

# PRICE CONTROLS SOLUTION





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# CONTACT

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## VIDEOS

- + Price Zoning System
- + What is BACnet

Live WEB Server Demo!  
[www.priceindustries.com/webserver](http://www.priceindustries.com/webserver)

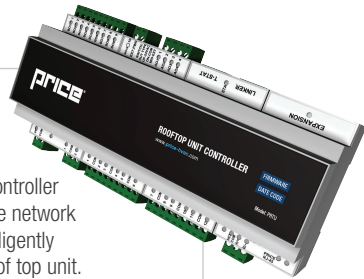


# PRICE ZONING SYSTEM

- + Constant Volume/Variable Volume Systems/Heat Pump
- + 2-30 ton RTUs
- + 50K sq ft Buildings
- + Plug & play connections make it easy for contractors to install and setup

## Rooftop Unit Controller

- The Price Rooftop Unit Controller (PRTU) polls data from the network zone controllers and intelligently controls the packaged roof top unit.
- The ASHRAE standard BACnet option allows for advanced control and monitoring of a building system.



## Remote System Access

- Access to the Price Web Server via the Internet.



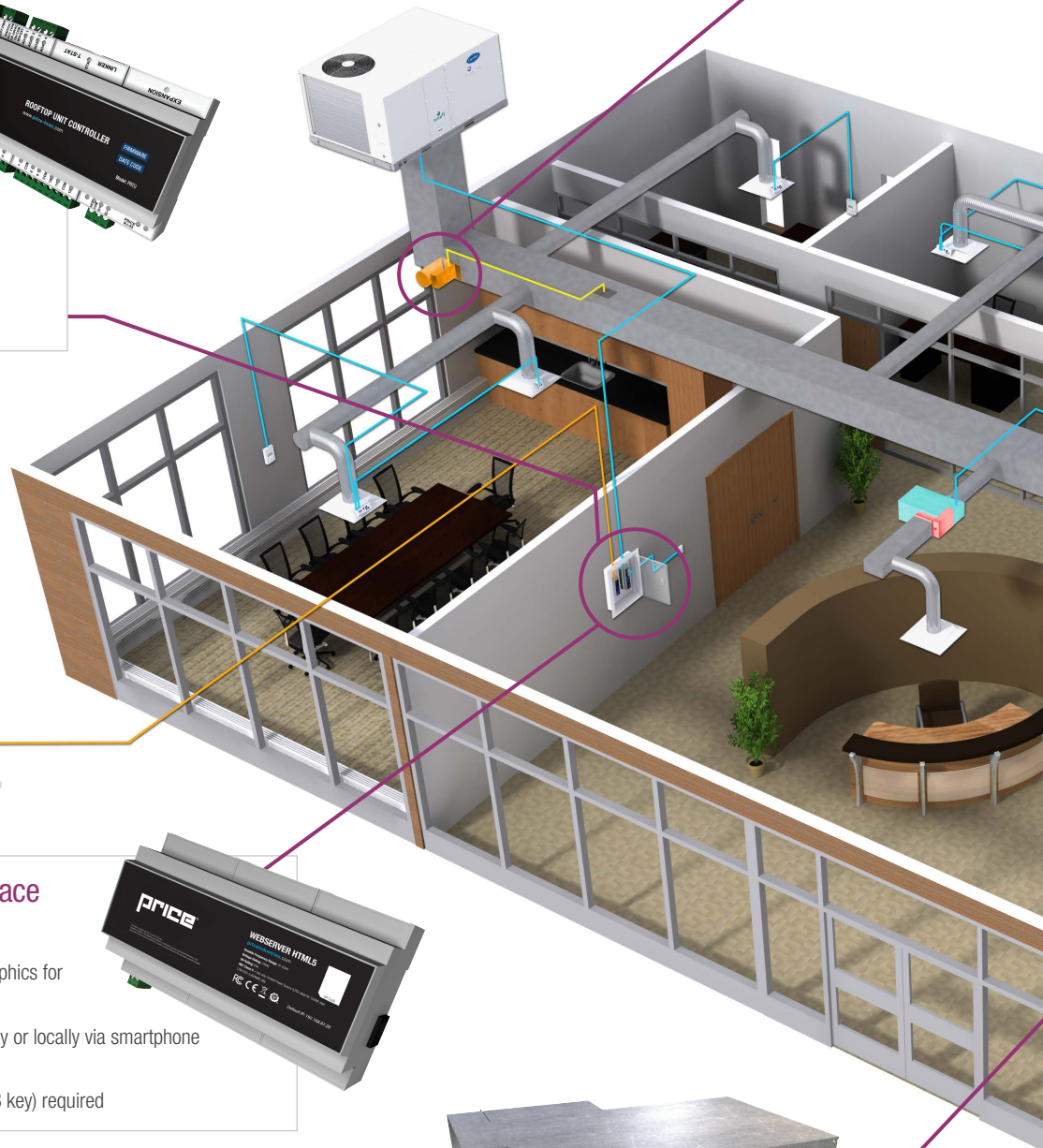
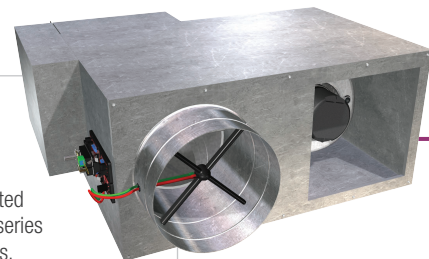
## Graphical User Interface

