T8000 Series

# T8000 Touch Screen Thermostat

Johnson
Controls

# T8000 Series Touch Screen Thermostat

## Application

T8200···JS0/R0 Touch screen thermostats are designed to control heating, cooling, or year round air conditioning unit in Commercial, Industrial and Residential Installation. Typical applications include the control of fan coil units, packaged terminal air conditioners and combination of heating and cooling equipment. As part of the system, T8000 controls a two-way or three-way valve and a multi-speed line voltage fan.

T8200···JF0 Touch screen thermostat is applicable to the two-in-one system of central air-conditioner and floor heating. In summer, comfortable environment is reached by controlling the fan coil of air conditioning system with local temperature. In winter, both warm air from air-conditioner and floor heating are available for quick heating.

T8000 features with microcomputer control, large LCD screen display, and displays the status of work mode (cooling/floor heating/heating/floor heating&heating/air venting), fan speed, indoor temperature and set temperature etc.. Capacitance touch screen enhances the fluency on operation. Keypad includes: Power on/off (⏻), Mode selection (**M**), Fan Speed selection (🌀), Clock/Timer (🕒) and two Adjustment buttons (∧&∨).

## Features and Benefits

| | |
|---|---|
| Touch screen | • Capacitance touch screen enhances the fluency on operation |
| Backlit Liquid Crystal Display (LCD) | • Offer Easy-to-Read Real-time control status of the environment, graphical messages with constant backlight that brightens during user interaction |
| 6 Function Keys | • All-in-One location function keys, simplified user to change the setpoint and parameter |
| | • Molded Industrial Standard Graphical Symbol |
| Appearance | • Attractively-Style Twin-Ring Streamline ABS Plastic Cover and Base |
| | • All-in-One Enclosure Design without Protrusion of Power Circuit |
| Energy Saving | • Features with Unoccupied Function |
| | • Requires no batteries; EEPROM retains the last events and parameter settings after a loss of power |
| Installation, Service and Maintenance | • Universal Mounting with Standard Wall Box |
| | • Quick Replacement to reduce to Downtime of Service Maintenance |

# Function

| Item | Description | T8200-TB20-9JR0 | T8200-TB20-9JS0 | T8200-TF20-9JR0 | T8200-TF20-9JS0 | T8200-TB21-9JR0 | T8200-TB21-9JS0 | T8200-TB20-9JF0 |
|---|---|---|---|---|---|---|---|---|
| Application | 2-pipe heating or cooling | ■ | ■ | | | | | |
| | 4-pipe heating and cooling | | | ■ | ■ | | | |
| | 2-pipe modulating | | | | | ■ | ■ | |
| | 2-pipe heating or cooling, Floor heating | | | | | | | ■ |
| User-interface | Touch Screen | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Backlight (White) | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | EN/Icon | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | °C/°F Changeable | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Energy Saving | Ventilation Mode | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Setpoint Limit | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Occupied contact with NO/NC options | | ■ | | ■ | | ■ | |
| | Unoccupied setpoints | | ■ | | ■ | | ■ | |
| | Low fan in unoccupancy | | ■ | | ■ | | ■ | |
| | Auto Changeover | | | ■ | ■ | | | |
| Other Functions | Timer on/off | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Display setpoint only | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Anti-freezing | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Key Lock | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Display temperature calibration | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Remote temperature sensor | ■ | | ■ | | ■ | | |
| | Restart after power failure | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| | Timer Function | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Certificate | CE | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

