Price Intelligent Controller
PIC Series
**PRICE INTELLIGENT CONTROLLER**

**TABLE OF CONTENTS**

<table>
<thead>
<tr>
<th>Product Overview</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Troubleshooting</td>
</tr>
<tr>
<td>Installing the PIC</td>
<td></td>
</tr>
<tr>
<td>Features of the PIC controllers</td>
<td></td>
</tr>
<tr>
<td>Input/Output Description</td>
<td></td>
</tr>
<tr>
<td>Price - Flow Response Chart</td>
<td></td>
</tr>
<tr>
<td>Wiring</td>
<td></td>
</tr>
<tr>
<td>PIC_Price Intelligent Controller Thermostat Options x5</td>
<td></td>
</tr>
<tr>
<td>Thermostat Installation</td>
<td></td>
</tr>
<tr>
<td>How to use Thermostat</td>
<td></td>
</tr>
</tbody>
</table>

**Display Navigation**

| Initial Setup | 11 |
| Info Menu | 12 |
| Service Menu | 13 |
| Application Menu | 14 |
| Balancing Menu | 15 |
| VAV Menu | 16 |
| VVT Menu | 17 |
| Exhaust Box VAV Menu | 18 |
| Dual Duct VAV Menu | 19 |
| Discharge Air Temperature Menu | 20 |
| VAV with Follower Menu | 21 |
| Setpoint Menu | 23 |
| Input Menu | 25 |
| Output Menu | 27 |
| Output Menu - Heat | 28 |
| Output Menu - Cool | 29 |
| Output Menu - Room Lights | 30 |
| Address Menu | 31 |
| Stat Setup Menu | 32 |
| Display Options Menu | 33 |
| BACnet Networking and Setup | 34 |
| Setting the Device Instance | 35 |

**SUPPORT ▼**

Having difficulty installing this product?
Price is here to help.

**Application Support**

204.654.5613
controls@priceindustries.com
priceindustries.com/literature
General

PIC - Price Intelligent Controller

The Price Intelligent Controller (PIC) is a direct digital controller for VAV terminals or fan coils that offers cutting edge zone control. The PIC combines the accuracy of direct digital control with the flexibility of an individual room control system, providing maximum control and efficiency. An advanced and configurable proportional integral controller allows for exceptional user comfort and energy efficiency. Installation of the controller and thermostat is simple and error proof with RJ-45 (network type) connections to the thermostat and BACnet network.

The PIC typically comes factory mounted to Price VAV boxes, but may also be ordered stand-alone for retrofit jobs.
The PIC controller is an advanced and fully configurable VAV terminal controller that can be used as either a pressure dependant or a pressure independent zone control system.

When used as a pressure dependant controller, the flow rate is dependant on inlet static pressure and damper position.

When used as a pressure independent controller, flow rate is constant with the use of the VAV Expansion Module (PIC-VAV) and airflow sensor. The PIC can be used as a stand alone unit, or can be interfaced into a BAS with MS/TP BACnet capability using the BACnet module (PIC-BAC). The PIC controller offers 5 thermostat options that provide a range of control from room temperature sensing, all the way to wireless control. With a variety of output configurations, the PIC controller can control analog heating and cooling valves, fan motors, and other types of analog devices. As well as On/Off heating and cooling stages, On/Off fan operation, fan coils, etc. With the use of the LCD Thermostat with Motion, the PIC can be used as a motion sensor and lighting controller with different levels of sensitivity, as well as system balancing tool.

**Expansion Modules**

The Price Intelligent Controller is also expandable for BACnet networking capabilities, and for Pressure Independent control. The expansion modules come equipped with a ribbon cable that is easy to plug in from the PIC to the selected module.

- **PIC-VAV**: VAV module (optional) provides airflow sensing for true VAV control.
- **PIC-BAC**: BACnet module (optional) provides a native BACnet MS/TP interface for networking.
Installing the PIC

1. Mount the controller onto the duct with the damper shaft going through the PIC’s actuator, and tighten the screws on the actuator.

2. Secure the back end of the controller using the supplied anti-rotational bracket. Do not mount the anti-rotation bracket tightly to the PIC casing, the intent is to allow the PIC to move slightly to allow for variations on the damper shaft.

3. Connect any of the controller’s outputs as required. **NOTE:** When the output loads require a switched HOT or COMMON 24VAC signal. Use the jumper near the FAN output to select HOT or COMMON outputs.

4. Power the PIC using 24VAC, the secondary 24VAC common of the transformer must be earth grounded.

**Features of the PIC controller**

- 24 VAC power terminal or RJ-12 power connection.
- 24VAC Binary Outputs (7): A variety of binary outputs for heating, cooling or fan operation which are rated for maximum 0.5 amps each. Max: 1.85 amps total. Field switchable from HOT to COM.
- Analog Outputs (4): Fully configurable (2-10VDC, 0-10VDC, 10-2VDC, etc.) outputs for heating, cooling, fan operation, and auxiliary, rated at maximum 10 mA each.
- S.A.T. Sensor Input (1) 10K type J Thermistor: When heat/cool changeover is required a temperature probe must be connected.
- Contact Closure Input (1): Night setback
- BACnet Expansion Module (optional): Providing a native BACnet MS/TP interface.
- VAV Expansion Module (optional): Provides airflow sensing for true VAV control.
- Integrated Damper Actuator: Default stroke time of 95 seconds.
- T-stat port: for RJ-45 connection to thermostat from the PIC controller.
- Service Port: RJ-12 port used to connect Price Linker for system balancing and setup, or to connect an LCD Thermostat for system balancing and setup. The LINKER is a USB 2.0 interface to Price controls and is used in conjunction with FREE setup and balancing software available from Price.
- LED indication: For ease of troubleshooting.
Input/Output Description

<table>
<thead>
<tr>
<th>24VAC Binary Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fan Output</strong></td>
</tr>
<tr>
<td>Binary Output for On/Off control of a fan, three types:</td>
</tr>
<tr>
<td>Intermittent - Fan runs when there’s a call for heating or cooling.</td>
</tr>
<tr>
<td>Day/Night - During the Day cycle the fan is on, during the Night cycle the fan is off.</td>
</tr>
<tr>
<td>Constant - Fan runs continuously</td>
</tr>
<tr>
<td><strong>Stage 1</strong></td>
</tr>
<tr>
<td>Binary (electric, or binary hot water)</td>
</tr>
<tr>
<td>Tristate (floating) close signal of hot water valve</td>
</tr>
<tr>
<td><strong>Stage 2</strong></td>
</tr>
<tr>
<td>Binary (electric, or binary hot water)</td>
</tr>
<tr>
<td>Tristate (floating) close signal of hot water valve</td>
</tr>
<tr>
<td><strong>Stage 3</strong></td>
</tr>
<tr>
<td>Binary (electric, or binary hot water)</td>
</tr>
<tr>
<td>24VAC PWM to SSR (10 second period)</td>
</tr>
<tr>
<td><strong>Cool/Aux</strong></td>
</tr>
<tr>
<td>Binary Output for one stage of cooling if required. Can be used as an auxiliary binary output if required.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Analog Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ECM AO1</strong></td>
</tr>
<tr>
<td>Analog Output for any type of modulating fan (0-10VDC, 2-10VDC, 10-2VDC, etc.)</td>
</tr>
<tr>
<td><strong>AO2 Heat</strong></td>
</tr>
<tr>
<td>Analog Output for modulating heating valve (0-10VDC, 2-10VDC, 10-2VDC, etc.)</td>
</tr>
<tr>
<td><strong>AO3 Cool</strong></td>
</tr>
<tr>
<td>Analog Output for modulating cooling valve (0-10VDC, 2-10VDC, 10-2VDC, etc.)</td>
</tr>
<tr>
<td><strong>AO4 - Spare</strong></td>
</tr>
<tr>
<td>Spare analog output - normally indicates damper position (0-10VDC = 0-100%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inputs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contact Closure</strong></td>
</tr>
<tr>
<td>Configurable Binary Input can be used for night setback, damper force open/close etc.</td>
</tr>
<tr>
<td><strong>SAT Sensor</strong></td>
</tr>
<tr>
<td>Analog Input for temperature probe hookup for heat/cool changeover if required. 10k Type J Thermistor</td>
</tr>
</tbody>
</table>

**Switched HOT/COM Jumper:** PIC offers a jumper selectable HOT/COM switch that allows the binary output to be switched HOT or switched COMMON.

**COM Terminals:** All COM terminals on the PIC controller are internally connected, which allows for a common reference point throughout the board.

**Damper Actuator:** Factory installed and wired, the PIC offers LED indication of the damper direction, (either OPEN or CLOSE). Default drive time of the actuator is 90 seconds, but is configurable through software, or by using the LCD Thermostat.

**T-Stat RJ-45 Port:** The PIC comes equipped with an RJ-45 port to provide ease of plugging in a thermostat cable from the PIC to any of the selected thermostats. The thermostat cable is supplied by Price.