- Price HTML5 Web Server
- Comes with pre-loaded graphics for Price controls
- Access Web Server remotely or locally via smartphone or laptop
- No software or license (USB key) required



## Fan Powered Box with VAV Controller & Reheat

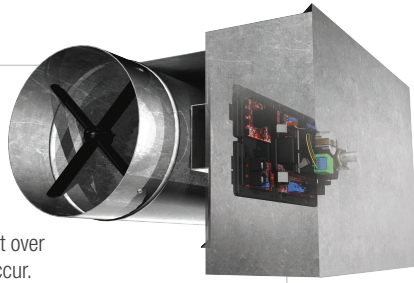
- Price's factory mounted and calibrated Price Intelligent Controller (PIC) for series and parallel fan power terminal units.
- Fan Powered Terminals allow for the use of local reheat even while the rooftop unit is turned off.





## Duct Pressure Controller

- The Price PCV is designed as a pressure control valve to regulate duct pressure in a VAV or VVT system.
- The PCV uses a DDC controller to ensure that over or under pressurization of the duct will not occur.



## VAV Diffuser

- PRODIGY® Smart Diffuser.
- Stand-alone or native BACnet MS/TP.
- Compatible with all Price thermostats.



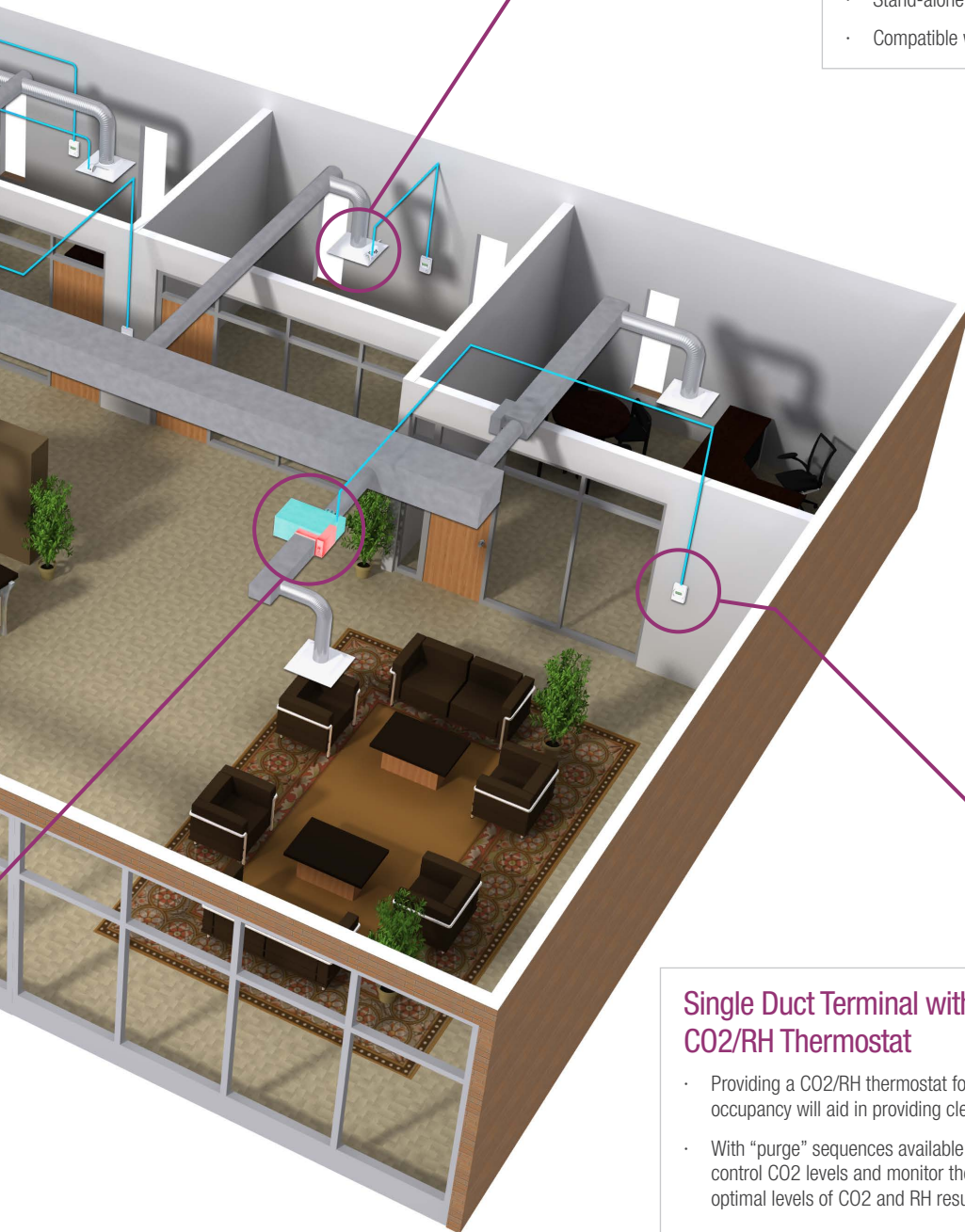
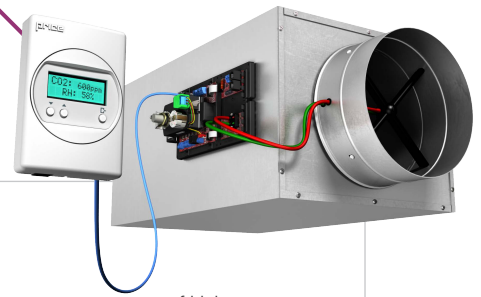
## LCD Setup Tool