# Model Selection Guide

| | | | | T8 | 2 | 0 | 0 | - | T | B | 2 | 0 | - | 9 | J | S | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Touch Screen | 8 | = | Touch Screen | 8 | | | | | | | | | | | | | |
| Version | 2 | = | Version | | 2 | | | | | | | | | | | | |
| System | 0 | = | ON/OFF | | | 0 | | | | | | | | | | | |
| Fan Control | 0 | = | Auto-Hi-Me-Lo | | | | 0 | | | | | | | | | | |
| Temperature Scale | T | = | ℃ or ˚F optional | | | | | | T | | | | | | | | |
| Application | B | = | 2-pipe heating or cooling | | | | | | | B | | | | | | | |
| | F | = | 4-pipe heating and cooling | | | | | | | | | | | | | | |
| Reserve | 2 | = | Reserve | | | | | | | | 2 | | | | | | |
| Control | 0 | = | ON/OFF | | | | | | | | | 0 | | | | | |
| | 1 | = | Modulating | | | | | | | | | | | | | | |
| Color | 9 | = | White | | | | | | | | | | | 9 | | | |
| Logo | J | = | JCI | | | | | | | | | | | | J | | |
| Function | S | = | For FCU (With unoccupied function) | | | | | | | | | | | | | S | |
| | R | = | For FCU (With remote sensor) | | | | | | | | | | | | | | |
| | F | = | For FCU and Floor Heating | | | | | | | | | | | | | | |
| Reserve | 0 | = | Reserve | | | | | | | | | | | | | | 0 |

# Product Overview

T8000 touch screen thermostat with 7-basic models cover all types of FCU standalone applications, air conditioning and floor heating 2-in-1 application. There are models for 2-pipe cooling or heating, 4-pipe cooling and heating, air conditioning and floor heating, and for 2-wire valve control. On-board high accuracy NTC sensor allows precision comfort control over occupied space area.

The T8000 thermostats come with 12-hours timer that allows user to schedule On-Time or Off-Time for the fan coil depending on user needs.

88 x 88mm size allows for 75 x 75 x 35mm standard wall box installation.

## Model T8200-TB20-9JS0
The Model T8200-TB20-9JS0 is with AC220V, LCD display (with Backlit) fan coil unit thermostat that design for cooling or heating fan coil unit with 2-wire valve actuator application. Integrated with System On/Off button allows user to shutdown the T8000 and cutoff the output power for fan (cutoff the Output power for Valve Actuator). Simply pressing the fan speed button, allows user selection of Auto-High-Med-Low fan speed. All fan output by relay that can withstand max. of 5Amp (Res). operating current.

Additional Dry-contact for Occupancy mode that allows better comfort control and to achieve energy cost saving.

## Model T8200-TB20-9JR0
The Model T8200-TB20-9JR0 is with AC220V, LCD display (with Backlit) fan coil unit thermostat that design for cooling or heating fan coil unit with 2-wire valve actuator application. Integrated with System On/Off button allows user to shutdown the T8000 and cutoff the output power for fan (cutoff the Output power for Valve Actuator). Simply pressing the fan speed button, allows user selection of Auto-High-Med-Low fan speed. All fan output by relay that can withstand max. of 5Amp (Res). operating current.

With remote temperature sensor. While remote sensor is connected, the built-in sensor will be disable automatically.

## Model T8200-TF20-9JS0
The Model T8200-TF20-9JS0 is with AC220V, LCD display (with Backlit) fan coil unit thermostat that design for cooling or heating fan coil unit with 4-wire valve actuator application. Integrated with System On/Off button allows user to shutdown the T8000 and cutoff the output power for fan (cutoff the Output power for Valve Actuator). Simply pressing the fan speed button, allows user selection of Auto-High-Med-Low fan speed. All fan output by relay that can withstand max. of 5Amp (Res). operating current.

Additional Dry-contact for Occupancy mode that allows better comfort control and to achieve energy cost saving.

## Model T8200-TF20-9JR0
The Model T8200-TF20-9JR0 is with AC220V, LCD display (with Backlit) fan coil unit thermostat that design for cooling or heating fan coil unit with 4-wire valve actuator application. Integrated with System On/Off button allows user to shutdown the T8000 and cutoff the output power for fan (cutoff the Output power for Valve Actuator). Simply pressing the fan speed button, allows user selection of Auto-High-Med-Low fan speed. All fan output by relay that can withstand max. of 5Amp (Res). operating current.

