

Products

– Programmable Communicating Thermostat

PCT503
-ZHA

ZigBee Smart Thermostat



Main Features

HVAC Control

- Supports 2H/2C multistage conventional system and Heat Pump system
- One-touch AWAY button to save energy while you are on the go
- The 4-period and 7-day programming fits perfectly with your life style. Program your schedule either on the device or through the APP
- Multiple HOLD options: Permanent Hold, Temporary Hold, Back to Schedule
- Automatic heating and cooling changeover
- Fan cycle mode periodically circulates air for comfort
- Compressor short cycle protection delay
- Failure protection by cutting off all circuit relays after power outage

Information Display

- 3.5" TFT color LCD divided into two sections for better information display
- The default screen displays the current temperature/humidity, temperature set-points, system mode, and schedule period
- Display time, date and day of the week in a separate screen
- The system working status and fan status are indicated in different backlight colors (Red for heat-on, Blue for cool-on, Green for fan-on)

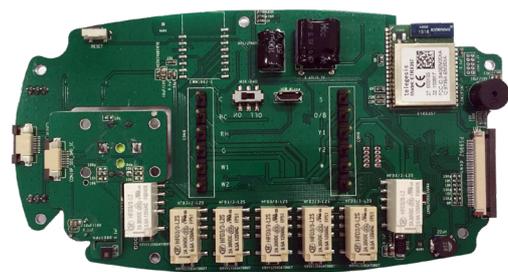
Unique User Experience

- Screen lights up for 20 seconds when motion is detected
- Interactive wizard guides you through the quick setup without hassles
- Intuitive and simple UI to ease the operation even without user's manual
- Smart rotary control wheel + 3 side-buttons for easy operation while adjusting temperature or navigating menus

Wireless Remote Control

- Remote control using mobile APP by working with compatible ZigBee Smart Home Systems, allowing multiple thermostats to be accessed from single APP.
- Compatible with ZigBee HA1.2 with complete technical document available to facilitate the integration with 3rd party ZigBee hubs.
- Over-the-Air firmware upgradable via WiFi as optional.

Printed Circuit Board



PCT503-ZHA Technical Specifications

Compatible Systems	
RF Characteristics	<ul style="list-style-type: none"> • 2-stage heater and 2-stage cooling HVAC systems • Supports natural gas, heat pump, electric, hot water, steam or gravity, gas fireplaces (24 Volts), oil heat sources • Supports any combination of systems
Heat	• Up to 2 stages
Cool	• Up to 2 stages
Aux Heat	• Up to 2 Stages
Heat Pump	<ul style="list-style-type: none"> • Up to 2 Stages • 1 stage + 1 aux • 1 stage + 2 aux • 2 stage + 1 aux • 2 stage + 2 aux • Dual Fuel Heat Pump • 4 stage heating (2 compressor, 2 aux heat), 2 stage cooling

Wiring Terminals Definition	
RH	• 24VAC primary for heating
RC	• 24VAC primary for cooling
C	• 24VAC common
W1	• 1st stage Primary heating relay / Aux heat
W2	• 2nd stage Secondary heating relay / Aux heat
Y1	• 1st stage Primary cooling compressor contactor
Y2	• 2nd stage Secondary cooling compressor contactor
G	• Fan relay
O/B	• Changeover valve for heat pumps.
*	• Multiple use reserved, including but not limited to: emergency heat line, humidifier control.
S	• Optional wiring module terminal to combine W and G, while reserve an extra in-wall wire to power on the thermostat

HVAC Control Functions	
System Mode	• Heat, Cool, Auto, Off, Emergency Heat (Heat Pump only)
Fan Mode	• On, Auto, Circulation
Advanced	<ul style="list-style-type: none"> • Local and remote setting of the temperature • Auto-changeover between heat and cool mode (System Auto) • Compressor short cycle protection delay of 2 minutes • Failure protection by cutting off all circuit relays thanks to the Super Capacitor
Auto Mode Deadband	• 1.5° C, 3° F
Temp. Sensing Range	• -10°C to 125°C
Temp. Resolution	• 0.1° C, 0.2° F
Temp. Display Accuracy	• ±1°C
Temp. Setpoint Span	• 0.5° C, 1° F
Humidity Sensing Range	• 0 to 100% RH
Humidity Accuracy	• ±4% Accuracy through the range of 0% RH to 80% RH
Humidity Response Time	• 18 seconds to reach 63% of the next step value

Wireless Connectivity	
ZigBee	• ZigBee 2.4GHz IEEE 802.15.4, ZHA1.2 Profile, Router Device
Output Power	• +3dBm (up to +8dBm)
Receive Sensitivity	• -100dBm
OTA WiFi	<ul style="list-style-type: none"> • Optional Over-the-Air Upgradable via wif • Optional

Physical Specifications	
Embedded Platform	• MCU: 32-bit Cortex M4; RAM: 192K; SPI Flash: 16M
LCD Screen	• 3.5" TFT Color LCD, 480*320 pixels
LED	• 3-color LED (Red, Blue, Green)
Buttons	• One rotary control wheel, 3 side-buttons
PIR Sensor	• Sensing Distance 5m, Angle 30°
Speaker	• Click sound
Data Port	• Micro USB
DIP Switch	• Power selection
Electrical Rating	• 24 VAC, 2A Carry; 5A Surge 50/60 Hz
Switches/Relays	<ul style="list-style-type: none"> • Latching type relay, 2A maximum loading • 1. 1st stage control • 2. 2nd stage control • 3. 3rd stage control • 4. Emergency Heating control • 5. Fan Control • 6. Heating/cooling Reverse Valve Control • 7. Common
Dimensions	• 160(L) × 87.4(W) × 33(H) mm
Mounting Type	• Wall Mounting
Wiring	• 18 AWG, Requires both R and C wires from the HVAC System
Operating Temperature	• 0° C to 40° C (32° F to 104° F)
Storage Temperature	• -30° C to 60° C
Certification	• FCC, CE