- Use an LCD Setup tool when you have either Blank Face thermostats or Dial thermostats in your space. Connect the provided RJ12 cable into the service jack and use the LCD Setup tool for balancing and configuration.



## Single Duct Terminal with CO2/RH Thermostat

- Providing a CO2/RH thermostat for open areas or areas of high occupancy will aid in providing clean, fresh air to the space.
- With "purge" sequences available, the Price CO2/RH thermostat can control CO2 levels and monitor the relative humidity. Maintaining optimal levels of CO2 and RH result in a safer work environment.









Price Rooftop Unit Controller

**PRICE**<sup>®</sup>

The Science of Comfort<sup>™</sup>

# PRTU ROOFTOP CONTROLLER FOR NETWORKED POLLING STRATEGIES OR STAND-ALONE OPERATION

Designed to work with any constant volume or variable volume packaged rooftop units ranging from 2-25 tons, the PRTU is an advanced proportional integral (PI) DDC controller that offers intelligent control for your building.

When networked with a PIC or Prodigy unit using BACnet MS/TP protocol, the PRTU system can utilize a networked strategy to intelligently control your building. Determining the load in each zone, the PRTU will turn on stages of heating or cooling based on the overall demand from the zones. Price recommends a maximum of 30 zones per PRTU controller.

Networked polling strategies are available within the PRTU controller and can be adjusted onsite as required.

If a Stand-Alone strategy is required, the PRTU can operate on its own without any influence from the zones.



## FEATURES & OPTIONS:

- Designed to work with Constant and Variable Volume rooftops
- Heat Pumps, Furnaces
- Weekly Scheduling (Real-Time clock)
- Motion Sensing for Occupancy/Unoccupied modes
- Simple and easy Setup Wizard for configuring unit and system operation
- CAT5e thermostat cable provided for easy hookup (plenum rated)
- BACnet MS/TP communication used for networked applications (30 zones max.)
- Stand-alone operation also available

## INPUTS:

- [6] Analog Thermistive Inputs - 10kOhm
- [6] Analog 0-10VDC Inputs
- Discharge and Return Air sensors provided for monitoring/safeties
- LED indication showing status of inputs

## OUTPUTS:

- [10] Binary outputs, switchable between 24VAC hot/common, rated for 0.5 amps each
- [4] Analog outputs for Fan, Heating, Cooling & Auxiliary
- LED indication showing status of outputs (normal/fault/override)
- BACnet Communication:
- LEDs indication of BACnet communication, BACnet Health, & Fault status



# SYSTEM LAYOUT

The following image outlines a BACnet networking system that can utilize **PIC zone controllers on terminals** or **Prodigy Smart Diffusers**.

## 1 THE PRTU-STAT:

- Motion sensor for automatic occupancy control
- Scheduling with Real Time Clock and Weekly Schedule
- Operates as a thermostat when system is in Stand-Alone mode
- Backlit LCD display which allows for adjustment of parameters as required

## 2 THE PRTU:

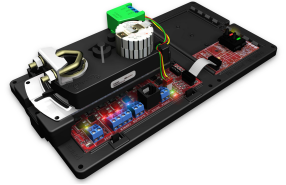
- Controls rooftop units, heat pumps & furnaces
- All zones communicate with PRTU via BACnet MS/TP networking
- Built in safeties to prevent outputs from cycling too often
- Connects directly to rooftop unit using conventional terminal strip

## 3 PRICE PRODIGY® SMART DIFFUSER:

- Self modulating personal diffuser with BACnet capability
- For VVT applications, great for new installs and retrofits
- Works best when systems are designed to 0.25" system static