With remote temperature sensor. While remote sensor is connected, the built-in sensor will be disable automatically.

## Model T8200-TB21-9JS0
The Model T8200-TB21-9JS0 is with AC24V, LCD display (with Backlit) fan coil unit thermostat that design for cooling or heating fan coil unit with modulating(0-10V) valve actuator application. Integrated with System On/Off button allows user to shutdown the T8000 and cutoff the output power for fan (cutoff the Output power for Valve Actuator). Simply pressing the fan speed button, allows user selection of Auto-High-Med-Low fan speed. All fan output by relay that can withstand max. of 5Amp (Res). operating current.

Additional Dry-contact for Occupancy mode that allows better comfort control and to achieve energy cost saving.

## Model T8200-TB21-9JR0
The Model T8200-TB21-9JS0 is with AC24V, LCD display (with Backlit) fan coil unit thermostat that design for cooling or heating fan coil unit with modulating(0-10V) valve actuator application. Integrated with System On/Off button allows user to shutdown the T8000 and cutoff the output power for fan (cutoff the Output power for Valve Actuator). Simply pressing the fan speed button, allows user selection of Auto-High-Med-Low fan speed. All fan output by relay that can withstand max. of 5Amp (Res). operating current.

With remote temperature sensor. While remote sensor is connected, the built-in sensor will be disable automatically.

## Model T8200-TB20-9JF0
The Model T8200-TB20-9JF0 is with AC220V, LCD display (with Backlit) thermostat that design for air conditioning and floor heating with 2-wire valve actuator application. Integrated with System On/Off button allows user to shutdown the T8000 and cutoff the output power for fan (cutoff the Output power for Valve Actuator). Simply pressing the fan speed button, allows user selection of Auto-High-Med-Low fan speed. All fan output by relay that can withstand max. of 5Amp (Res). operating current.

IMPORTANT:
Use this T8000 Series Line Voltage Thermostat only as an operating control. Where failure of malfunction of the T8000 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 T8000 Series Thermostat.
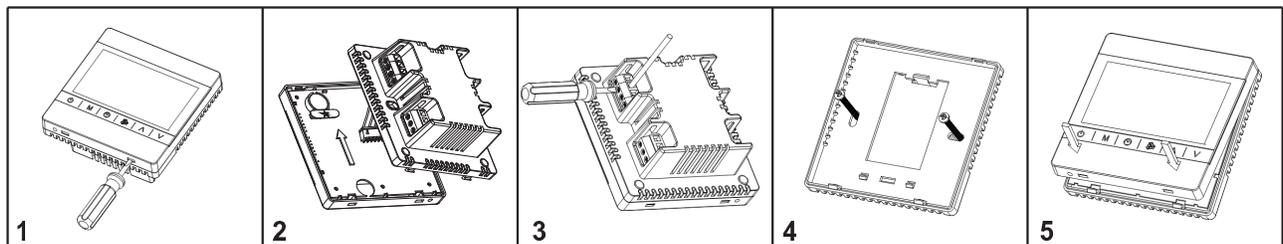
# Dimensions
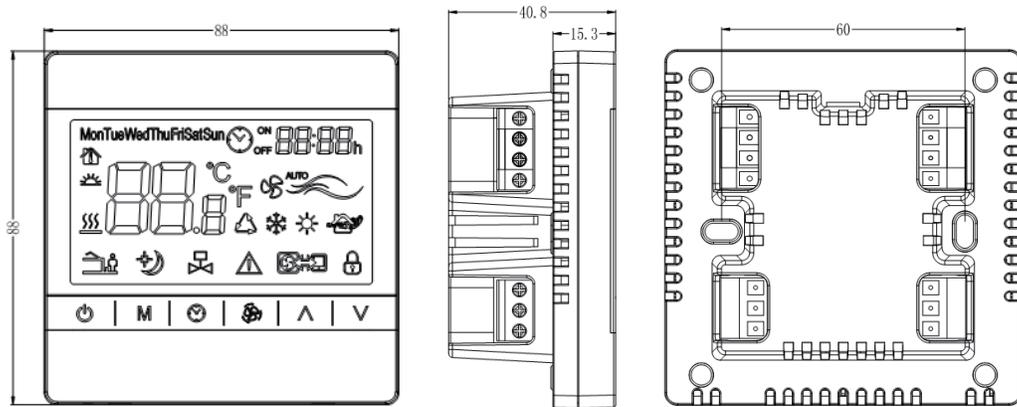