**Service Port:** The PIC comes equipped with an RJ-12 port to provide ease of plugging in an RJ-12 cable to the Price Linker for system balancing and setup, or to connect an LCD Thermostat for system balancing and setup. The LINKER is a USB 2.0 interface to Price controls, and is used in conjunction with FREE setup and balancing software available from Price.
### Price - Flow Response Chart

<table>
<thead>
<tr>
<th>HCCO box</th>
<th>Cooling Min</th>
<th>Cooling Flows</th>
<th>Heating Min</th>
<th>Heating Flows</th>
<th>Neutral Supply Air Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>PI = Cooling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duct Air = Cold</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>PI = Heating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duct Air = Cold</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>PI = Neutral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duct Air = Cold</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI = Cooling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duct Air = Hot</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI = Heating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Duct Air = Hot</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI = Neutral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duct Air = Hot</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI = Cooling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duct Air = Neutral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>PI = Heating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Duct Air = Neutral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI = Neutral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duct Air = Neutral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>

**NOTE 1:** If no Temperature Probe is present, the PIC controller assumes cold duct air.

**NOTE 2:** PI = Proportional Integral = room load (either cooling/neutral/heating)

Above is a Flow Response chart for the PIC controller, showing the demand, Duct Air condition, and the controller’s output.

E.g. PI = Cooling, Duct Air = Cold, Output = Cooling Flows. This indicates that the Room Demand is in Cooling, the Duct Air is Cold, and the controller would modulate between the Cool Min and Cool Max values.

---

**TECH TIP**

Use the above table to determine what airflows are being chased in certain modes.

Examples: If PIC is trying to heat the room (PI = heating) and cool air is being supplied (Duct air = Cold) it will chase its heating min flow.
NOTE: Suitable min and max heating flow must be selected in order to maintain flow through energized electric coils of at least 200fpm and at least 70cfm/kW throughout the entire operating range.

Sequence of Operation - Heat/Cool changeover OR cooling with up to 3 stage binary reheat - Pressure Independent. On power up the damper will calibrate closed for 2 minutes. If no SAT sensor is present, the controller assumes Cool supply air at all times.

Cool Supply Air: On an increase in space temperature, the controller regulates the actuator to open the VAV damper and increase the flow of cool air. On an increase of space temperature greater than the cooling proportional band, the airflow is maintained at its pre-selected maximum setting.

On a decrease in space temperature the controller regulates the actuator to close the VAV damper and reduce the flow of cool air. If the space temperature decreases to less than the cooling proportional band, the airflow is maintained at the pre-selected minimum setting.

Warm Supply: On a decrease in space temperature, the controller regulates the actuator to open the VAV damper and increase the flow of warm air. On a decrease of space temperature greater than the heating proportional band, the airflow is maintained at the pre-selected maximum setting.

On an increase in space temperature, the controller regulates the actuator to open the VAV damper and increase the flow of warm air. If the space temperature increases above the heating proportional band, the airflow is maintained at the pre-selected minimum setting.

Reheat Operation: On a decrease in space temperature into the heating proportional band, the first stage binary 24VAC reheat output will energize. Upon further decreases, the second then third stages of reheat (if used) will energize.
PIC - Price Intelligent Controller
Thermostat Options x 5

All thermostats are connected with a CAT-5 cable (RJ-45) connection from the PIC to the back of the selected thermostat. Each thermostat has an RJ-12 Service Port on the bottom, providing a computer interface using the USB LINKER service tool for setup and balancing, and without having to access the plenum.

ROOM SENSOR THERMOSTAT: PIC-TS-SENS
- Setpoint adjust from hidden dial on the back
- Setpoint adjust – from hidden dial on the back
- Service port - linker connection

DIAL THERMOSTAT: PIC-TS-DIAL
- Dial adjustment for temperature
- LED – 1 blink cooling mode, 2 – heating, 3 - neutral
- Occupancy override button
- Service port - linker connection

LCD THERMOSTAT: PIC-TS-LCD
- LCD screen for menu display
- Menu button
- Increase and decrease push buttons for day temperature setpoint adjustment
- Service port - linker connection

LCD THERMOSTAT WITH MOTION SENSOR: PIC-TS-MOTION
- LCD screen for menu display
- Menu button
- Increase and decrease push buttons for day temperature setpoint adjustment
- Motion sensor allows for automatic detection of occupancy
- Service port - linker connection
The Price Wireless Thermostat System provides both sensor inputs and a point of control for Price controllers.

The System consists of 2 units:

**WIRELESS REMOTE T-STAT** - Transmitter - Room sensor T-Stat with dial setpoint adjust, LED and push button.

**WIRELESS BASE** - Receiver - Unit with LCD and 3 push buttons.

REMOTE T-STAT and BASE units talk between each other wirelessly in the 2.4GHz range (FCC and IC certified). BASE unit connects to main controller using the supplied plenum-rated CAT-5 cable. No other connections are required.

### Base (Receiver) Mounted in Plenum
- LCD Screen for menu display
- Increase and decrease push buttons for day temperature setpoint adjustment
- Service Port - Linker Connection
- Menu Button

### Remote (Transmitter) User Thermostat
- Dial Adjustment for Temperature
- LED – 1 blink cooling mode, 2 – heating, 3 – neutral
- Occupancy Override Button
- Service Port - Linker Connection
Thermostat Installation

General Description
The PIC thermostats are all physically the same size and mounting instructions will be typical.

Location
1. The Price Intelligent Controller (PIC) Thermostats must be mounted to a wall and wired to the controller via the supplied plenum rated 35ft CAT-5 cable. This cable plugs into the thermostat and the PIC controller with the ease of RJ-45 connections. **NOTE:** the cable run can be extended to 70 ft using a Price Cable coupler and additional 35ft cable.
2. Mount the required thermostat in a place that is convenient for the end user, but the following should be taken into consideration:
   - Do not mount a thermostat in direct sunlight i.e. across from a window where heat can alter the temperature reading.
   - Should not be installed on an outside wall.
   - Keep away from hot equipment like computers, monitors and heaters etc.
   - Ensure nothing will restrict vertical air circulation to the thermostat. (Do Not Cover)
   - Ensure wall is NOT pressurized! Hot/Cold air from a pressurized wall will direct blow onto the thermostat’s temperature sensor causing ‘bad’ readings.

Installation
1. The back plate on each thermostat is removable and can be mounted to a standard electrical box or directly to drywall using anchors supplied by others.
2. Run the CAT-5 cable through the center hole in the plate. Connect the cable to the thermostat, then secure the thermostat onto the wall plate inserting top portion of the thermostat first, then snapping the bottom half in.
3. All thermostats will come equipped with a 0.050” Allen Key for the set screw at the bottom.

**TECH TIP**
Careful thermostat installation will reduce field issues! Do not twist or kink the blue CAT-5 thermostat cable. Damaged cables are difficult to troubleshoot!

**Thermostat cable product code:** PIC-CABLE
Thermostat Overview

Room Sensor Thermostat
- The Room Sensor Thermostat is powered from the controller.
- Measures room temperature.
- Setpoint can be adjusted from a hidden dial on the back of the T-Stat using a small flat-head screw driver.
- Setpoint limits can be adjusted through free setup software using the Price LINKER, or through a BACnet system.
- Eliminated problem of unauthorized tampering to the thermostat.
- Occupancy button can be used to override the system during unoccupied times. Default setting is 4 hours.

Dial Thermostat
- The Dial Thermostat is powered from the controller.
- Measures room temperature and features a dial adjustment and an occupancy button.
- Temperature Setpoint limits can be adjusted through free setup software using the Price LINKER, or through a BACnet system.
- Simply use the adjustable dial for temperature adjustment.
- Occupancy button can be used to override the system during unoccupied times. Default setting is 4 hours.

LCD Thermostat
- The LCD Thermostat is powered from the controller and has a variety of features.
- Measures room temperature and features an LCD screen with push button day Setpoint adjustment.
- Temperature Setpoint limits are set through the T-Stat setup menus, free setup software using the Price LINKER, or through a BACnet system.
- The LCD Thermostat can be used as a balancing tool for the controller system by connecting the RJ-45 cable to the back of the thermostat.

LCD Thermostat with Motion Sensor
- The LCD Thermostat with Motion Sensor is powered from the controller and has a variety of features as well.
- This model measures room temperature, features an LCD screen with day Setpoint adjustment, and motion sensor with lighting control.
- Temperature Setpoint limits are set through the T-Stat setup menus, free setup software using the Price LINKER, or through a BACnet system.
- Balancing and additional setup functions are also available through the menus.
- This thermostat can also be used as a motion sensor for occupied and unoccupied times in a space. It also has the capability to act as a lighting controller for occupied/unoccupied schedules.
### PRICE INTELLIGENT CONTROLLER

#### DISPLAY NAVIGATION

**Initial Startup**  
*(LCD & Motion Thermostat only)*

When the LCD thermostat is powered from the PIC, it will display the following information:

<table>
<thead>
<tr>
<th><strong>PRICE ELECTRONICS</strong></th>
<th>Start-up screen</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LCD THERMOSTAT</strong></td>
<td></td>
</tr>
<tr>
<td><strong>STANDARD MODEL</strong></td>
<td>Standard/Motion Model</td>
</tr>
<tr>
<td><strong>VERSION X.XX</strong></td>
<td>Displays firmware version of thermostat</td>
</tr>
<tr>
<td><strong>LOADING:</strong></td>
<td>Loading parameters</td>
</tr>
<tr>
<td><strong>INITIALIZING</strong></td>
<td></td>
</tr>
<tr>
<td><strong>PIC VERSION X.XX</strong></td>
<td>Controller type and controller firmware version</td>
</tr>
</tbody>
</table>
| **SEQUENCE XXXX**     | Displays sequence programmed into stat  
  **NOTE:** a sequence number of 0 means the stat has NOT been calibrated |
| **MAC ADDRESS XXX**   | Displays current MAC Address |
| **DEVICE INST. XXXXXXX** | Displays current Device Instance |
| **ROOM TEMP. 75.0°F** | (For example) |

**Changing the Setpoint – LCD & Motion Thermostat only**

Day Setpoint Adjustment  
Increase and decrease push buttons for Day Setpoint adjustment

<table>
<thead>
<tr>
<th><strong>DAY SETPOINT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>72.1°F</td>
</tr>
<tr>
<td><strong>DAY SETPOINT</strong></td>
</tr>
<tr>
<td>75.0°F</td>
</tr>
<tr>
<td><strong>DAY SETPOINT</strong></td>
</tr>
<tr>
<td><strong>SAVING...</strong></td>
</tr>
</tbody>
</table>
The Info menu shows information about the controller status regarding room load, damper position and BACnet Address info. No values can be changed from this menu and it is not locked or protected in any way.
Press ‘Enter Menu’ button to enter the User Menu, scroll through using the up and down buttons.

