Price Intelligent Controller
PIC-SD Series

MANUAL – INSTALLATION & SERVICE

Price Intelligent Controller
PIC-SD Series

v200 – Issue Date: 05/23/17
© 2017 Price Industries Limited. All rights reserved.
# PRICE INTELLIGENT CONTROLLER

## TABLE OF CONTENTS

### Product Overview
- General ................................................................. 1
- Installing the PIC-SD ............................................. 2
- Features of the PIC-SD controllers ......................... 2
- Input/Output Description ........................................ 3
- Price - Flow Response Chart .................................. 4
- Wiring ......................................................................... 5
- PIC-SD Price Intelligent Controller Thermostat
  - Options x5 .............................................................. 6
  - Thermostat Installation ......................................... 8
- How to use Thermostat ............................................. 9

### Display Navigation
- Initial Setup .......................................................... 10
- Info Menu ............................................................... 11
- Service Menu ......................................................... 12
- Application Menu .................................................. 13
- Balancing Menu ..................................................... 14
- VAV Menu ............................................................... 15
- Setpoint Menu ......................................................... 16
- Input Menu .............................................................. 17
- Output Menu - Fan ................................................... 19
- Output Menu - Heat ................................................ 20
- Output Menu - Cool ............................................... 21
- Output Menu - Room Lights ................................... 22
- Address Menu ........................................................ 23
- Stat Setup Menu ...................................................... 24
- Display Options Menu ........................................... 25
- BACnet Networking and Setup .................................. 26
- Setting the Device Instance ..................................... 27

### Maintenance
- Troubleshooting .................................................... 29
- Hardware Specifications ......................................... 32

---

### SUPPORT

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

**Application Support**

204.654.5613

controls@priceindustries.com

priceindustries.com
The Price Intelligent Controller (PIC-SD) is a direct digital controller for VAV terminals and fan coils that offers cutting edge zone control. The PIC-SD 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.

The PIC-SD typically comes factory mounted to Price VAV boxes, but may also be ordered stand-alone for retrofit jobs.

The PIC-SD controller is an advanced and fully configurable VAV terminal controller. The PIC-SD can be used as a stand alone unit, or can be interfaced into a BAS with MS/TP BACnet capability using the onboard +/- and com network connection terminal block. The PIC-SD controller offers 5 thermostat options including motion sensing, wireless, and basic temperature sensing only with a blank face to prevent unauthorized adjustment. With 2 binary outputs, 2 analog outputs, and 2 analog inputs - all fully configurable from an LCD thermostat or Linker. The PIC-SD controller can control analog heating and cooling valves, fan motors, 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-SD can be used as a motion sensor and lighting controller with different levels of sensitivity, as well as system balancing tool.
Installing the PIC-SD

1. Mount the controller onto the duct with the damper shaft going through the PIC-SD’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-SD casing, the intent is to allow the PIC-SD 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-SD using 24VAC, the secondary 24VAC common of the transformer must be earth grounded.

Features of the PIC-SD controller

24VAC Binary Outputs (2) configurable 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 : Fully configurable for 2-10VDC, 0-10VDC, 10-2VDC, etc. 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

Native BACnet MS/TP interface.

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-SD controller.
### Input/Output Description

<table>
<thead>
<tr>
<th>24VAC Binary Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>BO1</td>
</tr>
<tr>
<td>BO2</td>
</tr>
<tr>
<td>AO1</td>
</tr>
<tr>
<td>AO2</td>
</tr>
<tr>
<td>SAT Sensor</td>
</tr>
<tr>
<td>Contact Closure</td>
</tr>
</tbody>
</table>

- **configurable for heat, cool, binary fan, lights**
- **configurable for heat, cool, binary fan, lights**
- **configurable for heat, cool, ECM fan**
- **configurable for heat, cool, ECM fan**
- Analog input for temperature probe hookup for heat/cool changeover if required. 10k type J thermistor
- Configurable binary input used for night setback, force damper open/close, halting all outputs etc.

**Switched HOT/COM Jumper:** PIC-SD 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-SD controller are internally connected, which allows for a common reference point throughout the board.

