

## Price Controlling Thermostat – Dial model PCT-D

### Installation Sheet

#### General Description

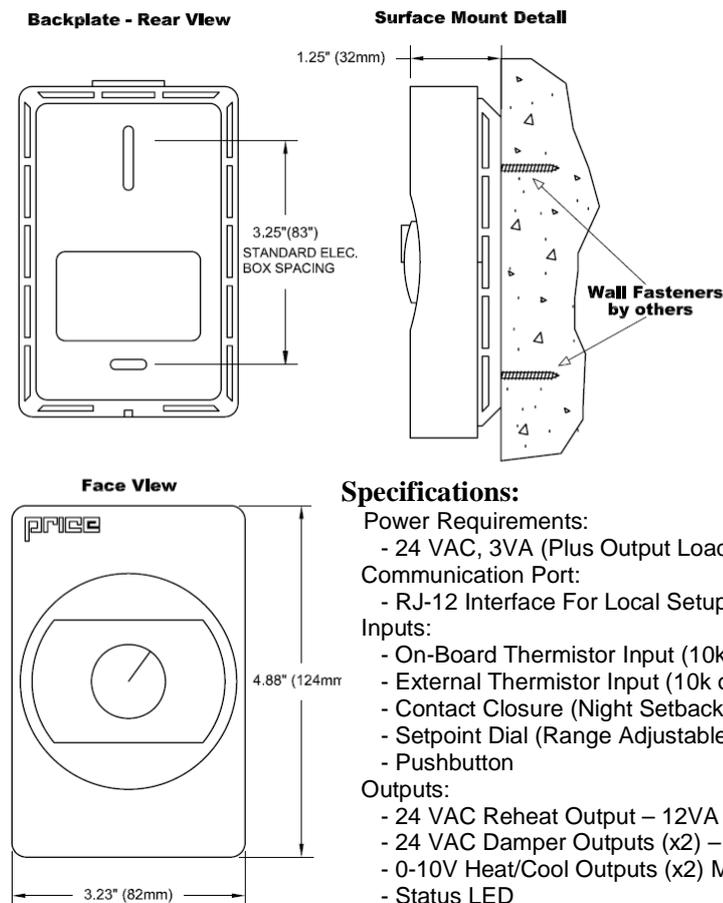
The Price Controlling Thermostat is a fully digital zone controller for pressure dependent air distribution zones. It supports binary (24 VAC) outputs for the damper and reheat. It also features dual 0-10V outputs for heating and cooling. (Typically used for analog valves, dampers, BAS system interface, etc.)

Inputs include a room temperature sensor, contact closure (night setback), and a supply air sensor (thermistor) input for heat/cool changeover systems. (If no changeover probe is installed, the PCT-D assumes cool supply air)

#### Location:

1. The thermostat must be mounted to an internal wall and field-wired to external components
2. Mount the thermostat in a place that is convenient for the end user, but please note the following:
  - a. Do not mount the thermostat in direct sunlight (across from a window)
  - b. Shouldn't be installed on an outside wall
  - c. Keep away from hot equipment (monitors, heaters, photocopiers, etc.)
  - d. Ensure nothing will restrict vertical air circulation to the thermostat (i.e. Do not cover!)

#### Price Controlling Thermostat Dial Model



#### Installation:

1. The back plate on the thermostat is removable and can be either mounted to a standard electrical box, or directly to drywall (using anchors supplied by others).
2. Run the wires through the large hole in the back plate. Ensure that the metal shield from the wiring is kept away from the back of the thermostat to prevent a short circuit. Any exposed metal shielding should be wrapped with electrical tape.
3. After wiring, the PCT-D can be locked to the backplate using the setscrew located at the bottom of the PCT-D. A 0.050" Allen (hex) key is required – One is supplied in each PCT-D box.

#### Wiring:

1. Wire PCT-D to external components as shown in the wiring diagram
2. All terminal blocks are removable for easy wiring.
3. Damper outputs are always switched HOT
4. Reheat output can be switched HOT or switched COMMON. Set jumper accordingly. (default: Switched HOT)
5. **Please ensure no wire strands escape the terminal blocks causing short circuits to the circuit board or other connections.**

#### Specifications:

##### Power Requirements:

- 24 VAC, 3VA (Plus Output Loading)

##### Communication Port:

- RJ-12 Interface For Local Setup Only

##### Inputs:

- On-Board Thermistor Input (10k ohm @ 77°F)
- External Thermistor Input (10k ohm @ 77°F)
- Contact Closure (Night Setback)
- Setpoint Dial (Range Adjustable)
- Pushbutton

