNING: **Risk of Electrical Shock and Property Damage.** Insulate and secure each unused wire lead before applying power to the [device]. Failure to insulate and secure each unused wire lead may result in property damage, electrical shock, and severe personal injury or death.

Wire the unit according to the instructions for the appropriate model.

Note: When wiring the T6000 Series Digital Fan Coil Thermostat, use wire nuts to finish and isolate each connection.

When the wiring is complete:

1. push the connected wiring through the rectangular hole in the base into the wallbox space
2. hook the thermostat to the hinge hooks at the top of the base and gently slide the thermostat down into position on the mounting base
3. tighten the retention screw
4. proceed to the *Setup and Adjustment* section to establish the desired settings

Model T6123

Wiring terminal designations and connections for typical T6123 applications appear in Figure 4.

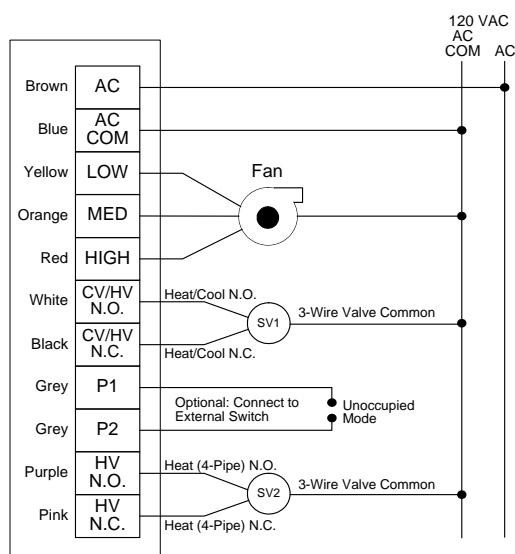


Figure 4: Wiring the T6123 for Heating/Cooling: 4-Pipe System with 3-Speed Fan Control with Automatic Changeover

Model T6223

Wiring terminal designations, and connections for typical T6223 applications appear in Figure 5.

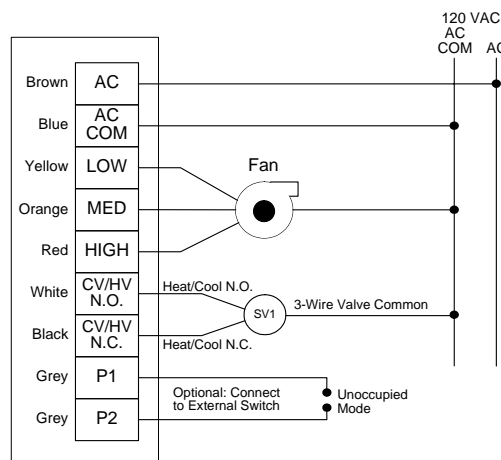


Figure 5: Wiring the T6223 for Heating/Cooling: 2-Pipe System with 3-Speed Fan Control

Setup and Adjustments

After turning On the T6000 Thermostat, the LCD shows the **All Pattern** display, (see Figure 6). After 5 seconds, the screen displays ambient temperature.

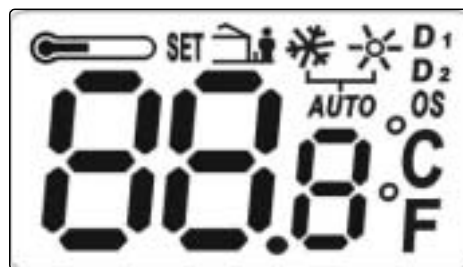


Figure 6: T6000 LCD All Pattern Display

Press the **M** button to select the preferred operating mode. Hold down the **M** button for 3 seconds to select Fahrenheit or Celsius values, then add short presses to access the various setpoint levels. The numerical area of the display indicates either ambient (default) or setpoint temperature and provides a screen for adjusting the setup and differential values.

The slide switch on the left near the bottom of the thermostat provides fan speed control. The switch on the right turns On or Off the LCD, while initiating or terminating access to the setup functions.

The T6000 Series thermostat comes with the default settings specified in

Table 1.

Table 1: T6000 Series Factory Settings

T6000 Default Settings			
Setting; Range	Increment	T6123	T6223
Mode	N/A	Cool	Cool
Temperature Setpoint; 5 to 30°C (40 to 85°F)	1°C (1°F)	25°C (77°F)	25°C (77°F)
Temperature Scale Selector	N/A	°C	°C
Temperature Differential (Offset OS); ±3°C (±5.4°F)	0.5°C (0.9°F)	0°C (0°F)	0°C (0°F)
Unoccupied Differential (D ₁); 1 to 5°C (1.8 to 9°F)	1.0°C (1.8°F)	5°C (9°F)	5°C (9°F)
Heating Differential (D ₂); 1 to 3°C (1.8 to 5.4°F)	1.0°C (1.8°F)	1°C (1.8°F)	1°C (1.8°F)
Auto Changeover Cool/Heat Differential (D ₁ / D ₂); 1 to 4°C (1.8 to 7.2°F)	1.0°C (1.8°F)	2°C (3.6°F)	2°C (3.6°F) s/b empty

T6123

On the T6123 thermostat, a short press of the **M** button switches through the sequence of Cooling, Heating, Auto and Fan Only modes followed by operation. The selected icon appears highlighted on the LCD (see Figure 6 and

Table 2).

Note: The thermostat returns to the default screen if no entry occurs within 5 seconds.

Mode Button Operation

Press the **M** button to cycle through the four modes in the sequence shown in

Table 2, flashing the related icon until after 5 seconds, when the icon becomes solid, indicating that the mode is selected. Adjust the temperature setpoint by pressing the + and – buttons.