**Damper Actuator:** Factory installed and wired. 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-SD comes equipped with an RJ-45 port to provide ease of plugging in a thermostat cable from the PIC-SD to any of the selected thermostats. The thermostat cable is supplied by Price.
## PRICE INTELLIGENT CONTROLLER

### PRODUCT OVERVIEW

**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>Duct Air = Cold</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI = Heating</td>
<td>Duct Air = Cold</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI = Neutral</td>
<td>Duct Air = Cold</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI = Cooling</td>
<td>Duct Air = Hot</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI = Heating</td>
<td>Duct Air = Hot</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI = Neutral</td>
<td>Duct Air = Hot</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI = Cooling</td>
<td>Duct Air = Neutral</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>PI = Heating</td>
<td>Duct Air = Neutral</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>PI = Neutral</td>
<td>Duct Air = Neutral</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE 1:** If no Temperature Probe is present, the PIC-SD 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-SD 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-SD is trying to heat the room (PI = heating) and cool air is being supplied (Duct air = Cold) it will chase its heating min flow.
Wiring

Below is an example of a typical PIC-SD sequence diagram - Single duct box with 2 stages of binary heat. Each PIC-SD comes factory programmed with a specific sequence, but adjustments can be made in the field using an LCD thermostat.

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 the 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.

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 stage of reheat will energize.

On an increase in space temperature, the controller regulates the actuator to close the VAV damper and reduce 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.
PIC-SD - Price Intelligent Controller Thermostat Options x 5

All thermostats are connected with a CAT-5 cable (RJ-45) connection from the PIC-SD 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.
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-SD thermostats are all physically the same size and mounting instructions will be typical.

Location

1. The Price Intelligent Controller (PIC-SD) 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-SD 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, and 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
How to use Thermostat

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.
- Setpoint limits can be adjusted through free setup software using the Price LINKER, or through a BACnet system.
- Eliminates 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.
Initial Startup

(LCD & Motion Thermostat only)

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

- **PRICE ELECTRONICS**
  - Start-up screen

- **LCD THERMOSTAT STANDARD MODEL**
  - Standard/Motion Model

- **LCD THERMOSTAT VERSION X.XX**
  - Displays firmware version of thermostat

- **LOADING: INITIALIZING**
  - Loading parameters

- **DUCT SIZE 8 INCHES**
  - Displays inlet duct size

- **PIC-SD VERSION X.XX**
  - Controller type and controller firmware version

- **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

![Day Setpoint Adjustment](image)

**DAY SETPOINT**

75.0°F

**DAY SETPOINT SAVING...**
## Info Menu
*(LCD & Motion Thermostat only)*

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, fan powered terminal unit or fan coil</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 voltage on AO assigned to ECM |
| Airflow 300 CFM          | Only displayed if system is pressure independent (PIC-SD-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 |
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 |
| 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. |

**DIAGNOSTIC**  
Restores default settings and resets controller

**NOTE:** Service menu will automatically time out after 20 seconds
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.

- AIR TERMINAL: For typical single duct and fan powered units
- FANCOIL 4 PIPE: Fan coil terminals 4-pipe with hot and cold water
- FANCOIL 2 PIPE: Fan coil terminals 2-pipe with hot and cold changeover
- DUAL DUCT: Dual duct terminal units with hot and cold inlets
- EXHAUST BOX: Exhaust terminal unit typically with constant flow
- FLOW FOLLOWER: Volumetric offset application, typically for Venturi valves, but also for single ducts
- MIXING BOX DAT: Allows PIC-SD to maintain discharged air temperature
- CO2 TRACKING: Tracks airflow to the current CO2 in the occupied space

**TECH TIP**

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

- **UNOCC VAVMODE**
  - DPR POS ONLY
  - Choose between an airflow target or damper position (default 40%) for unoccupied mode

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

- **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.

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

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

- **DAY FLOW TRIP**
  - 66 CFM
  - PIC-SD 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-SD 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

- **DAMPER CAL**
  - NORMAL
  - Choose between no damper calibrate or normal damper calibrate

- **PRESS MENU TO EXIT**
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.