##### Outputs:

- 24 VAC Reheat Output – 12VA (0.5 A) Max
- 24 VAC Damper Outputs (x2) – 6 VA (.25 A) Max
- 0-10V Heat/Cool Outputs (x2) Max: 10mA Each
- Status LED

250061-100

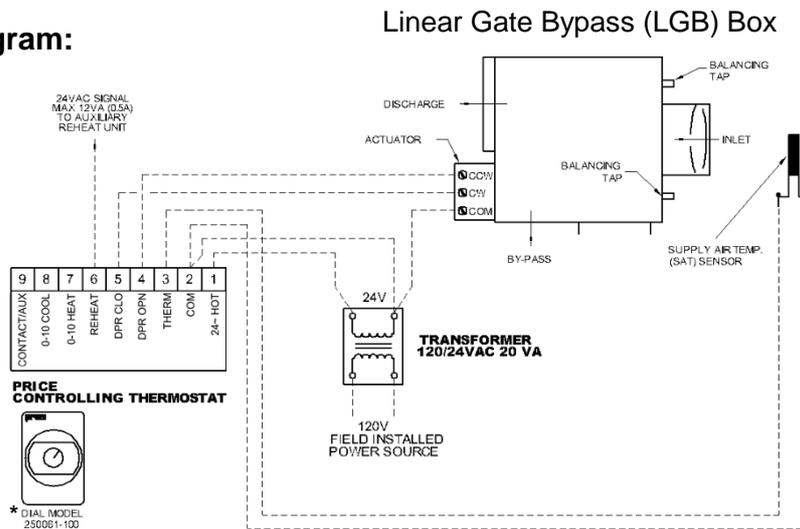
**Connection Descriptions:**

9	8	7	6	5	4	3	2	1
CONTACT/AUX	0-10 COOL	0-10 HEAT	REHEAT	DPR CLO	DPR OPN	THERM	COM	24~HOT

Connection	Description
24~ HOT	24 VAC Hot (power)
COM	24 VAC Common
THERM	Thermistor Input – Duct Probe (2 <sup>nd</sup> wire of thermistor is connected to COM)
CLO	Damper CLOSE Output – Switched HOT
OPN	Damper OPEN Output – Switched HOT
REHEAT	24 VAC Reheat Output. (Switched HOT or Switched COM – depending on jumper position)
0-10 HEAT	Analog heat output
0-10 COOL	Analog cool output
CONTACT/AUX	Contact closure input (night setback) Short to COM to put PCT-D into night setback



**Typical wiring diagram:**



**NOTE:** PCT-D Thermostat is not compatible with the PIC (Price Intelligent Controller), PAC (Price Analog Controller), or Price Prodigy Diffuser. These controls have separate thermostats available.

**Operation:**

The Price Controlling Thermostat typically controls a Linear Gate Bypass (LGB) box. The following paragraphs explain the default operation of the PCT-D. **Many options (timers, ranges, etc.) are configurable with software and the Price LINKER interface tool (LINKER2).** Contact Price for details.

On startup, the PCT-D will calibrate the damper position by driving the damper fully closed (configurable) for 2 minutes. The Price Controlling Thermostat will then modulate the damper according to the **room setpoint, room temperature, and supply air temperature.** (If **no** supply air temp sensor is detected, the PCT-D assumes cool supply air). It uses a tunable Proportional-Integral (PI) controller to determine the required damper position. The default range is 15-100% flow to allow for fresh-air requirements. It is configured by default for a 90 second damper runtime.

The 24 VAC reheat output is fired when there is a demand for heating. Its “trip point” is tunable through software. Default: 1% heating demand fires reheat.

The analog (0-10V) heating/cooling outputs typically output the cooling or heating load. Default is 0-10V. Their minimum, maximum, and idle voltages are tunable through software.

Connecting the Contact Closure input to COMMON will put the PCT-D into unoccupied (night-setback) mode. In this mode, the controller will respond to its night heating and cooling setpoints (default: 62°F and 85°F respectively – changeable through software).

The “OCC” button also toggles occupancy. By default, it allows the user put the unit into occupied mode (turn it on), but not allow him to put it into unoccupied (turn it off). This can be also changed through software.

The green LED on the front of the PCT-D is **OFF** while the zone is unoccupied, **“Breathing”** while the zone is occupied, and **ON solid** during damper calibration.