Table 2: T6123 Modes and Icons

T6123 Modes	
Function	Icon
Temperature	

Setpoint	
Cool Mode	
Heat Mode	
Auto Mode	
Fan Only Mode	(no icon)
Unoccupied	

Setting Differential Values

Hold down the M button for three seconds to enable the Setup mode, after which short presses of the M button select the various differential values in the order presented in

Table 1. Use the + and – buttons to adjust the value by the increment stated. The differential value appears on the LCD numerical area while it is selected.

Specifically, hold down the **M** button for three seconds and enter the differential setup.

Note: In order to fully register a change within a mode, wait for 5 seconds before moving on to the next operation.

- **Temperature Scale selector** (no additional short press): press either + or – to switch from °C (factory default) to °F.
- **Temperature Differential** (one additional press): press either + or – to increase or decrease by 0.5°C (0.9°F) from the default value of 0°C (0°F)
- **Unoccupied Differential** (two additional presses): press either + or – to increase or decrease by 1.0°C (1.8°F) from the default value of 5.0°C (9°F)
- **Heating Differential** (three additional presses): press either + or – to increase or decrease by 1.0°C (1.8°F) from the default value of 1.0°C (1.8°F)
- **Automatic Changeover Heat/Cool Differential** (four additional presses): press either + or – to increase or decrease by 2.0°C (7.2°F) from the default value of 1.0°C (1.8°F)

T6223

On the T6223 thermostat, a short press of the **M** button switches from the Temperature Setpoint to the sequence of Cooling, Heating, and Fan Only modes followed by operation. The selected icon appears highlighted (see Figure 6 and

Table 3).





Note: The thermostat returns to the default screen if no entry occurs within 5 seconds.

Mode Button Operation

Press the M button to cycle through the four modes in the sequence shown in

Table 3, highlighting the related icon while the mode is selected. Adjust the thermostat setpoint by pressing the + and – buttons.

Table 3: T6223 Modes and Icons

T6223 Modes	
Function	Icon
Temperature Setpoint	
Cool Mode	
Heat Mode	
Fan Only Mode	(no icon)
Unoccupied	

Setting Differential Values

Hold down the **M** button for three seconds to enable the Setup mode, after which short presses of the **M** button select the various differential values. Use the + and – buttons to adjust the value by the increment stated. The differential value appears on the LCD numerical area while it is selected.

Note: In order to fully register a change within a mode, wait for 5 seconds before moving on to the next operation.

- **Temperature Scale selector** (no additional short press): press either + or – to switch from °C (factory default) to °F.
- **Temperature Differential** (one additional press): press either + or – to increase or decrease by 0.5°C (0.9°F) from the default value of 0°C (0°F)
- **Unoccupied Differential** (two additional presses): press either + or – to increase or decrease by 1.0°C (1.8°F) from the default value of 5.0°C (9°F)
- **Heating Differential** (three additional presses): press either + or – to increase or decrease by 1.0°C (1.8°F) from the default value of 1.0°C (1.8°F)

Calibration

Do not field calibrate the T6000 Series thermostat.

Troubleshooting

For the thermostat to function, the ON/OFF switch must be fully in the ON position.

After a power outage, the thermostat mode and all settings return as most recently used or set.

Repairs and Replacement

Do not attempt to repair the T6000 Series thermostat. In case of an improperly functioning control, contact the nearest Johnson Controls representative, and specify the desired product code number. When contacting the supplier for a replacement please state the type/model number of the control located on the data plate or cover label.

Ordering Information

Product Code#	Description
T6123-V0	120VAC - Fan Coil Unit Four-Pipe System LCD Digital Thermostat with Three-Speed Fan and On-Off Switches and Auto-Heat-Cool-Fan Modes
T6223-V0	120VAC Fan Coil Unit Two-Pipe System LCD Digital Thermostat with Three-Speed Fan and On-Off Switches and Heat-Cool-Fan Modes

Technical Specifications

Product	T6123	Fan Coil Unit Four-Pipe System LCD Digital Thermostat with Three-Speed Fan and On-Off Switches and Auto-Heat-Cool-Fan Modes
	T6223	Fan Coil Unit Two-Pipe System LCD Digital Thermostat with Three-Speed Fan and On-Off Switches and Heat-Cool-Fan Modes
Power Requirements	120 VAC \pm 13%, at 50/60 Hz, less than 1/4 W Power Dissipation	
Accuracy	\pm 1°C	
Display Range	5 to 35°C	
Setpoint Range	5 to 30°C	
Unoccupied Mode	External Voltage-Free Contact Input Signal Switch Closed: Unoccupied Switch Open: Occupied	
Wiring Lead Length	18 cm (wire type and gauge needed here) (Color-coded 18AWG PVC cable)	
Setpoint Range	5 to 30°C (41 to 85°F) maximum	
On/Off Switch*	Double-Pole, Double Throw (DPDT), 12 A at 120 VAC (Maximum)	
Fan Switch	Double-Pole, Triple Throw (DP3T), 12 A at 120 VAC (Maximum)	
Heating/Cooling Switches	T6123:	4 triacs: 0.5 A at 120 VAC (Maximum)
	T6223:	2 triacs: 0.5 A at 120 VAC (Maximum)
Ambient Operating Conditions*	0 to 30°C (32 to 85°F) 85% Noncondensing RH	
Ambient Storage Conditions*	-40 to 50°C (-40 to 122°F) 85% Noncondensing RH	
Dimensions	83 x 130 x 26.7 mm	
Shipping Weight	0.197 kg (0.43 lbs)	

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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