

TB6575/TB8575 SuitePRO™ Digital Fan Coil Thermostats

GUIDE SPECIFICATION

GENERAL

A. OVERVIEW:

The contractor shall furnish, install, and place in operating condition an HVAC control system described herein. All units shall be located in accordance with the plans.

B. TYPE OF SYSTEM:

System Requirements and Control Provisions:

The SuitePRO™ Digital Fan Coil Thermostats provide the following

- a. Control for 2-pipe fan coil, 4-pipe fan coil (1H/1C), 2-pipe with auxiliary heat, heat only, or cool only applications with 3 speed fan.
- b. Line voltage control applications (TB6575A, TB6575B and TB6575C)
 - 120 Vac ($\pm 10\%$ at 50/60Hz), 240 Vac (-15% to $+10\%$ at 50/60Hz), and 277 Vac ($\pm 10\%$ at 50/60Hz).
- c. Low voltage control applications (TB8575A) – 20 to 30 Vac at 50/60Hz.
- d. Auto Changeover or Manual Changeover control (selectable in the Installer Setup).
- e. 3 speed fan control (Low, Medium, and High).
- f. On/Off heating and cooling relay outputs.
- g. Non-programmable user interface with remote setback input for occupied and unoccupied setpoints that interfaces with occupancy sensors and time clocks.
- h. Analog pipe sensor or Aquastat® input for 2-pipe Seasonal Changeover (optional).
- i. Remote wall sensor (optional) - 20K Ohm resistance; uses Honeywell TR-21 and TR21A wall sensors).
- j. VersaSpeed™ fan ramp algorithm automatically adjusts fan speed (low, medium, and high) on Auto fan setting, which incorporates Proportional plus Integral (P+I) control algorithm for precise temperature regulation.
- k. Independent range stops for both heating and cooling setpoints.
- l. Freeze protect algorithm turns on heat when needed
- m. Display of room temperature in °C or °F (selectable in the Installer Setup).
- n. Separate cycle rates per hour for heating and cooling modes.
- o. Ability to lock out the thermostat keypad (full or partial lockout selectable in the Installer Setup).
- p. Pre-wired lead wires on thermostat sub-base for faster installation (TB6575A, TB6575B and TB6575C models only).
- q. High speed fan startup to ensure sufficient starting torque.

- r. EEPROM permanently retains user settings, including setpoints, during power loss (no batteries required).
- s. Energy Saving Options:
 - (a) Activity Sensing sets back thermostat to economy mode when there is no activity with the thermostat (4, 12, or 24 hours selectable).
 - (b) Remote Setback Inputs receive dry contact input from a time switch, occupancy sensor, or hotel card key to set back thermostat to economy mode.
 - (c) Auto Fan Reset eliminates the fan from being run all the time by automatically setting the fan to auto (2 or 4 hour selectable).
 - (d) VersaSpeed™ fan ramp algorithm.
 - (e) Range Stops for heating and cooling.

System Components:

- a. TB6575A1000, TB6575B1000, TB6575C1000, and TB8575A1000 thermostat with sub-base (lead wires pre-wired to sub-base on TB6575A/B/C models).
- b. Wall mount temperature sensors (optional).
- c. PS20 (535-34AB08-203) pipe sensor (optional).
- d. 50033847-001 adapter plate for mounting on a vertical 2 x 4 in. single-gang or double-gang NEMA standard vertical switch box.

C. CODES AND STANDARDS:

The system shall comply with applicable provisions of ASHRAE 90-75. CSA Certified C/US for Canada and the U.S.A. Meets the same requirements as UL-873; FCC Part 15 Class B.

These specifications are based on equipment from Honeywell to set a standard for design and quality.

D. WIRING:

All wiring shall meet National Electrical Codes and local electrical codes.

E. TESTING GUARANTEE SERVICE:

- Prior to installation, the contractor shall provide copies of submittals.
- The contractor is responsible for assuring that conduit and wire quantity, size, and type are suitable for the equipment supplied.
- Upon completion, the contractor shall conduct a total system test for the owner and engineer.
- All components, parts, and assemblies supplied by the manufacturer shall be guaranteed against defects in materials and workmanship for 2 years.
- Warranty service shall be performed by the contractor.



SEQUENCE OF OPERATIONS

The heating and cooling setpoints shall be individually adjustable for both the Occupied and Unoccupied periods. The thermostat shall have a minimum deadband of 2°F (no mechanical heating or cooling shall operate within this deadband when Auto Changeover mode is enabled). Space temperature deviation above the cooling setpoint or below the heating setpoint shall generate a demand signal to control the system as follows:

A. HEATING:

The thermostat shall control the heating output based on the demand signal communicated from the thermostat program, taking into account both space temperature deviation (proportional gain), the duration of that temperature deviation (integral gain).

The thermostat shall energize heating equipment when space temperature falls below heating setpoint.

B. COOLING:

The thermostat shall control the cooling output based on the demand signal communicated from the thermostat program, taking into account both space temperature deviation (proportional gain), the duration of that temperature deviation (integral gain).

The thermostat shall energize cooling equipment when space temperature exceeds cooling setpoint.

C. ECONOMY MODE REMOTE SETBACK:

Initiation of heating setback or cooling setback occurs when the remote setback is enabled or the activity sensor mode is enabled. When all or a portion of a manually programmed schedule is unavailable, the thermostat shall control to the default program as shown in Table 1.