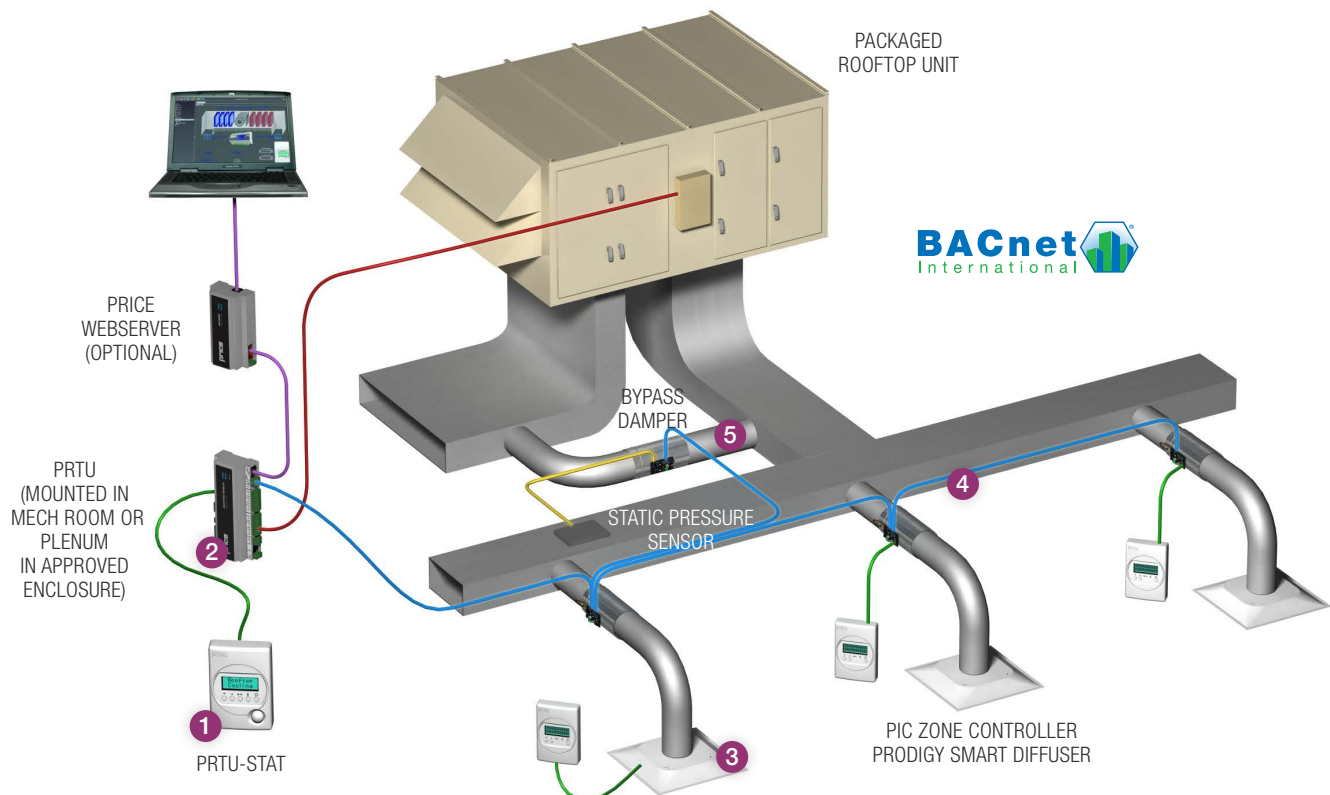
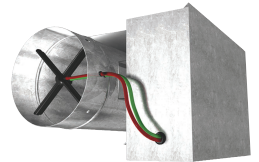
## 4 THE PIC ZONE CONTROLLER:

- Designed to control single duct units, fan powered units, chilled beams and fan coils
- Pressure Dependent and Pressure Independent sequences available
- BTL certified controller
- Wide range of thermostats offers versatility



## 5 THE BYPASS DAMPER (PRESSURE CONTROL VALVE-PCV):

- VAV damper controller, static pressure transducer and low leakage damper assembly
- Accurately controls static pressure ranges from 0 - 2" w.c.
- Ability to adjust required static pressure with LCD service tool







Thermostats

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# INTEGRATED THERMOSTAT OPTIONS

FULL LINE OF THERMOSTATS FOR ANY APPLICATION, PIC, PIC-SD & PRODIGY



## LCD Thermostat with Motion Sensor

This model measures room temperature, has an LCD screen with push button set point adjustment, and features a motion sensor. The motion sensor allows for automatic detection of space occupancy and therefore can save energy by shutting down equipment during unoccupied periods.



## LCD Thermostat

This model measures room temperature and houses an LCD screen with push button set point adjustment. With the press of a button, the occupant can override the system's schedule during unoccupied times providing the user with optimal comfort. Temperature set point limits are set through the LCD service menus or over BACnet.