<table>
<thead>
<tr>
<th>APPLICATION AIR TERMINAL</th>
<th>Single duct or fan powered terminal unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCCUPANCY ON VVT MODE</td>
<td>The Occupancy can be determined by airflow, contact closure, motion or by a user pressing a button</td>
</tr>
</tbody>
</table>
| NEUTRAL MODE LOAD 0%     | Neutral mode mean PI controller is satisfied  
Cooling -1 to -100%  
Heating +1 to +100% |
| SUPPLY AIR TEMP 85.0°F   | If no supply probe is present, LCD will display no probe  
If supply probe present, LCD will display temperature |
| DAMPER POSITION 50%      | This indicates the current position of the damper is percent (%) 
Range is 0-100% (100% = full open or maximum air) |
| ECM OUTPUT 1.5 DVC       | Current output on the A01 |
| AIRFLOW 300 CFM          | Only displayed if system is pressure independent (PIC-VAV module attached) |
| FLOW TARGET 300 CFM      | Shows the current flow target in CFM (VAV) or % (VVT)  
NOTE: if damper position (above) is at 100% and CFM target is not being met, the box is STARVING for AIR |
| CO2 READING              | The current CO2 reading in PPM (Parts Per Million) |
| HUMIDITY READING         | The current humidity reading in RH% (relative humidity) |
| MAC ADDRESS 1            | Shows the BACnet MAC address. Range 1-99  
MAC Address can be set via dip watch  
If no BACnet module attached, LCD will display MAC address None |
| DEVICE INSTANCE 101       | (Instance must be "globally" unique on your site)  
Displays controller’s BACnet Device Instance (if BACnet is attached)  
Device Instance can range from 0-4, 194, 303 |
| PRESS MENU TO EXIT       | NOTE: Service menu will automatically time out after 20 seconds |
# PRICE INTELLIGENT CONTROLLER

## DISPLAY NAVIGATION

### Service Menu

**(LCD Setup Only)**

Hold down 'Enter/Menu' button for 5 seconds, display will show 'Passcode:'. Use Up and Down keys to enter the password in this sequence: **Down, Up, Up, Down**.

<table>
<thead>
<tr>
<th>SERVICE MENU: APPLICATION</th>
<th>Change the Application the unit is operating as</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERVICE MENU: BALANCING</td>
<td>Allows you to force the damper open/close/min/max</td>
</tr>
</tbody>
</table>
| SERVICE MENU: VAV/VVT     | Allows you to set flows or set limits  
For VAV (Air Terminal application only) - page 15  
For VVT (Air Terminal application only) - page 16  
For Exhaust Box VAV (Exhaust Box application only) - page 17  
For Dual Duct (Dual Duct application only) - page 18  
For Discharge Air Temp (Fan Coil applications only) - page 19  
For VAV with Flow Follower (Flow Follower application only - page 20 |
| SERVICE MENU: SETPOINT    | Setup of Setpoint limits (day minimum/maximum).  
°F/°C selection |
| SERVICE MENU: INPUT       | Shows supply air temperature reading.  
Shows if VAV and BACnet modules are attached. |
| SERVICE MENU: OUTPUT      | Allows setup of FAN, HEAT, COOL, outputs.  
Allows setup of room light output (motion stat only). |
| SERVICE MENU: BACNET      | Allows setup of BACnet addresses  
MAC address, Device Instance Baud Rate  
Included only if BACnet module is attached |
| SERVICE MENU: STAT SETUP  | Allows setup of LCD back lighting, sounds, motion sensor.  
Adjustment of HVAC and room lighting time-outs. |
| PRESS MENU TO EXIT       | **NOTE:** Service menu will automatically time out after 20 seconds |

---

priceindustries.com | PRICE INTELLIGENT CONTROLLER - Manual 13
Application Menu

Scroll through menu with 'Up' and 'Down' keys. Press Enter/Menu' button to apply your changes.

"---Saving---" will display as your changes are applied.

For typical single duct and fan powered units

Fan coil terminals 4-pipe with hot and cold water

Fan coil terminals 2-pipe with hot and cold changeover

Dual duct terminal units with hot and cold inlets

Exhaust terminal unit typically with constant flow

Volumetric offset application, typically for Venturi valves, but also for single ducts

Allows PIC to maintain discharged air temperature

Tracks airflow to the current CO2 in the occupied space

Depending on which application is selected, determines whether some menus with appear. Each menu item that is affected specifically states when it is visible.
### Display Navigation

#### Balancing Menu

Scroll through menu with ‘Up’ and ‘Down’ keys. Press Enter/Menu’ button to apply your changes.

"---Saving---" will display as your changes are applied.

<table>
<thead>
<tr>
<th>BALANCING</th>
<th>DAMPER OVERRIDE DISABLED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Not visible if the application is Dual Duct)</td>
</tr>
<tr>
<td></td>
<td>Go to Cool Min - Chases cool min flow</td>
</tr>
<tr>
<td></td>
<td>Go to Cool Max - Chases cool max flow</td>
</tr>
<tr>
<td></td>
<td>Go to Heat Min - Chases heat min flow</td>
</tr>
<tr>
<td></td>
<td>Go to Heat Max - Chases heat max flow</td>
</tr>
<tr>
<td></td>
<td>Go to Neutral Flow - Force damper full open</td>
</tr>
<tr>
<td></td>
<td>Go to Full open - Force damper full close</td>
</tr>
<tr>
<td></td>
<td>Display shows current target and position</td>
</tr>
<tr>
<td></td>
<td>Allow 1-5 minutes for damper to meet target within 5%</td>
</tr>
<tr>
<td></td>
<td>PIC will remain in this mode until user exits the menu</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>DUAL DAMPER OVERRIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Only visible if the application is Dual Duct)</td>
</tr>
<tr>
<td></td>
<td>Disabled - Default</td>
</tr>
<tr>
<td></td>
<td>Cold Setpoint, Hot Close - Cold deck chases setpoint, Hot deck closes</td>
</tr>
<tr>
<td></td>
<td>Cold Minimum, Hot Close - Cold deck goes to minimum, Hot deck closes</td>
</tr>
<tr>
<td></td>
<td>Cold Close, Hot Setpoint - Cold deck closes, Hot deck chases setpoint</td>
</tr>
<tr>
<td></td>
<td>Cold Close, Hot Minimum - Cold deck closes, Hot deck goes to minimum</td>
</tr>
<tr>
<td></td>
<td>50/50 Mixed - Cold deck and hot deck go to 50%</td>
</tr>
<tr>
<td></td>
<td>Cold Open, Hot Close - Cold deck opens, Hot deck closes</td>
</tr>
<tr>
<td></td>
<td>Cold Close, Hot Open - Cold deck closes, Hot deck opens</td>
</tr>
<tr>
<td></td>
<td>Both Full Open - Cold and hot deck both open</td>
</tr>
<tr>
<td></td>
<td>Both Full Close - Cold and hot deck both close</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>COLD FLOW TWEAK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Only visible if the application is Dual Duct)</td>
</tr>
<tr>
<td></td>
<td>Adjust Cold flow reading by +/- 100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>HOT FLOW OVERRIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Only visible if the application is Dual Duct)</td>
</tr>
<tr>
<td></td>
<td>Adjust Hot flow reading by +/- 100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>MAIN BOX TWEAK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Only visible if the application is Flow Follower)</td>
</tr>
<tr>
<td></td>
<td>Adjust main box flow reading by +/- 100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>AIRFLOW TWEAK/ FOLLOWER TWEAK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Only visible if the application is Flow Follower)</td>
</tr>
<tr>
<td></td>
<td>Adjust follower flow reading by +/- 100% Airflow Tweak</td>
</tr>
<tr>
<td></td>
<td>Allows user to adjust airflow reading to match flow hood</td>
</tr>
<tr>
<td></td>
<td>Range -100 to +100%</td>
</tr>
<tr>
<td></td>
<td>Example: flow hood reads 550 cfm</td>
</tr>
<tr>
<td></td>
<td>While airflow reading is 500 cfm</td>
</tr>
<tr>
<td></td>
<td>Adjust airflow tweak to +10%</td>
</tr>
</tbody>
</table>

Continue to next page...
Balancing Menu

Scroll through menu with ‘Up’ and ‘Down’ keys. Press Enter/Menu’ button to apply your changes.
*---Saving---* will display as your changes are applied.

Continued from previous page...

FLOW OVERRIDE

This menu allows you to put in a CFM value that you want to target and check out the VAV damper, and if the air handler is pushing enough air to the box. Eg. Set the Flow Override value to 200 CFM and hit Enter, then hit the Down arrow button to view the current damper position and the target of the damper. If the position gets to 200 CFM, then there is enough air pushing to the vav box.