T8200-TB21.../T8200-TF.../T8200-TB20-9JF0
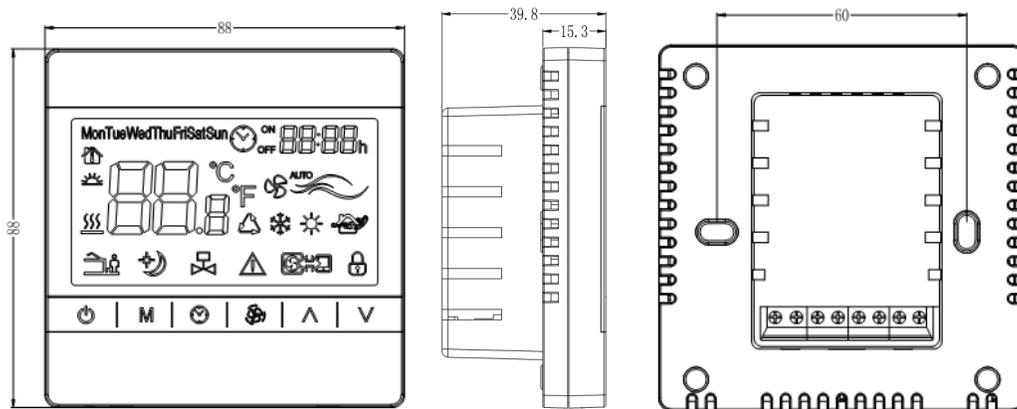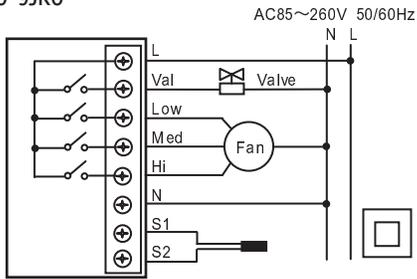


T8200-TB20-9JS0/JR0

# Installation

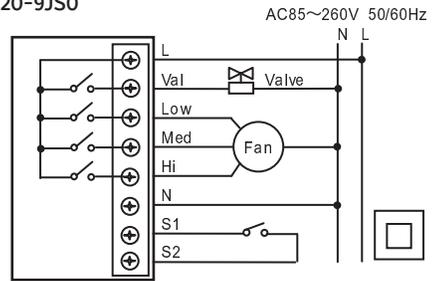T8000 thermostats allow for 75 x 75 x 35mm standard wall box installation.