## CO<sub>2</sub>/Humidity LCD Thermostat

This model provides all the features of the standard LCD model but also adds an NDIR CO<sub>2</sub> module and humidity sensor. These points are available on the LCD screen and on BACnet to help the building automation system (BAS) perform at maximum efficiency.



## Room Sensor Thermostat

This model measures room temperature. Temperature set points are set through software, eliminating the need for local set point adjustment (set point can be adjusted through Linkersoft or BACnet).



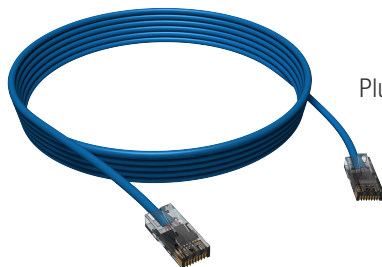
## Dial Thermostat

This model measures room temperature and features a dial adjustment and an occupancy button with LED lighting. Temperature set point limits are set through software (either Linkersoft or BACnet).



## Wireless Thermostat

This model allows convenient, wire-free placement on any surface in any room. A small receiver module is mounted near the controller with a range of up to 50 feet.



Plug & Play 35ft CAT5 cable provided with all thermostats

# CO<sub>2</sub>/RH THERMOSTAT OFFERING



Sampling CO<sub>2</sub> levels in buildings is one way to ensure fresh air is constantly being supplied to a space. Selecting a **Price CO<sub>2</sub>/RH Thermostat** with a Price VAV Terminal or Diffuser can help maintain an optimal level of CO<sub>2</sub>, while monitoring the relative humidity.

With its plug and play cable and easy to configuration menus, the CO<sub>2</sub>/RH thermostat is quick to install and setup for the installing contractor.

## Features

Price CO<sub>2</sub>/RH thermostats are designed to control CO<sub>2</sub> levels in spaces with its built in NDIR sensor, monitor relative humidity levels, and control space temperature. With its temperature control and CO<sub>2</sub> control functionality, this thermostat is designed to meet the comfort and safety requirements of a space.

## Temperature Control

In normal operation, the CO<sub>2</sub>/RH thermostat will control the temperature in the space with its built-in 10kOhm thermistor and modulate the VAV damper to achieve the room setpoint.

## CO<sub>2</sub> Purge Mode

If at any time CO<sub>2</sub> levels exceed the user-defined maximum setpoint, the CO<sub>2</sub>/RH thermostat will enter a “purge” mode and open the VAV damper to provide fresh air from the air handler or rooftop unit. Temperature control will resume once CO<sub>2</sub> levels return to the nominal operating range.

CO<sub>2</sub> and relative humidity levels can be reported back to a Price WEB Server Front-End System over BACnet if required. **NOTE:** BACnet is not required for standard operation.

## Benefits

As ventilation requirements increase in buildings, placing CO<sub>2</sub>/RH thermostats in high occupancy areas can provide a cleaner, safer working environment by introducing conditioned fresh air into the space.

The Price CO<sub>2</sub>/RH thermostat can control temperature, CO<sub>2</sub>, monitor relative humidity and function as balancing thermostat, all in one! This makes this thermostat versatile and easy to operate for end users.

Controlling CO<sub>2</sub> levels in designated areas will optimize the indoor air quality and ensure conditioned air is being supplied.

Additionally, maintaining 40%-60% RH (Relative Humidity) in a space will help decrease the travel of airborne pathogens.

Reporting these values back to a building front-end system can assist in the ventilation and air change rate strategies for the building.