NOTE: Once complete with the Flow Override check, put this value back to zero or No Flow Override.

AIRFLOW FACTOR

This value is the actual CFM flowing across the crossflow sensor and through the box. From here, push the menu button once, and this will display the current K factor value for that box. Eg. 8” box = 890 K factor. You can adjust this factor if required.

During balancing, if the balancer is reading 300 cfm with his hood, but the Airflow Factor is reading 250 cfm, then you need to adjust the K factor by about 16% to get to the proper airflow reading of 300 cfm.

PRESS MENU TO EXIT
VAV Menu
(Pressure Independent Mode)

Scroll through menu with Up and Down keys. Press 'Enter/Menu' button to apply your changes. "---Saving---" will display as your changes are applied.

- **DUCT SIZE 8 INCHES**: Allows selection of inlet size (4", 5", 6", 7", 8", 9", 10", 12", 14",16")
  
  **NOTE**: Changing duct size will load the default min/max airflow for that size

- **FLOW UNITS CFM**: Choose between liters per second or cubic feet per minute

- **COOL MIN FLOW 132 CFM**: Sets the cool min flow. Must be lower than (or same as) cool max flow

- **COOL MAX FLOW 800 CFM**: Sets the cool max flow. Must be higher than (or same as) cool max flow

- **HEAT MIN FLOW 132 CFM**: Sets the heat min flow. Must be lower than (or same as) heat max flow

- **HEAT MAX FLOW 800 CFM**: Sets the heat max flow. Must be lower than (or same as) heat min flow

- **NEUTRAL FLOW 132 CFM**: Sets the neutral flow. Independent with no limits

- **UNOCCUPIED DAMPER POSITION - 40%**: When PIC is unoccupied, the damper will rest at this position. Default - 40% (Range 0-100%) 100% = full open

- **DAMPER RUNTIME 95 SEC**: Change the total runtime of the damper

- **DAMPER DIRECTION NORMAL**: Changes which direction open and close are set to

- **DAMPER CALIBRATION**: Normal - damper will calibrate on startup
  
  No Cal Mode - damper will not calibrate on startup

- **DAY FLOW TRIP 66 CFM**: PIC will go into occupied mode when CFM reading is equal or greater than this value

  Default: 1/2 the box minimum flow

- **NIGHT FLOW TRIP 33 CFM**: PIC will go into unoccupied mode when CFM reading is equal or greater or less than this value AND damper is starved at 100%

  Default: 1/4 the box minimum flow

- **AIRFLOW NSB DISABLED**: Enabled - occupied and unoccupied modes triggered by airflow.

  (If enabled day flow trip & night flow trip trigger occupied/unoccupied mode)

  Disabled - occupied and unoccupied modes not triggered by airflow.

  Normal - uses the Flow Chart to determine the damper target.

  Duct Temp Use PI - this feature ignores the Flow Chart and uses the PI to determine the damper target.

  Eg. PI is in cooling mode, damper will target Cooling Min and Max flows.

- **FLOW RESPONSE**: Normal - uses the Flow Chart to determine the damper target.

- **PRESS MENU TO EXIT**
**VVT Menu**  
*(Pressure Dependent Mode)*

Scroll through menu with Up and Down keys. Press ‘Enter/Menu’ button to apply your changes. “---Saving---” will display as your changes are applied.

- **COOL MIN FLOW**  
  0%
  Cool min flow in %  
  Range: 0-100%  Default: 10%

- **COOL MAX FLOW**  
  100%
  Cool max flow in %  
  Range: 0-100%  Default: 100%

- **HEAT MIN FLOW**  
  0%
  Heat min flow in %  
  Range: 0-100%  Default: 10%

- **HEAT MAX FLOW**  
  100%
  Heat max flow in %  
  Range: 0-100%  Default: 100%

- **NEUTRAL FLOW**  
  0%
  Sets the neutral flow  
  Range: 0-100%  Default: 10%

- **UNOCCUPIED DAMPER POSITION**  
  40%
  When PIC is unoccupied, the damper will rest at this position.  
  Default - 40% (Range 0-100%)  100% = full open  
  CFM default - 132 cfm.

- **DAMPER RUNTIME**  
  95 SEC
  Change the total runtime of the damper.

- **DAMPER DIRECTION**  
  NORMAL
  Changes which direction open and close are set to

- **FLOW RESPONSE**  
  Normal - uses the Flow Chart to determine the damper target.  
  Duct Temp Use PI - this feature ignores the Flow Chart and uses the PI to determine the damper target.  
  Eg. PI is in cooling mode, damper will target Cooling Min and Max flows.
Exhaust Box VAV Menu
(Application specific options)

Scroll through menu with Up and Down keys. Press 'Enter/Menu' button to apply your changes. "---Saving---" will display as your changes are applied.

<table>
<thead>
<tr>
<th>Exhaust Config</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Const Volume</td>
<td>Constant volume - PIC will try to maintain a constant volume. Track Analog Signal - PIC will maintain a volume proportional to an analog signal.</td>
</tr>
<tr>
<td>Duct Size</td>
<td>Allows selection of inlet size (4&quot;&quot;, 5&quot;&quot;, 6&quot;&quot;, 7&quot;&quot;, 8&quot;&quot;, 9&quot;&quot;, 10&quot;&quot;, 12&quot;&quot;, 14&quot;&quot;, 16&quot;&quot;, 24&quot; x 16&quot;, and low profiles of 9&quot;&quot;, 10&quot;&quot;, 12&quot;&quot;, 14&quot;&quot;, 16&quot;)</td>
</tr>
<tr>
<td>Flow Units</td>
<td>Choose between liters per second or cubic feet per minute</td>
</tr>
<tr>
<td>Exhaust Min Flow</td>
<td>Minimum airflow to be maintained, corresponds to input Signal minimum</td>
</tr>
<tr>
<td>Exhaust Max Flow</td>
<td>Maximum airflow to be maintained, corresponds to input Signal maximum</td>
</tr>
<tr>
<td>Input Signal Min</td>
<td>Minimum analog signal, corresponds to input exhaust minimum flow</td>
</tr>
<tr>
<td>Input Signal Max</td>
<td>Maximum analog signal, corresponds to input exhaust maximum flow</td>
</tr>
<tr>
<td>Constant Volume Setpoint</td>
<td>1000 cfm default</td>
</tr>
<tr>
<td>Unoccupied Damper Position</td>
<td>When PIC is unoccupied, the damper will rest at this position. Default - 40% (Range 0-100%) 100% = full open. CFM default - 132 cfm.</td>
</tr>
<tr>
<td>Airflow NSB Enabled</td>
<td>Enabled - occupied and unoccupied modes triggered by airflow. (If enabled day flow trip &amp; night flow trip trigger occupied/unoccupied mode) Disabled - occupied and unoccupied modes not triggered by airflow.</td>
</tr>
<tr>
<td>Damper Runtime</td>
<td>Change the total runtime of the damper</td>
</tr>
<tr>
<td>Damper Direction</td>
<td>Changes which direction open and close are set to</td>
</tr>
<tr>
<td>Day Flow Trip</td>
<td>PIC will go into occupied mode when CFM reading is equal or greater than this value. Default: 1/2 the box minimum flow</td>
</tr>
<tr>
<td>Night Flow Trip</td>
<td>PIC will go into unoccupied mode when CFM reading is equal or greater or less than this value AND damper is starved at 100%. Default: 1/4 the box minimum flow</td>
</tr>
<tr>
<td>Damper Calibration</td>
<td>Normal: Allows the damper to calibrate on start up. No Cal: Disables damper calibration on startup</td>
</tr>
</tbody>
</table>

Press Menu to Exit
**Dual Duct VAV Menu**  
*(Application specific options)*

Scroll through menu with Up and Down keys. Press ‘Enter/Menu’ button to apply your changes. "---Saving---" will display as your changes are applied.

<table>
<thead>
<tr>
<th>Menu Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DUAL DUCT VAV</strong></td>
<td></td>
</tr>
</tbody>
</table>
| **DUAL DUCT TYPE** | Constant Volume - Maintains a constant volume as set in constant Volume setpoint  
Variable Volume - Varies volume between Hot/Cold Deck min/max flows |
| **COLD DECK SIZE** | 8 INCHES  
**NOTE:** Changing duct size will load the default min/max airflow for that size |
| **HOT DECK SIZE** | 8 INCHES  
**NOTE:** Changing duct size will load the default min/max airflow for that size |
| **FLOW UNITS** | CFM  
Choose between liters per second (L/s) or cubic feet per minute (cfm) |
| **CONSTANT VOLUME SETUP** | 800 CFM  
Sets the volume to maintain |
| **COLD DECK MIN FLOW** | 132 CFM  
Minimum cold flow to maintain |
| **COLD DECK MAX FLOW** | 800 CFM  
Maximum cold flow to maintain |
| **HOT DECK MIN FLOW** | 132 CFM  
Minimum hot flow to maintain |
| **HOT DECK MAX FLOW** | 800 CFM  
Maximum hot flow to maintain |
| **UNOCCUPIED DAMPER POSITION** | 40%  
When PIC is unoccupied, the damper will rest at this position.  
Default - 40% (Range 0-100%) 100% = full open  
CFM default - 132 cfm. |
| **DAMPER RUNTIME** | 95 SEC  
Change the total runtime of the damper |
| **DAY FLOW TRIP** | 66 CFM  
(Active if Airflow NSB is enabled) PIC will go into occupied mode when CFM reading is greater than or equal to this value. Default: 1/2 the box minimum flow |
| **NIGHT FLOW TRIP** | 33 CFM  
(Active if Airflow NSB is enabled) PIC will go into occupied mode when CFM reading is less than or equal to this value AND damper is starved at 100%. Default: 1/4 the box minimum flow |
| **AIRFLOW NIGHT SETBACK** | Enabled - occupied and unoccupied modes triggered by airflow  
If enabled dat flow trip & night flow trip trigger occupied/unoccupied mode  
Disabled - occupied and unoccupied modes not triggered by airflow |
| **DAMPER DIRECTION** | NORMAL  
Changes which direction open and close are set to  
Normal: Allows the damper to calibrate on startup  
No Cal: Disables damper calibration on startup |
| **DAMPER CALIBRATION** |  
| | **PRESS MENU TO EXIT** |  |
**Discharge Air Temperature Menu**

(Application specific options)

Scroll through menu with Up and Down keys. Press 'Enter/Menu' button to apply your changes. "---Saving---" will display as your changes are applied.