Table 1. Remote Setback Ranges.

	Range	Default
Heating Setpoints	50 to 70°F (10 to 21°C)	64°F (18°C)
Cooling Setpoints	72 to 90°F (22 to 32°C)	79°F (26°C)

D. SEASONAL CHANGEOVER / PIPE SENSOR:

A pipe sensor is required for 2-pipe Auto Changeover or for 2-pipe with auxiliary heat applications. These applications support the pipe sensor as a normally open or normally closed input from an Aquastat® or as an analog input from a 20K Ohm pipe sensor. The analog sensor has an adjustable hot and cold threshold for adjusting the changeover deadband. A 5 minute pipe purge to open the heating/cooling valve is performed whenever there is a need to change modes.

E. FAN OPERATION:

Fan operation is configurable for Auto only (optional), constant fan speed only (Lo, Med, Hi), or both.

- Auto: fan is energized with calls for heating and cooling. Auto uses the VersaSpeed™ fan ramping algorithm to automatically select the correct fan speed
- Lo, Med, Hi: fan operates continuously in Occupied mode, and during a call for heat or cool in the Unoccupied mode. Uses the G1, Gm, Gh, fan relays.
- Auto Fan Reset (optional): resets the fan from a constant fan speed (Lo, Med, Hi) to Auto after 2 or 4 hour time period. Saves energy and fan usage.

F. AUTO CHANGEOVER (4-PIPE MODE):

In 4-pipe Auto Changeover mode, use the Up and Down arrow buttons to change the setpoint. Use the System button to switch between the heating setpoint and the cooling setpoint. A configurable deadband separates the higher cooling setpoint from the lower heating setpoint.

G. POWER INTERRUPTION:

On loss of power, the thermostat shall maintain for 10 years the configuration selections set in the Installer Setup menu.

H. ACTIVITY SENSING (OPTIONAL):

If the thermostat keypad is not touched during a 4, 12, or 24 hour duration, the thermostat falls back to the Economy mode unoccupied setpoints to save energy and places the fan in Auto mode.

I. FREEZE PROTECTION (OPTIONAL):

The thermostat cycles on heat when the room temperature reaches 40°F (4°C), and disables heat when the room temperature reaches 46°F (8°C).

J. AUTO FAN RESET (OPTIONAL):

This optional feature resets the fan from a constant on fan speed (low, medium, high) to Auto after a 2 or 4 hour delay. The start time for the delay is calculated after an initial call for heat or cool is satisfied.

CONFIGURATION OPTIONS

1. System Application Configuration

- Heat only.
- Cool only.
- 2-pipes; heat or cool; Manual Changeover.
- 2-pipes; heat or cool; Auto Changeover (requires pipe sensor).
- 4-pipes; Manual Changeover.
- 4-pipes; Auto Changeover.
- 2-pipes with Auxiliary heat (requires pipe sensor).
- 4-pipes; Manual and Auto Changeover.

2. Line Voltage

- 120 Vac power supply.
- 240 Vac power supply.
- 277 Vac power supply.

3. Temperature Display Mode

- Display room temperature and a setpoint (heat or cool).
- Display heat and cool setpoints only.
- Display room temperature only.

4. Remote Setback

Occupancy sensors, manual time clock inputs, and DDC night setback can be used to provide inputs to remotely set back the thermostat. Unoccupied heating and unoccupied cooling setpoints are available to configure the setback setpoints. The remote setback inputs receive dry contact input (normally open or normally closed) with either a 2 minute or 30 minute delay to the unoccupied mode.

5. Lockout

Lockout configurations are optional and can provide restrictions on access to setpoint, system, and fan changes.

6. Valve Output

Available as either normally open or normally closed.

7. Range Stops

Available from 50 to 90°F (10 to 32°C) for both the heating and cooling setpoint.

THERMOSTAT MODELS AND FEATURES

Table 2. Thermostat Models, Applications, Stages, and Features.

Model	Applications	Stages	Features
TB6575A1000	120-240 Vac line voltage; 2-pipe and 4-pipe Fan Coil	1H/1C	Optional: remote sensor, pipe sensor, and adaptor plate
TB6575B1000	120-240 Vac line voltage; 2-pipe Fan Coil only	1H/1C ^a	Optional: remote sensor, pipe sensor, and adaptor plate
TB6575C1000	277 Vac line voltage; 2-pipe and 4-pipe Fan Coil	1H/1C	Optional: remote sensor, pipe sensor, and adaptor plate
TB8575A1000	24 Vac low voltage; 2-pipe and 4-pipe Fan Coil	1H/1C	Optional: remote sensor, pipe sensor, adaptor plate, and Fan Coil Unit Relay Control Center

^a Shares a single relay output.

OPTIONS

A. TEMPERATURE SENSORS (REMOTE):

TR21, TR21-A, C7189U, C7772, other 20K ohm sensors.

B. OTHER ACCESSORIES:

- PS20 (535-34AB08-203); Remote pipe sensor (20K Ohm).
- 50033847-001; Adapter plate for mounting on a vertical 2 x 4 in. single-gang or double-gang NEMA standard vertical switch box.
- W6380B1005; Fan Coil Unit Relay Control Center.

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Automation and Control Solutions

Honeywell International Inc.
1985 Douglas Drive North
Golden Valley, MN 55422
customer.honeywell.com

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