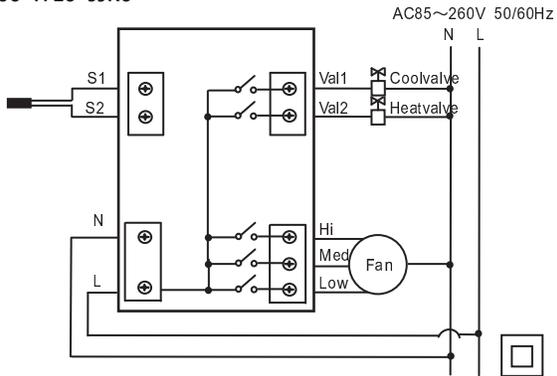* Remove the insulating strip before installation
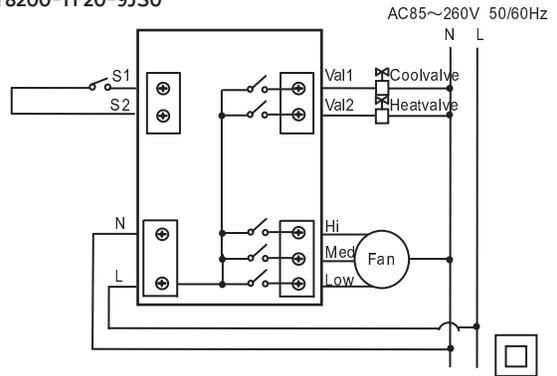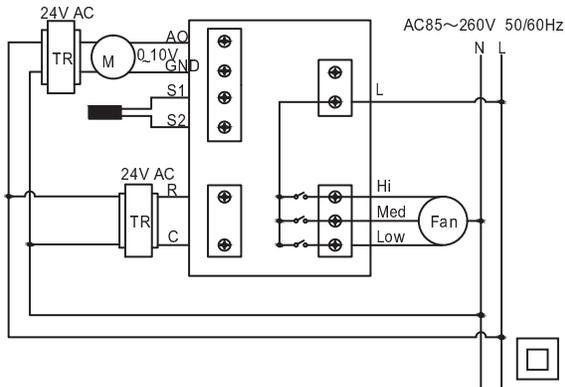
# Wiring Diagram

**T8200-TB20-9JR0**

AC85～260V 50/60Hz

L | Val | Valve
Low
Med | Fan
Hi
N
S1
S2

**T8200-TB20-9JS0**

AC85～260V 50/60Hz

L | Val | Valve
Low
Med | Fan
Hi
N
S1
S2

**T8200-TF20-9JR0**

AC85～260V 50/60Hz

S1
S2 | Val1 | Coolvalve
Val2 | Heatvalve

N
L | Hi
Med | Fan
Low

**T8200-TF20-9JS0**

AC85～260V 50/60Hz

S1
S2 | Val1 | Coolvalve
Val2 | Heatvalve

N
L | Hi
Med | Fan
Low

**T8200-TB21-9JRO**

24V AC

TR | M | AO
0-10V
GND
S1
S2

AC85～260V 50/60Hz

L

24V AC

TR | R
C | Hi
Med | Fan
Low

**T8200-TB21-9JSO**

24V AC

TR | M | AO
0-10V
GND
S1
S2

AC85～260V 50/60Hz

L

24V AC

TR | R
C | Hi
Med | Fan
Low

**T8200-TB20-9JF0**

AC85～260V 50/60Hz

Val1 | Coil
Val2 | Heat

N
L | Hi
Med | Fan
Low
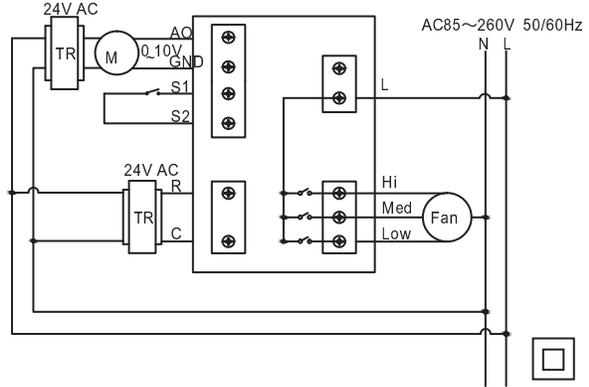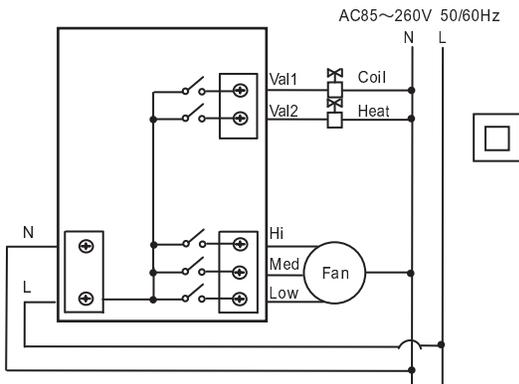
# Ordering Information

To order the replacement T8000 Series thermostat, contact the nearest Johnson Controls® representative. Specify the desired product code number according to Table of "Function" and "Model Selection Guide".