<table>
<thead>
<tr>
<th>Menu Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASSUME H2O TYPE PEEKING</td>
<td>Peaking - Currently checking to determine Hot/Cold water&lt;br&gt;Hot&lt;br&gt;Cold</td>
</tr>
<tr>
<td>H2O TEMPERATURE DETECT DYNAMIC</td>
<td>Dynamic: When water temperature is below room temp it is considered cooling. When water temperature is above room temp it is considered heating. This mode is recommended because PIC will always use the supply air if it can help satisfy the room load&lt;br&gt;Conventional, Force Cool, Force Heat: Conventional uses Hot and Cold switch points. Force Cool, Force Heat always assumes cold or hot. These modes are not recommended&lt;br&gt;Hot Switch - Only visible when H2O - Temperature Detect = Conventional</td>
</tr>
<tr>
<td>HOT SWITCH 810°F</td>
<td>PIC will consider the supply air warm if at the hot switch temp or above&lt;br&gt;Default: 0.0°F - uses dynamic neutral mode (neutral mode disabled)</td>
</tr>
<tr>
<td>COLD SWITCH 73.0°F</td>
<td>PIC will consider the supply air cold if at the cold switch temp or below&lt;br&gt;Default : 0.0°F - uses dynamic neutral mode (neutral mode disabled)</td>
</tr>
<tr>
<td>DISCHARGE AIR TEMP. NO PROBE</td>
<td>Current temperature of the probe mounted to water pipe</td>
</tr>
<tr>
<td>DAT COOL SETPOINT 55.0°F</td>
<td>Cooling setpoint</td>
</tr>
<tr>
<td>DAT HEAT SETPOINT 90.0°F</td>
<td>Heating Setpoint</td>
</tr>
<tr>
<td>DAT WHILE PI IS IN DEADBAND 0.0°F</td>
<td>What the temperature will be maintain when the system is satisfied</td>
</tr>
<tr>
<td>DAT SERVICE TIME 60 SEC</td>
<td>DAT will calculate and move the valve every 60 seconds (default)</td>
</tr>
<tr>
<td>DAT STEP DIVISION 10</td>
<td>Distance a single step travels (leave at default 10)</td>
</tr>
<tr>
<td>DAT STEP MAXIMUM 10%</td>
<td>Maximum change a call for heating or cooling can make during a step</td>
</tr>
<tr>
<td>DAT DIFFERENTIAL 2.0°F</td>
<td>The range that the controller is satisfied and will not make adjustments</td>
</tr>
<tr>
<td>PEEK MIN TIME 5 MIN</td>
<td>Minimum amount of time controller will open the valve to check if system is heating or cooling</td>
</tr>
<tr>
<td>PEEK FAN SPEED 21%</td>
<td>The fan speed during the peek time</td>
</tr>
<tr>
<td>PEEK OCCURANCE 360 MIN</td>
<td>The moment the valve is shut, this timer will start counting down. When it expires, the controller will open the valve to check on the water temperature.</td>
</tr>
</tbody>
</table>

**Price Industries.com** | PRICE INTELLIGENT CONTROLLER - Manual 21
Scroll through menu with Up and Down keys. Press ‘Enter/Menu’ button to apply your changes. ”---Saving---” will display as your changes are applied.

### Duct Size
- **8 Inches**
- **NOTE:** Changing duct size will load the default min/max airflow for that size

### EX. Duct Size
- **8 Inches**
- **NOTE:** Changing duct size will load the default min/max airflow for that size

### Flow Units
- **CFM**
- Choose between liters per second or cubic feet per minute

### Cool Min Flow
- **132 CFM**
- Minimum cooling flow

### Cool Max Flow
- **800 CFM**
- Maximum cooling flow

### Heat Min Flow
- **132 CFM**
- Heat Minimum Flow

### Heat Max Flow
- **800 CFM**
- Heat Maximum Flow

### Neutral Flow
- **132 CFM**
- Flow when controller is satisfied

### Exhaust Offset
- **0 CFM**
- Applies an offset to the exhaust flow

### Unoccupied Damper Position
- **40%**
- When PIC is unoccupied, the damper will rest at this position. Default - 40% (Range 0-100%) 100% = full open
- CFM default - 132 cfm.

### Continue to next page...
PRICE INTELLIGENT CONTROLLER

DISPLAY NAVIGATION

VAV with Follower Menu
(Application Specific options)

Scroll through menu with Up and Down keys. Press ‘Enter/Menu’ button to apply your changes. "---Saving---" will display as your changes are applied.

Continued from previous page...

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNOCCUPIED DAMPER POSITION 40%</td>
<td>When PIC is unoccupied damper will &quot;rest&quot; at this position Range: 0-100% Default: 40% (Reminder: 100% = full open)</td>
</tr>
<tr>
<td>DAMPER RUNTIME 95 SEC</td>
<td>Change the total runtime of the damper</td>
</tr>
<tr>
<td>DAMPER DIRECTION NORMAL</td>
<td>Changes which direction open and close are set to</td>
</tr>
<tr>
<td>DAMPER CAL NORMAL</td>
<td>Damper reads after a set number of movements (Normal is Default) (No Cal Mode) The damper remains direct flow but assumes the damper position</td>
</tr>
<tr>
<td>DAY FLOW TRIP 66 CFM</td>
<td>PIC will go into occupied mode when CFM reading is equal or greater than this value Default: 1/2 the box minimum flow</td>
</tr>
<tr>
<td>NIGHT FLOW TRIP 33 CFM</td>
<td>PIC will go into unoccupied mode when CFM reading is equal or less than this value AND damper is starved at 100% Default: 1/4 the box minimum flow</td>
</tr>
<tr>
<td>AIRFLOW NSB ENABLED</td>
<td>Enabled - occupied and unoccupied modes triggered by airflow (if enabled day flow trip &amp; night flow trip trigger occupied/unoccupied mode) Disabled - occupied and unoccupied modes not triggered by airflow</td>
</tr>
<tr>
<td>FLOW RESPONSE</td>
<td>Normal - uses the Flow Chart to determine the damper target Duct Temp Use PI - this feature ignores the Flow Chart and uses the PI to determine the damper target Eg. PI is in cooling mode, damper will target Cooling Min and Max flows.</td>
</tr>
<tr>
<td>PRESS MENU TO EXIT</td>
<td></td>
</tr>
</tbody>
</table>
**Setpoint Menu**

(Setpoint Limits and Temperature Units)

Scroll through menu with Up and Down keys. Press ‘Enter/Menu’ button to apply your changes. "---Saving---" will display as your changes are applied.

- **SET LOW LIMIT**
  - **65.0°F**
  - This is the lowest setpoint allowed.
  - Range: 10.0°F - 100.0°F  Default: 65.0°F

- **SET HIGH LIMIT**
  - **80.0°F**
  - This is the highest setpoint allowed.
  - Range: 10.0°F - 100.0°F  Default: 80.0°F

- **TEMPERATURE UNITS**
  - **FAHRENHEIT**
  - Fahrenheit or Celsius
  - Default: °F

- **NIGHT HEAT SET**
  - **62.0°F**
  - PIC will maintain this heating setpoint when unoccupied.
  - Range: 10.0°F - 100.0°F  Default: 62.0°F

- **NIGHT COOL SET**
  - **83.0°F**
  - PIC will maintain this cooling setpoint when unoccupied.
  - Range: 10.0°F - 100.0°F  Default: 83.0°F

- **PROPORTIONAL BAND**
  - **2.0°F**
  - Default 2°F, 1°C
  - Proportional Band is the range of control or the throttling range of the device.

- **DAY DIFFERENTIAL**
  - **1.0°F**
  - 1°F, 0.5°C
  - Day Differential is the deadband on either side of the setpoint.

- **PI DAMPER**
  - **NORMAL PI**
  - PI Damper - sets the proportional/integral response of the damper.
  - Normal PI - Damper responds in normal PI mode during heating, cooling or neutral mode.
  - Low Range PI - Damper will respond in the low range of the PI from 0-50% during heating, cooling or neutral mode.
  - Hi Range PI - Damper will respond in the high range of the PI from 50-100% during heating, cooling or neutral mode.

- **PI ANALOG HEAT**
  - **NORMAL PI**
  - PI Analog Heat - sets the proportional/integral response of the Analog Heating output - A02.
  - Normal PI - Heating output responds normally during a call for heat from 0-100%.
  - Low Range PI - Heating output responds during the low range of the PI from 0-50%.
  - Hi Range PI - Heating output responds during the high range of the PI from 50-100%.