VAV Terminal Unit



VAV Diffuser












# ZONE CONTROLLER OPTIONS

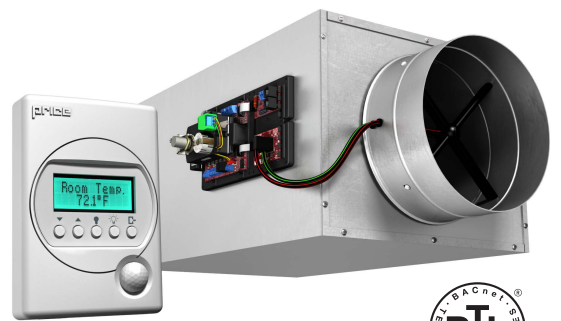
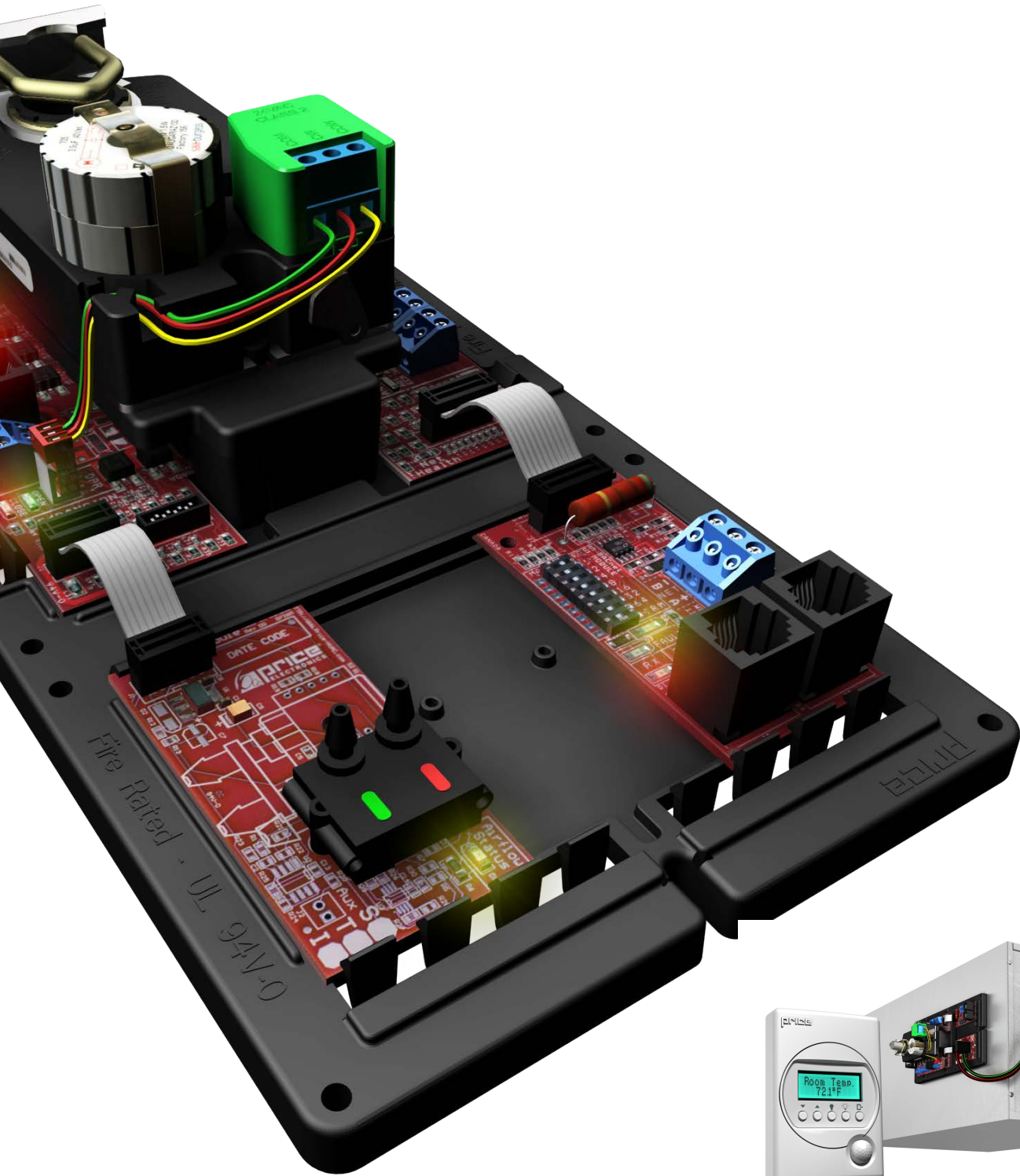
APPLICATION	 <b>PIC</b> 	 <b>PIC-SD</b> 	 <b>PRODIGY (MASTER)</b>
<b>Single Duct Terminal (SDV8)</b> <ul style="list-style-type: none"> <li>Cooling Only</li> <li>Staged Binary Reheat</li> <li>Hot Water Reheat</li> <li>SCR control w/DAT</li> <li>Baseboard Reheat</li> <li>VAV or VVT Applications</li> </ul>	✓	✓	N/A
<b>Plug &amp; Play Cables</b> <ul style="list-style-type: none"> <li>Thermostat (RJ45)</li> <li>BACnet (RJ45)</li> <li>Power Cables (RJ12)</li> </ul>	✓	(Thermostat Only) ✓	✓
<b>Price Power Module (PPM)</b> <ul style="list-style-type: none"> <li>24VAC power source</li> <li>Low voltage cables can be installed by contractor</li> </ul>	✓	N/A	✓
<b>VAV Self Modulating Diffuser</b> <ul style="list-style-type: none"> <li>Heating/Cooling</li> <li>Binary Reheat</li> <li>VVT Applications</li> <li>Designed to operate at 0.25" system static</li> </ul>	N/A	N/A	✓
<b>Pressure Control Valve (PCV)</b> <ul style="list-style-type: none"> <li>Bypass valve pressure control for constant volume systems</li> <li>Throttling valve pressure control for supply duct</li> </ul>	✓	N/A	N/A
<b>Linear Gate Bypass (LGB)</b> <ul style="list-style-type: none"> <li>End of line pressure control when no bypass valve present</li> <li>VVT application only</li> </ul>	✓	N/A	N/A
<b>Fan Powered Terminal (FDC &amp; FDV8)</b> <ul style="list-style-type: none"> <li>Cooling Only</li> <li>Staged Binary Reheat</li> <li>Hot Water Reheat</li> <li>SCR control w/DAT</li> <li>Baseboard Reheat</li> <li>VAV or VVT Applications</li> <li>Series or Parallel Fan</li> </ul>	✓	N/A	N/A