<table>
<thead>
<tr>
<th>Setpoint</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SET LOW LIMIT</td>
<td>65.0F</td>
<td>This is the lowest setpoint allowed. Range: 10.0°F - 100.0°F. Default: 65.0°F</td>
</tr>
<tr>
<td>SET HIGH LIMIT</td>
<td>80.0F</td>
<td>This is the highest setpoint allowed. Range: 10.0°F - 100.0°F. Default: 80.0°F</td>
</tr>
<tr>
<td>TEMPERATURE UNITS</td>
<td></td>
<td>Fahrenheit or Celsius. Default: °F</td>
</tr>
<tr>
<td>NIGHT HEAT SET</td>
<td>62.0F</td>
<td>PIC-SD will maintain this heating setpoint when unoccupied. Range: 10.0°F - 100.0°F. Default: 62.0°F</td>
</tr>
<tr>
<td>NIGHT COOL SET</td>
<td>83.0F</td>
<td>PIC-SD will maintain this cooling setpoint when unoccupied. Range: 10.0°F - 100.0°F. Default: 83.0°F</td>
</tr>
<tr>
<td>PROPORTIONAL BAND</td>
<td>2.0F</td>
<td>Default 2°F, 1°C. Proportional Band is the range of control or the throttling range of the device.</td>
</tr>
<tr>
<td>DAY DIFFERENTIAL</td>
<td>1.0F</td>
<td>1°F, 0.5°C. Day Differential is the deadband on either side of the setpoint.</td>
</tr>
<tr>
<td>PI DAMPER</td>
<td></td>
<td>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.</td>
</tr>
<tr>
<td>PI ANALOG HEAT</td>
<td></td>
<td>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%.</td>
</tr>
<tr>
<td>PI ANALOG COOL</td>
<td></td>
<td>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%.</td>
</tr>
</tbody>
</table>
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-SD 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

VAV MODULE
SDP SENSOR
Ready Only - Differential Pressure Sensor

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.

HOT SWITCH 81.0F
Cold Switch 73.0F
Hot Switch - Only active/visible when Neutral Mode = Conventional
PIC-SD 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 - Only active/visible when Neutral Mode = Conventional
PIC-SD will consider the supply air cold if at cold switch temp or below.
Default: 0.0 DegF - uses dynamic neutral mode (Neutral mode disabled)

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.

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.
### PRESSURE TYPE VAV

- **AUTO**: 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 - 0.0°F

- Apply an offset to the room temperature

### SAT OFFSET 0.0°F

- Apply an offset to the SAT temperature

### CONTACT CLOSURE CONFIGURATION

#### CO2 SENSOR DETECTED

- Indicates that the CO2 sensor is connected

#### CO2 TWEAK 0%

- Percentage that the CO2 reading can be tweaked if required
  - Default is 0%

#### CO2 OFFSET 0 PPM

- Value to offset CO2 reading if required
  - Default is 0 PPM

#### CO2 PURGEMODE ENABLED

- This feature is only active when the VAV module is connected to the PIC controller. Purge mode is enabled here

#### PURGE AIRFLOW 800 CFM

- Set purge airflow to desired cfm - 800 cfm is default

#### MAX CO2 LEVEL 1000 PPM

- PIC controller will initiate purge ode above this value. Default CO2 setting is 1000 ppm

#### NOMINAL CO2 800 PPM

- PIC controller will purge until Nominal CO2 level is met. Default is 800 ppm. Nominal CO2 is your target CO2

#### HUMIDITY SENSOR DETECTED

- Indicates that the Humidity (RH) sensor is connected

#### HUMIDITY TWEAK 0%

- Percentage that the RH reading can be tweaked if required
  - Default is 0%

#### HUMIDITY OFFSET 0 PPM

- Value to offset RH reading if required. Default is 0 PPM

---

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 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/deadbond (0%)
  - Output voltage defaults to 1.5 VDC
- ECM UNOCCUPIED 1.5 VDC: Default voltage of ECM when PIC-SD is in unoccupied mode
- 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
- OUTPUT FAN
- OUTPUT HEAT
  - REHEAT TYPE
    - BINARY
    - DRIVE TIME
      95 SECONDS
    - HEAT STAGE 1
      33%
    - HEAT STAGE 2
      66%
    - HEAT STAGE 3
      100%
    - REHEAT FAIL SAFE
      DISABLED X3
  - ANALOG HEAT MIN
    0.0 VDC
  - ANALOG HEAT MAX
    10.0 VDC
  - ANALOG HEAT IDLE
    0.0 VDC
  - AF INTERLOCK
    DISABLED
- OUTPUT COOL
- OUTPUT PINS
- PRESS EXIT TO MENU

