

TE256 Modulating Programmable Digital Temperature Controller with P+I Heating/ Cooling Control with ECM Variable Airflow Fan

Description

The TE256 controller for a Fan Coil Unit is specifically designed to control a 6 port modulating valve for heating/cooling, and a variable airflow ECM fan. They are fully configurable, standalone, a whole week, 5-2, 5-1-1, or 7-Day programmable digital thermostats with optional energy saving input interface.

The thermostat measures the temperature of a room with an integral sensor or a distant space with optional 3K external sensor; and then output 0-10Vdc signal by proportional-integral algorithm to control a 6 port ball valve and output 0-10Vdc signal to ramp fan speeds in a fan coil unit system to maintain the room space at a desired set point temperature. The ECM variable airflow fan speed will vary depending on heating or cooling load, and run continuously when set point is reached delivering minimum CFM as preset by the contractor.

The thermostat features battery-backed real time clock providing separate programming 4 schedules and 4 timers for each day or periods of days of a week. The TE256 controller has a large LCD screen showing room temperature or set point, time, day, and related status.

The thermostat also has optional digital inputs for detection devices such as room occupied/unoccupied detector to enhance energy savings.



Features

- Pre-set a whole week, 5-2, 5-1-1, or 7 day program that can be separate or whole week programmed for weekday and weekend with 4 daily schedules
- Modulates a 6 port ball valve to control heating/cooling output without the possibility of infiltration.
- Early fine tune function to ensure programmed temperature is reached by scheduled time
- 12- or 24- hour format with battery backed day and time
- The fan speed:
The fan CFM is controlled by the room temperature and it will deliver continuously the minimum CFM when the set point is reached
- CFM minimum and maximums are set on the room thermostat in 'Engineer Mode'
- The ON/OFF button will turn the fan coil unit off and the valve will go to close position
- Room temperature or setpoint temperature selectable for display
- Full configurable parameters such as switching differential, cycle time, etc are set in 'Engineer Mode'
- Proportional plus integral (PI) algorithm applied to modulating control
- 0(2) to 10Vdc or 10 to 0(2)Vdc control signal output selectable for direct / reverse acting output
- Optional Remote sensor (RS) input interface for connecting to remote temperature sensor
- Optional Energy Saving input (ESI) interface for connecting to hotel card key, occupied/unoccupied sensor, lighting interlock signal or window/door open detection to save energy
- Adjustable unoccupied setpoints for heating and cooling mode control
- Non-volatile memory (EEPROM) retains user settings during power loss

Specifications

- **Supply Voltage:** 24Vac (+/-10%), 50/60 Hz
- **Display Range:** 30 to 120.0 °C (-22.0 to 248.0 °F) with suitable sensor
- **Display Temperature Unit and Resolution:** 0.1 °C/°F
- **Indication Accuracy:** +/-1.0 °C (1.8 °F) at 25 °C and output off
- **Set-point Range:** 0~50 °C / 32~122 °F (default-10~30 °C /50~86 °F, adjustable), 0.5 °C/°F per setting step
- **Set-point Adjust:** By up and down arrows buttons
- **Remote Sensor (RS) Input Interface:** For connecting to external NTC Thermistor 3K ohm
- **Energy Savings Input (ESI) Interface:** For saving energy by entering into unoccupied mode when ESI is triggered by Normally open (N.O.) or normally closed (N.C.) dry contact
- **Valve Control:** 0-10V modulating output
- **Fan Control:** 0-10V modulating output
- **Analog Output Signal:** AO1, 0 to 10Vdc for controlling the 6-port valve
AO2, 0 to 10Vdc for controlling the fan speed
- **Dimensions:** 94 × 118 × 34 mm (W × H × D)
- **Mounting:** Mounts directly onto wall, panel, standard 65×65 mm junction box (hole pitch 60 mm) or standard 2×4 inch vertical junction box (hole pitch 83.5 mm)

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Energy Saving Occupied Unoccupied Schedule :

Temperature set point can be programmed for maximum 4 periods for a whole week, 5-2, 5-1-1, or each day.