# ZONE CONTROLLER OPTIONS

CONTINUED

APPLICATION	 <b>PIC</b> 	 <b>PIC-SD</b> 	 <b>PRODIGY (MASTER)</b>
<b>Chilled Beams (PIC-HP)</b> <ul style="list-style-type: none"> <li>2-pipe application</li> <li>4-pipe application</li> <li>6-way Valve application</li> </ul>		 <b>2 PIPE ONLY</b>	<b>N/A</b>
<b>Fan Coils (PIC-FC)</b> <ul style="list-style-type: none"> <li>2-pipe application</li> <li>4-pipe application</li> <li>ECM &amp; PSC motors</li> </ul>		<b>N/A</b>	<b>N/A</b>
<b>Dual Duct Terminal (DDS8)</b> <ul style="list-style-type: none"> <li>Constant Volume</li> <li>Variable Volume</li> <li>Hot Deck/Cold Deck Applications</li> </ul>		<b>N/A</b>	<b>N/A</b>
<b>COST</b>	<b>\$\$\$</b>	<b>\$</b>	<b>\$\$</b>
<b>Stocking</b>  Stocking multiplier available when you stock Price controls.	Great for retrofits, new installs!  Easy to stock and program for specific applications	Great for retrofits, new installs!  Easy to stock and program for specific applications	Easy to retrofit into 2x2 ceiling grid w/ flex duct connection
<b>Availability</b>  Quick ship available if required	3-4 week leadtime	3-4 week leadtime	3-4 week leadtime





Price Intelligent Controller  
For HVAC Zone Control

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# PRICE INTELLIGENT CONTROLLER

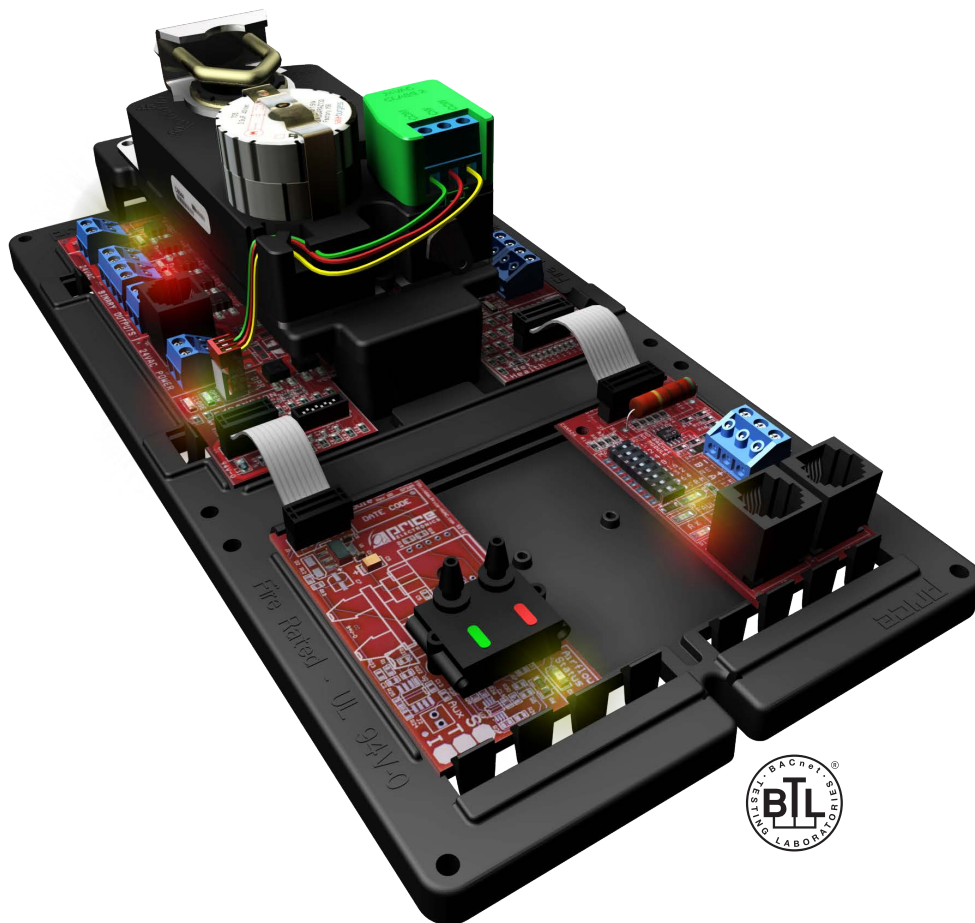
The Price Intelligent Controller (PIC) was developed as a full blown DDC controller. Its versatility offers control sequences for single ducts, fan powered boxes, dual ducts, chilled beams, fan coils and blower coils.