Reheat Type: Binary, Hot Water, Binary/PWM, Hot Water/PWM
Binary uses Stage 1, 2, 3 - Default
Hot water uses Stage 1 & 2 for Open/Close
Binary/PWM and Hot Water/PWM -- Stage 3 is PWM

Hot water runtime in seconds
Not shown if BINARY heat is used

Heat Stage 1 Trip Point: Stage 1 engages at 33% heating
Not shown if hot water heat is used

Heat Stage 2 Trip Point: Stage 2 engages at 66% heating
Not shown if hot water heat is used

Heat Stage 3 Trip Point: Stage 3 engages at 100% heating

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

Outputs this voltage on heat analog pin when there is a minimum call for heating

Outputs this voltage on heat analog pin when there is a maximum call for heating

Outputs this voltage on heat analog pin when there is no call for heating

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**
- **OUTPUT FAN**
- **OUTPUT HEAT**
- **OUTPUT COOL**
  - **BINARY COOL 33%**
    - Binary Cool Trip Point: Cooling engages at 33% cooling load
  - **ANALOG COOL MIN 0.0 VDC**
    - Outputs this voltage on cool analog pin when there is a minimum call for cooling
  - **ANALOG COOL MAX 10.0 VDC**
    - Outputs this voltage on cool analog pin when there is a maximum call for cooling
  - **ANALOG COOL IDLE 0.0 VDC**
    - Outputs this voltage on cool analog pin when there is no call for cooling
  - **COOL AUX TYPE COOL OUTPUT**
    - 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

- **PRESS MENU TO EXIT**
- **OUTPUT PINS**
- **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.

**NOTE:** Heat 1, Heat 2, Heat 3 only indicate where in the heating proportional band the heat turns on. **There are only 2 Binary Outputs which can be assigned.**
Heat 1 - 1%, Heat 2 - 33%, Heat 3 - 66%
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.

- **ADDRESS**
  - **MAC ADDRESS 1**
    - Display current MAC Address
  - **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-SD 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**
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.

- **OCCUPANCY ON - VVT MODE**
  - Show current occupancy source
  - ON from VVT (always on), ON from Airflow, ON from Contact, ON from Motion Sensor

- **MOTION ENABLE OFF**
  - (Motion Sensor STAT only)
  - Off – motion sensor disabled – Default for regular LCD T-Stat
  - On – motion sensor enabled (only enabled if you have a motion stat)
  - Only visible with motion stat

- **MOTION SENSITIVITY 5**
  - (Motion Sensor STAT only)
  - Sets the sensitivity of the motion sensor
  - 1 – least sensitive
  - 9 – most sensitive
  - 5 - DEFAULT
  - Only visible when motion is enabled

- **MOTION TEST OFF**
  - (Motion Sensor STAT only)
  - Motion stat will beep each time motion is sensed
  - This is useful for adjusting the sensitivity value & testing

- **TIMEOUT 240 MINUTES**
  - PIC-SD will go into unoccupied after no motion is detected and this timer expires
  - Default: 240 minutes

- **LIGHTS TIMEOUT 60 MINUTES**
  - (use room light output to select lighting signal)
  - PIC-SD will turn off lighting output after no motion is detected and this timer expires
  - Default: 60 minutes

- **LCD BACKLIGHT**
  - ALWAYS ON
  - Always on (Default)
  - Always off
  - Button push – lights up on button press

- **BLACKLIGHT COLOR BLUE**
  - Colour options: Aqua, Blue, White, Green, Yellow, Red

- **SOUND OPTIONS USER SOUNDS**
  - User Sounds – stat will beep when user tries to exceed a limit - Default
  - All off – beeper disabled
  - All on – stat will beep when user tries to exceed a limit or stat loses communication with the controller (for testing use only) – not recommended

- **DISPLAY OPTIONS TEMP AND SETUP**
  - See Display Options menu on next page

- **CONTROLLER NAME**
  - Set a custom name for that Stat.