- **PI ANALOG COOL**
  - **NORMAL PI**
  - PI Analog Cool - sets the proportional/integral response of the Analog Cooling output - A03.
  - Normal PI - Cooling output responds normally during a call for heat from 0-100%.
  - Low Range PI - Cooling output responds during the low range of the PI from 0-50%.
  - Hi Range PI - Cooling output responds during the high range of the PI from 50-100%.

- **PI ECM HEAT**
  - **NORMAL PI**
  - PI ECM Heat - sets the proportional/integral response of the Analog ECM Fan output- A01, during a call for heating.
  - Normal PI - Analog Fan output responds normally from 0-10VDC during a call for heat.
  - Low Range PI - Analog Fan output operates from 0-10VDC during the Low Range of the Analog Heat output.
  - Hi Range PI - Analog Fan output operates from 0-10VDC during the High Range of the Analog Heat output.

---

Continue to next page...
Setpoint Menu Continued
(Setpoint Limits and Temperature Units)

Scroll through menu with Up and Down keys. Press 'Enter/Menu' button to apply your changes. "---Saving---" will display as your changes are applied.

PI ECM Cool - sets the proportional/integral response of the Analog ECM Fan output- A01, during a call for cooling.
Normal PI - Analog Fan output responds normally from 0-10VDC during a call for cooling.
Low Range PI - Analog Fan output operates from 0-10VDC during the Low Range of the Analog Cool output.
Hi Range PI - Analog Fan output operates from 0-10VDC during the High Range of the Analog Cool output.
Input Menu
(Supply Air Temperature and Neutral Mode)

Scroll through menu with Up and Down keys. Press ‘Enter/Menu’ button to apply your changes. "---Saving---" will display as your changes are applied.

**INPUT**

**SUPPLY AIR TEMPERATURE**

Shows current SAT reading if probe connected
Range: -59.0°F - 300.0°F
No probe, means no sensor is connected

**NEUTRAL MODE DYNAMIC**

When supply air temperature (SAT) is below room temperature it is considered cooling.
When supply air temperature (SAT) is above room temperature it is considered heating.
This mode is recommended because PIC will always use the supply air if it can help satisfy the room load.
Neutral Mode = Conventional, Force Cool, Force Heat
Conventional uses Hot and Cold switch points.
Force cool, Force Heat always assumes cold or hot.
Not Recommended

**HOT SWITCH 81.0F**

Hot Switch - Only active/visible when Neutral Mode = Conventional
PIC will consider the supply air warm if at hot switch temp or above.
Default: 0.0 DegF - uses dynamic neutral mode (Neutral mode disabled)

**COLD SWITCH 73.0F**

Cold Switch - Only active/visible when Neutral Mode = Conventional
PIC will consider the supply air cold if at cold switch temp or below.
Default: 0.0 DegF - uses dynamic neutral mode (Neutral mode disabled)

**VAV MODULE**

Attached - VAV Module is being used and sensing airflow.
Not Attached - VAV Module is not attached or disabled in software.

**PRESSURE TYPE VAV AUTO**

Pressure Type - not visible if application is Fancoil 2 pipe of Fancoil 4 pipe
VAV Auto: VAV module is being used and sensing airflow.
VVT Manual: VAV module Disabled in software (Override)
VVT Auto: no VAV module - VVT Mode

**ROOM TEMPERATURE OFFSET - 0.0F**

Apply an offset to the room temperature.

**SAT OFFSET 0.0F**

Apply an offset to the SAT temperature.

**CONTACT CLOSURE CONFIGURATION**

All Output Halt - disables all output
Disable Binary Cool
Disable Binary Heat
Disable Binary Fan
Disable AO4
Idle Analog Cool - default 0 VDC
Idle Analog Heat - default 0 VDC
Idle Analog ECM - default 1.5 VDC
Damper full close
Damper full open - Default
Occupied when closed - Forces occupied
Unoccupied on closed - Forces unoccupied
Not used - Disabled

Continue to next page...
**Input Menu Continued**

*(Supply Air Temperature and Neutral Mode)*

Scroll through menu with Up and Down keys. Press 'Enter/Menu' button to apply your changes. "---Saving---" will display as your changes are applied.

Continued from previous page...

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO2 SENSOR DETECTED</td>
<td>Indicates that the CO2 sensor is connected</td>
</tr>
<tr>
<td>CO2 TWEAK 0%</td>
<td>Percentage that the CO2 reading can be tweaked if required. Default is 0%</td>
</tr>
<tr>
<td>CO2 OFFSET 0 PPM</td>
<td>Value to offset CO2 reading if required. Default is 0 PPM</td>
</tr>
<tr>
<td>CO2 PURGEMODE ENABLED</td>
<td>This feature is only active when the VAV module is connected to the PIC controller. Purge mode is enabled here</td>
</tr>
<tr>
<td>PURGE AIRFLOW 800 CFM</td>
<td>Set purge airflow to desired cfm - 800 cfm is default</td>
</tr>
<tr>
<td>MAX CO2 LEVEL 1000 PPM</td>
<td>PIC controller will initiate purge ode above this value. Default CO2 setting is 1000 ppm</td>
</tr>
<tr>
<td>NOMINAL CO2 800 PPM</td>
<td>PIC controller will purge until Nominal CO2 level is met. Default is 800 ppm. Nominal CO2 is your target CO2</td>
</tr>
<tr>
<td>HUMIDITY SENSOR DETECTED</td>
<td>Indicates that the Humidity (RH) sensor is connected</td>
</tr>
<tr>
<td>HUMIDITY TWEAK 0%</td>
<td>Percentage that the RH reading can be tweaked if required. Default is 0%</td>
</tr>
<tr>
<td>HUMIDITY OFFSET 0%RH</td>
<td>Value to offset RH reading if required. Default is 0%RH</td>
</tr>
</tbody>
</table>

Press Menu to Exit
Output Menu - FAN

(Setup of Fan Outputs)

Scroll through menu with Up and Down keys. Press ‘Enter/Menu’ button to apply your changes. *---Saving---* will display as your changes are applied.

### ECM COOL MIN
- **2.1 VDC**
- PI cooling min (-1 to -100%) output voltage
- Default 2.1 VDC

### ECM COOL MAX
- **8.0 VDC**
- PI cooling max (-100%) output voltage
- Default 8.0 VDC

### ECM HEAT MIN
- **2.1 VDC**
- PI heating max (+100%) output voltage
- Default 2.1 VDC

### ECM HEAT MAX
- **8.0 VDC**
- PI heating min (+1 to +100%) output voltage
- Default 8.0 VDC

### ECM DEADBAND
- **1.5 VDC**
- PI in neutral/deadband (0%)
- Output voltage defaults to 1.5 VDC

### ECM UNOCCUPIED
- **1.5 VDC**
- Unoccupied voltage for ECM motor
- Default = 1.5 VDC (Fan Off)

### BINARY FAN TYPE
- This controls the binary FAN output
- Constant = fan output always on

### FAN TYPE HEAT & COOL
- Fan is on when PI is heating or cooling (+1 to +100% or -1 to -100%) (Day & night mode)

### FAN TYPE DAY & NIGHT HEAT / COOL
- During the day, fan is always on
- During the night, the fan is only on when PI is heating or cooling (+1 to +100% or -1 to -100%)

### FAN TYPE CONTINUOUS
- Fan is always on

### FAN TYPE DAY & NIGHT HEAT
- During the day, fan is always on
- During the night, the fan is only on when PI is heating (+1 to +100%)

### FAN TYPE HEATING
- Fan on when PI heating (+1 to +100%) (Day & night mode)

### FAN TYPE NO FAN
- Fan output disabled
Output Menu - Heat
(Setup of Heat Outputs)

Scroll through menu with Up and Down keys. Press 'Enter/Menu' button to apply your changes. "---Saving---" will display as your changes are applied.

**Output Heat**

**Reheat Type**
- **Binary**
- **Hot Water**
- **Binary/PWM**
- **Hot Water/PWM**

- **Bin-HotAirDis** - Binary reheat outputs are disabled when hot air is sensed at the inlet
- **H.W.HotAirDis** - Hot Water reheat output is disabled when hot air is sensed at the inlet
- **BinPWM-HtArDs** - Binary/PWM reheat output is disabled when hot air is sensed at the inlet
- **HW/PWM-HtArDs** - Hot Water/PWM reheat output is disabled when hot air is sensed at the inlet
- **Reheat Disable** - Reheat outputs are disabled

**Drive Time**
- **90 Seconds**

**Heat Stage 1**
- **33%**

**Heat Stage 2**
- **66%**

**Heat Stage 3**
- **100%**

**Reheat Fail Safe**
- **Off**
- **On** - Outputs send 24VAC when no call for heat (fail open valve in cold climates - ie: Winnipeg)

**Analog Heat Min**
- **0.0 VDC**

**Analog Heat Max**
- **10.0 VDC**

**Analog Heat Idle**
- **0.0 VDC**

**Af Interlock**
- **Disabled** (Default) this means the controller will enable the heat as normal.
- **Enabled** - when enabled, the heating outputs will not energize until at least 87.5% of the Minimum Heating Flow is sensed at the cross-flow sensor

Press Menu to Exit
Output Menu - Cool
(Setup of Fan Outputs)
Scroll through menu with Up and Down keys. Press 'Enter/Menu' button to apply your changes. "---Saving---" will display as your changes are applied.