"IMPORTANT: The power supply to the thermostat must include overload protection. Failure to include overload protection may result in damage to the thermostat.

# Specifications

| | | |
|---|---|---|
| **Product** | T8000 Touch screen thermostat | |
| | T8200-TB20-9JR0 | Backlit LCD 2-pipe Cooling / Heating FCU Thermostat with remote sensor |
| | T8200-TB20-9JS0 | Backlit LCD 2-pipe Cooling / Heating FCU Thermostat and Occupancy Contact |
| | T8200-TF20-9JR0 | Backlit LCD 4-pipe Cooling and Heating FCU Thermostat with remote sensor |
| | T8200-TF20-9JS0 | Backlit LCD 4-pipe Cooling and Heating FCU Thermostat and Occupancy Contact |
| | T8200-TB21-9JR0 | Backlit LCD 2-pipe Cooling / Heating FCU Thermostat (modulating) with remote sensor |
| | T8200-TB21-9JS0 | Backlit LCD 2-pipe Cooling / Heating FCU Thermostat (modulating) and Occupancy Contact |
| | T8200-TB20-9JF0 | Backlit LCD 2-pipe Cooling / Heating FCU and Flooring Heating Thermostat |
| **Power Requirements** | AC85-260V 50/60HZ (T8200-TB20.../T8200-TF... ) | |
| | AC24V±10%  50/60HZ (T8200-TB21... ) | |
| **Accuracy** | ±1°C | |
| **Display Range** | 0~55°C | |
| **Setpoint Range** | 5~35°C | |
| **Unoccupied Mode** | T8200...9JS0 External Voltage-Free Contact Input Signal | |
| **Remote sensor** | T8200...9JR0 with remote temperature sensor NTC 10K, 1.5 m, Max.20m (0.7 ~1.0mm$^2$) | |
| **Termination** | Screw terminals | |
| **Valve Control** | T8200-TB20-9JR0 (2-pipe Cooling / Heating) | 1 x Single-Pole, Single Throw (SPST), 5A(Maximum), Relay Output |
| | T8200-TB20-9JS0 (2-pipe Cooling / Heating) | 1 x Single-Pole, Single Throw (SPST), 5A(Maximum), Relay Output |
| | T8200-TF20-9JR0 (4-pipe Cooling and Heating) | 2 x Single-Pole, Single Throw (SPST), 5A(Maximum), Relay Output |
| | T8200-TF20-9JS0 (4-pipe Cooling and Heating) | 2 x Single-Pole, Single Throw (SPST), 5A(Maximum), Relay Output |
| | T8200-TB21-9JS0 (2-pipe Cooling / Heating) | 0-10V Output |
| | T8200-TB21-9JR0 (2-pipe Cooling / Heating) | 0-10V Output |
| | T8200-TB20-9JF0 (2-pipe Cooling / Heating with floor heating) | 2 x Single-Pole, Single Throw (SPST), 5A(Maximum), Relay Output |
| **Fan Control** | 3 x Single-Pole, Single Throw (SPST) , 5A (Res.) at 250 VAC (Maximum); Relay Output for High-Med-Low Fan | |
| **Ambient Operating Conditions** | 0 to 45°C 90% Non-condensing RH | |
| **Ambient Storage Conditions** | -10 to 60 °C 90% Non-condensing RH | |
| **Housing Material** | PC: UL 94-V0 | |
| **Protection Class** | IP20 | |
| **Certification** | CE | |
| **Dimensions** | 88 x 88 mm | |
| **Shipping Weight** | Appr.214g | |

* When connected, the On/Off switch does not disconnect power to the unit; it only turns off or on the LCD and functions.