- **PRESS MENU TO EXIT**
**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.

- **TEMP AND SETUP**: Displays only the current temperature, allows users to change the local setpoint.
- **SETPOINT ONLY**: Displays only the current setpoint.
- **ROOM TEMP ONLY**: Displays only the current temperature, prevents users from changing the local setpoint.
- **CONTROLER NAME SETPOINT ENABLE**: Displays the T-Stats custom name and allows users to change the local setpoint.
- **CONTROLER NAME SETPOINT DISABLE**: Displays the T-Stats custom name and prevents users to change the local setpoint.
- **NAME TEMP SETPOINT ENABLE**: Displays the T-Stats custom name and local temperature, allows users to change the local setpoint.
- **NAME TEMP SETPOINT DISABLE**: Displays the T-Stats custom name and local temperature, prevents users to change the local setpoint.
- **NAME AND SETPOINT**: Displays the T-Stats custom name and the current setpoint.
- **LOAD DEFAULTS**: Restores all default settings and deletes changes.
- **RESET CONTROLLER**: Resets controller.
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 through the LCD thermostat.

NETWORK SEGMENT #1

NETWORK SEGMENT #2

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>0</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 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
The Price USB LINKER is the interface that can be used with any of the Price thermostats for the PIC-SD. 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. One LCD thermostat can be purchased to setup multiple controllers.

**TECH TIP**

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

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

<table>
<thead>
<tr>
<th>Fault</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIC-SD controller appears to be not responding or have no power. White status LED is not blinking</td>
<td>Check thermostat first for either green indication light, or LCD display. If either of these does not appear, then check the PIC-SD 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>
</tbody>
</table>
| Damper acts erratically                                               | Check actuator mounting; ensure that the damper is fully closed when the actuator is in the fully closed position. Pivot the black 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.                           |
| Airflow readings not as specified                                    | 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-SD. |
| 24VAC Binary Outputs not functioning                                 | Ensure that the PIC-SD 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-SD. 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. |
## Troubleshooting - Continued

<table>
<thead>
<tr>
<th>Fault</th>
<th>Solution</th>
</tr>
</thead>
</table>
| Analog Outputs not functioning       | Ensure that the PIC-SD 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-SD 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 even that the Price Intelligent Controller (PIC-SD) does not appear to function properly after installation.

<table>
<thead>
<tr>
<th>Fault</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>BACnet Communication Errors</td>
<td>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. The network speed or baud rate must be the same throughout the network. <strong>NOTE:</strong> 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.</td>
</tr>
<tr>
<td>Binary Address</td>
<td>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 PIC-SD.</td>
</tr>
<tr>
<td>Grounding and 24VAC polarity</td>
<td>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.</td>
</tr>
<tr>
<td>Flipping 24VAC HOT and COMMON</td>
<td><strong>NOTE:</strong> 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. <strong>WARNING:</strong> 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!</td>
</tr>
</tbody>
</table>
### Hardware Specifications

<table>
<thead>
<tr>
<th><strong>Power Requirements</strong></th>
<th>24VAC, 47-63 Hz 6VA (not including output loading) NEC Class II Use only Limited Power Source LPS rated 100VA Max</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ambient Ratings</strong></td>
<td>32° to 131° F (0° to 55° C) 10 to 90% RH (non-condensing)</td>
</tr>
<tr>
<td><strong>Outputs</strong></td>
<td>Two 24VAC Binary Outputs. Max 0.5 Amps 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 (x2)</td>
</tr>
<tr>
<td></td>
<td>• Cooling</td>
</tr>
<tr>
<td></td>
<td>Analog 0-10VDC. 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><strong>Inputs</strong></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>• Configurable Contact Closure</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><strong>Communication ports</strong></td>
<td>BACnet MS/TP Connection</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><strong>Size</strong></td>
<td>11&quot; x 5.75&quot; x 2.75&quot;</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>1.8lb. (816g)</td>
</tr>
</tbody>
</table>