- **OUTPUT FAN**
  - Binary Cool Trip Point: Cooling engages at 33% cooling load

- **OUTPUT HEAT**
  - Outputs this voltage on cool analog pin when there is a minimum call for cooling

- **OUTPUT COOL**
  - Outputs this voltage on cool analog pin when there is a maximum call for cooling
  - Outputs this voltage on cool analog pin when there is no call for cooling
  - Only visible if the application is fancoil 2 Pipe or Fancoil 4 Pipe
    - Cool Output - Uses the Cool output to control cooling in a 2 pipe configuration
    - HCCO valve - Heating Cooling Change Over valve

- **OUTPUT ROOM LIGHTS**
- **PRESS EXIT TO MENU**
Output Menu - Room Lights

(Setup of Lighting Output - Motion Thermostat option only)

Scroll through menu with Up and Down keys. Press 'Enter/Menu' button to apply your changes. "---Saving---" will display as your changes are applied.

- OUTPUT
- OUTPUT FAN
- OUTPUT HEAT
- OUTPUT COOL
- OUTPUT PINS
- OUTPUT ROOM LIGHTS
- PRESS EXIT TO MENU

Binary Outputs - Can reassign binary outputs as needed. Fan, Heat 1, Heat 2, Heat 3, Cool, Aux 1, and Aux 2

**NOTE:** The room lights option will override the selected output to control a 24VAC relay which is intended to control lighting. Use a spare output so there is no conflict with your current sequence of operations.
**Address Menu**  
*(BACnet Addressing Setup)*

Scroll through with the ‘Up’ and ‘Down’ buttons. Press ‘Enter Menu’ button to apply your changes. ‘Saving...’ will display as your changes are applied.

- **Mac Set In:**
  - Hardware: uses DIP switch on BACnet module for MAC Address – Default - recommended
  - Software: uses STAT to set MAC Address – this OVERRIDES the hardware switches and could be confusing if you’re not careful

  **NOTE:** the MAC Address (range 1-99) is added to the Device Instance
  
  Example: MAC Address = 1, Device Instance = 100 – total Address for this PIC would be 101

- **Display Current MAC Address**

  **NOTE:** DIP switches and software MAC Address are only read on startup! See Device Instance below

- **When changing the MAC address in Software, MAC address will flash 0 until a new address is entered. This will override the Hardware MAC address set on the BACnet board at the dip switches.**

- **Device Instance**

  This is the ‘software’ BACnet Address & MUST be unique on your building site
  
  Range: 1 – 4,194,303

  **NOTE:** After changing Device Instance the STAT will send a RESET command to the PIC to apply the ADDRESS changes. Addresses are only READ on startup, so after any changes you must reset the controller either via STAT (which is automatic) or cycle 24VAC power

  **NOTE:** Addresses are only read on startup to prevent a controller with faulty damaged/improperly set DIP switches from popping up all over a network, which would be extremely difficult to troubleshoot

- **Baud Rate 76800**

  - This sets the BACnet MS/TP baud rate
  
  9600 baud (all BACnet devices must at least support this speed) - slowest
  
  19200 baud
  
  38400 baud
  
  76800 baud (Default baud rate for PRICE products) - fastest

- **Press Menu to Exit**

---

**Setting the MAC address using the Dip Switches:**

The MAC address is set in binary.

Eg. to set the Address of 3, switch 1 & 2 must be in the ON position.

---

Price recommends using the Orange Compliment (A+/), Orange (B/-), Brown (NET COM) and Brown Compliment (NET COM) wire pairs from a standard CAT5E cable. The pinout used follows the 568-B Standard.
**Stat Setup Menu**  
*(Stat Options)*

Scroll through with the ‘Up’ and ‘Down’ buttons. Press ‘Enter Menu’ button to apply your changes. ‘Saving...’ will display as your changes are applied.

<table>
<thead>
<tr>
<th>STAT SETUP</th>
<th>OCCUPANCY ON - VVT MODE</th>
<th>MOTION ENABLE OFF</th>
<th>MOTION SENSITIVITY 5</th>
<th>MOTION TEST OFF</th>
<th>HVAC TIMEOUT 240 MINUTES</th>
<th>LIGHTS TIMEOUT 60 MINUTES</th>
<th>LCD BACKLIGHT ALWAYS ON</th>
<th>SOUND OPTIONS USER SOUNDS</th>
<th>DISPLAY OPTIONS TEMP AND SETUP</th>
<th>CONTROLLER NAME</th>
<th>PRESS MENU TO EXIT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Show current occupancy source</td>
<td>(Motion Sensor STAT only)</td>
<td>(Motion Sensor STAT only)</td>
<td>(Motion Sensor STAT only)</td>
<td>PIC will go into unoccupied after no motion is detected and this timer expires</td>
<td>(use room light output to select lighting signal)</td>
<td>Always on (Default)</td>
<td>User Sounds – stat will beep when user tries to exceed a limit - Default</td>
<td>See Display Options menu on next page</td>
<td>Set a custom name for that Stat. See page 32 for details</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ON from VVT (always on), ON from Airflow, ON from Contact, ON from Motion Sensor</td>
<td>Off – motion sensor disabled – Default for regular LCD T-Stat</td>
<td>Sets the sensitivity of the motion sensor</td>
<td>Motion stat will beep each time motion is sensed</td>
<td>Default: 240 minutes</td>
<td>PIC will turn off lighting output after no motion is detected and this timer expires</td>
<td>Default: 60 minutes</td>
<td>All off – beeper disabled</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**PRICE INTELLIGENT CONTROLLER**

**DISPLAY NAVIGATION**

**Display Options Menu**

Scroll through menu with Up and Down keys. Press 'Enter/Menu' button to apply your changes. **“---Saving---”** will display as your changes are applied.

<table>
<thead>
<tr>
<th>DISPLAY OPTIONS</th>
<th>TEMP AND SETUP</th>
<th>SETPOINT ONLY</th>
<th>ROOM TEMP ONLY</th>
<th>CONTROLLER NAME SETPOINT ENABLE</th>
<th>CONTROLLER NAME SETPOINT DISABLE</th>
<th>NAME TEMP SETPOINT ENABLE</th>
<th>NAME TEMP SETPOINT DISABLE</th>
<th>NAME AND SETPOINT</th>
<th>TEMP AND HUMIDITY</th>
<th>HUMIDITY ONLY</th>
<th>CO2 ONLY</th>
<th>CO2 AND HUMIDITY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TEMP AND SETUP</strong></td>
<td>Displays only the current temperature, allows users to change the local setpoint</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SETPOINT ONLY</strong></td>
<td></td>
<td>Displays only the current setpoint</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ROOM TEMP ONLY</strong></td>
<td></td>
<td></td>
<td>Displays only the current temperature, prevents users from changing the local setpoint</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CONTROLLER NAME SETPOINT ENABLE</strong></td>
<td></td>
<td></td>
<td></td>
<td>Displays the T-Stats custom name and allows users to change the local setpoint</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CONTROLLER NAME SETPOINT DISABLE</strong></td>
<td></td>
<td></td>
<td></td>
<td>Displays the T-Stats custom name and prevents users to change the local setpoint</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NAME TEMP SETPOINT ENABLE</strong></td>
<td></td>
<td></td>
<td></td>
<td>Displays the T-Stats custom name and local temperature, allows users to change the local setpoint</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NAME TEMP SETPOINT DISABLE</strong></td>
<td></td>
<td></td>
<td></td>
<td>Displays the T-Stats custom name and local temperature, prevents users to change the local setpoint</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NAME AND SETPOINT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Displays the T-Stats custom name and the current setpoint</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TEMP AND HUMIDITY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Displays the T-Stats current temperature and humidity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HUMIDITY ONLY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Displays only the current humidity and allows user to change the local setpoint</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CO2 ONLY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Displays only the current CO2 and allows user to change the local setpoint</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>CO2 AND HUMIDITY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Displays the current CO2 and humidity while allowing user to change the local setpoint</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
BACnet Networking and Setup

Setting the MAC Address:

MAC (media access control) must be UNIQUE on an MS/TP network segment within building. An installer setting up an MS/TP segment with 30 devices must ensure each device has a UNIQUE MAC Address (Range 1-99). The MAC Address is set with dip switches on the BACnet Module. This is the hardware setup for the MAC Address. The MAC Address can also be set in software, through the LCD thermostat. This option of setting the Address through the software is available when the controller is not accessible to the user (finished drywall ceiling for example).

TECH TIP

Each device needs a unique MAC and Device Instance. All devices must be at the same baud rate. 24 VAC HOT and COMMON polarities are critical and must not be reversed on ANY devices! Reverse polarity will stop communication on that MS/TP segment.
Setting the Device Instance

Device Instance:

A Device Instance number identifies a device within an entire building, therefore giving it a unique number or Address, much like a telephone ext. number. A building can have one telephone number, but all the extensions have a unique number to identify them. A Device Instance number would work the same way and must be unique throughout the building. The Device Instance number is user set through the LCD Thermostat or the USB LINKER tool.

Below is a table defining how a Device Instance number is obtained.

**NOTE:** Each device on a network segment must be set to run at the same speed or baud rate.

<table>
<thead>
<tr>
<th>Description</th>
<th>Default Value (Factory)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAC Address</td>
<td>Set by DIP switch</td>
<td>Value: limited to 1-99</td>
</tr>
<tr>
<td>Tier1 (x100)</td>
<td>58</td>
<td>Value: limited to 0-99</td>
</tr>
<tr>
<td>Tier2 (x10,000)</td>
<td>1</td>
<td>Value: limited to 0-99</td>
</tr>
<tr>
<td>Tier3 (x1,000,000)</td>
<td>0</td>
<td>Value: limited to 0-4</td>
</tr>
</tbody>
</table>

**Example Device Instance setup with Default settings:**

- MAC Address = 4 (4 x 1 = 4) – Set by DIP Switches on BACnet module, or through software.
  