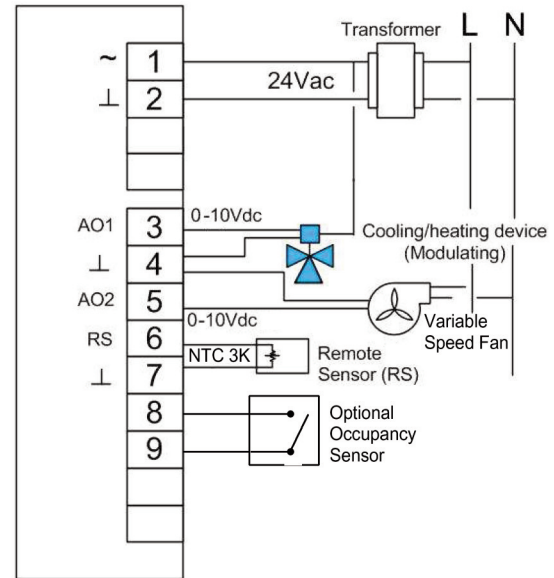
Schedule	Period	Set point
1	Wake	Morning temperature
2	Leave	Daytime temperature
3	Return	Evening temperature
4	Sleep	Night temperature

Default Set Point Schedules - can be easily switched between °F or °C scales.

COOL	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Sch. 1 🕒	6:00 26.0°C	6:00 26.0°C	6:00 26.0°C	6:00 26.0°C	6:00 26.0°C	6:00 26.0°C	6:00 26.0°C
Sch. 2 🕒	8:00 29.5°C	8:00 29.5°C	8:00 29.5°C	8:00 29.5°C	8:00 29.5°C	8:00 29.5°C	8:00 29.5°C
Sch. 3 🕒	18:00 26.0°C	18:00 26.0°C	18:00 26.0°C	18:00 26.0°C	18:00 26.0°C	18:00 26.0°C	18:00 26.0°C
Sch. 4 🕒	22:00 26.0°C	22:00 26.0°C	22:00 26.0°C	22:00 26.0°C	22:00 26.0°C	22:00 26.0°C	22:00 26.0°C

HEAT	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Sch. 1 🕒	6:00 21.0°C	6:00 21.0°C	6:00 21.0°C	6:00 21.0°C	6:00 21.0°C	6:00 21.0°C	6:00 21.0°C
Sch. 2 🕒	8:00 16.0°C	8:00 16.0°C	8:00 16.0°C	8:00 16.0°C	8:00 16.0°C	8:00 16.0°C	8:00 16.0°C
Sch. 3 🕒	18:00 21.0°C	18:00 21.0°C	18:00 21.0°C	18:00 21.0°C	18:00 21.0°C	18:00 21.0°C	18:00 21.0°C
Sch. 4 🕒	22:00 16.0°C	22:00 16.0°C	22:00 16.0°C	22:00 16.0°C	22:00 16.0°C	22:00 16.0°C	22:00 16.0°C

Wiring Diagram



Wiring: Up to 18 screw-in terminals, each terminal capable of accepting 14 to 22 AWG wires or 1.5mm² wires.

Energy Saving Input (ESI)

When using optional Energy Saving Input (ESI) interface
 unoccupied Set Points: Cooling: 28.0 / Heating: 15.0
 are adjustable by engineering mode function

Control action for modulating outputs :

Selectable direct or reverse control action of cooling and heating. Both are direct action by default.

Control Action	Output Signal
Direct	0(2) to 10 Vdc
Reverse	10 to 0(2) Vdc

Control Performance :

Proportional plus integral (PI) adaptive control

Operating Environment :

0 ~ 50°C, 5 ~ 95% RH (non-condensing)

Control for 6-port valve