  + TIER 1 = 58 (58 x 100 = 5800) – Set through software
  
  + TIER 2 = 1 (1 x 10,000 = 10,000) – Set through software
  
  + TIER 3 = 0 (0 x 1,000,000 = 1,000,000) – Set through software
  
  =

  Final Device Instance = 0,015,804

  Final Device Instance = 01 58 04

  Tier3 Multiplier Tier2 Multiplier Tier1 Multiplier MAC Address
The Price USB LINKER is the interface that can be used with any of the Price thermostats for the PIC. The LINKER connects to a laptop (not supplied) via a Type A USB A to B cable supplied by Price, and then connects to the service jack of the thermostat via an RJ-12 Cable supplied by Price. The laptop is required as a setup tool to setup up your parameters for your VAV application. If a laptop is not available, an LCD Thermostat can be purchased as an upgrade and used as a setup/balancing tool. The LCD Thermostat provides full functionality for setting up system parameters.

Upgrade if laptop is not available

TECH TIP

When using a PIC controller with a DIAL thermostat, the USB Linker device is an option for setting parameters within the PIC. Or you can purchase a setup tool in AIO known as LCD-SETUP and use this to configure the PIC controller. Remember, all settings are stored in the PIC controller and not the thermostat.
## Troubleshooting

The following information is provided in the event that the PIC does not appear to function properly after installation.

<table>
<thead>
<tr>
<th>Fault</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIC controller appears to be not responding or have no power. Green light on the controller is not blinking. Thermostat green indication light not on, or LCD screen is blank.</td>
<td>Check thermostat first for either green indication light, or LCD display. If either of these does not appear, then check the PIC controller for power (green blinking light). If no power is present, check 24VAC power with a Multimeter. Cycle power to the controller. If this doesn’t restore power, check the power that is feeding that controller for your problem.</td>
</tr>
<tr>
<td>Damper acts erratically</td>
<td>Check actuator mounting; ensure that the damper is fully closed when the actuator is in the fully closed position. Pivot the grey release clutch on actuator and move by hand. Ensure that the set screw on the damper shaft is torqued down tight and no slipping is occurring. Also, ensure the 3 wires in the actuator itself are wired correctly. Green to COM, red to CW, and yellow to CCW.</td>
</tr>
</tbody>
</table>
| Airflow readings not as specified                      | On PIC controllers ordered with VAV module option, ensure that the tubing is correct. Red tube from the Price SP300 sensor to the HI Port on the transducer, and the Green tube from the SP300 to the Lo Port on the transducer. Also, ensure that the tubes are fully over the barbed fitting on the sensor, and that the tubes are not pinched in any way. Check inlet size of duct and ensure that size is correctly set in the controller.  

**NOTE:** The STAT does not store the duct size, it is stored in the PIC. |
| 24VAC Binary Outputs not functioning                   | Ensure that the PIC has 24VAC power. Ensure that there is a call for heating or for cooling, if so, check to see that the indication lights is on for the output.  

The next step would be to check the device that is triggered the output like a relay. Ensure that the relay has engaged (pulled in) for either heating or cooling application.  

The next item to check for would be the Hot/COM jumper on the PIC. Make sure that if you’re switching the Hot side, that the jumper is on the Hot, likewise for switching a common, ensure the jumper is on the COM. |
## Analog Outputs not functioning

Ensure that the PIC has 24VAC power. Check the analog output for voltage with a multimeter. You should see a voltage in the range of 0-10VDC.

Direct Acting Output - 0VDC indicates that the field device is closed or in the minimum position. 10VDC indicates that the field device is open or in the maximum position. Direct acting is typical with cooling applications.

Reverse Acting Output – 0VDC indicates that the field device is fully opened or maximum position, and 10VDC indicates fully closed or minimum position. Reverse acting is typical with heating applications.

## SAT Sensor Analog Input not functioning

Ensure that there is a sensor wired to the input on the PIC controller. Check the type of sensor, should be a 10k Ohm Type Thermistor.

## BACnet Communication Errors

BACnet

MS/TP is based on a RS-485 network. It must be wired in a daisy chain configuration. A daisy chain means that there is only one main cable, and every network device is connected directly along its path.

DO NOT use Star, Bus, “T”, or any other type of network configuration. Any of these other network configurations will result in an unreliable network, and make troubleshooting almost impossible.

Correct polarity is imperative on MSTP wiring. Always ensure that the positive terminal on a device has the same color wire connected to it throughout the network, same for the negative terminal. Eg. 2 wire conductor with black and white wires – black to the positive terminal, and white to the negative terminal. Keep this consistency throughout the network.
**Troubleshooting - Continued**

The following information is provided in the event that the Price Intelligent Controller (PIC) does not appear to function properly after installation.

<table>
<thead>
<tr>
<th>Fault</th>
<th>Solution</th>
</tr>
</thead>
</table>
| **BACnet Communication Errors** | BACnet MS/TP networks must be terminated to ensure proper operation. A network should be terminated twice, once at the beginning and once at the end. Termination helps reduce reflections and noise. The terminating can be done with a 100 ohm resistor across the A+ and B- lines, but most Price controllers have the option for enabling termination by flipping dip switch #8 to the ON position. The network speed or baud rate must be the same throughout the network.  
**NOTE:** The default speed for Price BACnet MS/TP controls is 76800. BACnet MS/TP currently supports 4 standard speeds which are: 9600, 19200, 38400 and 76800. |
| **BACnet Communication Errors** | Binary Address must be unique for each device on the network. No two devices can have the same Address. This includes if you are incorporating a Price product into an existing network. Determine the existing binary Addressing scheme for the existing network. The Address is set on the Addressable dip switches on the PIC. |
| **BACnet Communication Errors** | Grounding and 24VAC polarity: Proper grounding is absolutely essential when wiring the MS/TP BACnet Network. Proper grounding will prevent many potential problems that can occur in a network of devices. Common symptoms of a poorly grounded network can include inconsistent BACnet MS/TP communications and damage from voltage spikes. The most practical method of grounding is to ground every 24VAC transformer common/neutral used to power the controls.  
Connect the “common/neutral” wire of the SECONDARY side of the transformer to earth ground – such as the ground screw on in the electrical box. |
| **BACnet Communication Errors** | **NOTE:** Flipping 24VAC HOT and COMMON will cause the BACnet MS/TP Network to stop communicating!!! Ensure HOT and COMMON are not reversed on ANY controllers.  
**WARNING:** Controllers will still power up and run even if HOT and COMMON are reversed. However output signals to other devices such as heaters, relays, etc will not work as intended! |
## Hardware Specifications

<table>
<thead>
<tr>
<th>Power Requirements</th>
<th>24VAC, 47-63 Hz 6VA (not including output loading) NEC Class II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient Ratings</td>
<td>32º to 131º F (0º to 55º C) 10 to 90% RH (non-condensing)</td>
</tr>
<tr>
<td>Outputs</td>
<td>24VAC Binary Output. Max 0.5Amps each, MAX 1.85A total Switched HOT or Switched COMMON</td>
</tr>
<tr>
<td></td>
<td>• Fan</td>
</tr>
<tr>
<td></td>
<td>• Stages of heat or heat open/close (x3)</td>
</tr>
<tr>
<td></td>
<td>• Cooling</td>
</tr>
<tr>
<td></td>
<td>• Damper CW</td>
</tr>
<tr>
<td></td>
<td>• Damper CCW</td>
</tr>
<tr>
<td></td>
<td>Analog 0-10VDC (x4). Max: 10mA each</td>
</tr>
<tr>
<td></td>
<td>• Fan (ECM)</td>
</tr>
<tr>
<td></td>
<td>• Heat</td>
</tr>
<tr>
<td></td>
<td>• Cool</td>
</tr>
<tr>
<td></td>
<td>• Aux</td>
</tr>
<tr>
<td>Inputs</td>
<td>Thermistor Sensor (10k Type J thermistor)</td>
</tr>
<tr>
<td></td>
<td>Analog 0-10V inputs (x2). 20k ohm input impedance</td>
</tr>
<tr>
<td></td>
<td>• Thermostat Inputs</td>
</tr>
<tr>
<td></td>
<td>• Room Setpoint Dial</td>
</tr>
<tr>
<td></td>
<td>• Temperature Sensor (10K Type J Thermistor)</td>
</tr>
<tr>
<td></td>
<td>• Accuracy of +/- 0.5°F from 55°F to 85°F (+/- 0.25°C from 13°C to 25°C)</td>
</tr>
<tr>
<td>Communication ports</td>
<td>BACnet MS/TP Connection (optional)</td>
</tr>
<tr>
<td></td>
<td>• Communication speeds: 9,600, 19,200, 38,400, 76,800 (default)</td>
</tr>
<tr>
<td></td>
<td>• Maximum recommended devices per MS/TP segment: 30 devices</td>
</tr>
<tr>
<td></td>
<td>• For local setup using Price USB LINKER service tool</td>
</tr>
<tr>
<td>Size</td>
<td>11&quot; x 5.75&quot; x 2.75&quot;</td>
</tr>
<tr>
<td>Weight</td>
<td>1.8lb. (816g)</td>
</tr>
</tbody>
</table>