The PIC controller comes pre-programmed with a specified sequence, resulting in no field programming required. With its plug & play capabilities, the PIC controller is quick and easy for contractors to install, and daisy-chain into a BACnet MS/TP network.

The PIC is available with several thermostat options allowing the designer to match the specific needs of the customer. All Price thermostats, except the wireless model, have an RJ45 jack, allowing plug & play connection with the supplied NETC35 cable.

## PIC FEATURES

- Fast and error proof RJ-45 thermostat connections
- Integrated KMC actuator
- 24 VAC binary outputs field selectable between hot and common switching
- Analog (0-10 VDC) outputs for heating, cooling, fan and auxiliary
- Field installable expansion modules for BACnet MS/TP and VAV flow sensing
- Pluggable terminal blocks for easy field wiring
- Diagnostic LED's showing status of each output including damper open / close



# WHY PICK THE PIC?

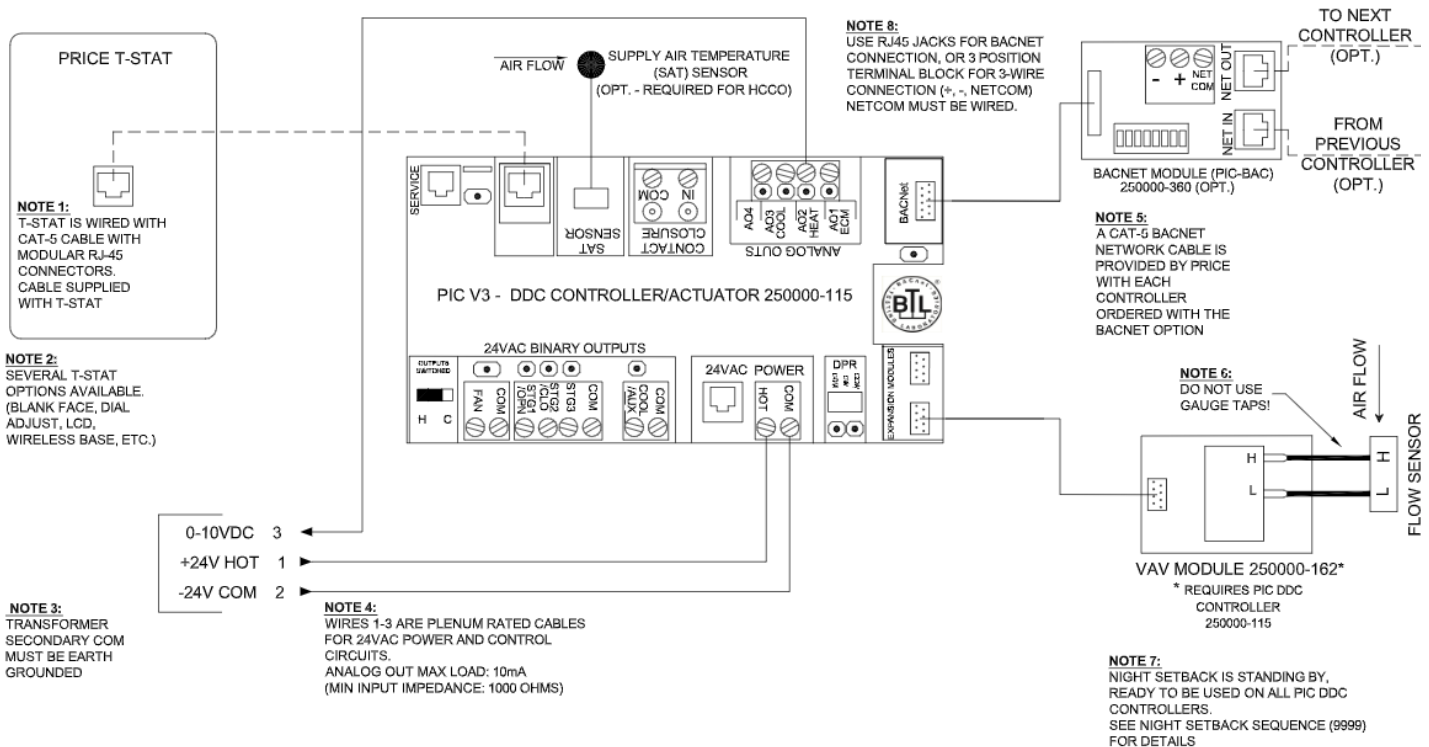
## Wiring – A typical 0-10VDC Single Duct Sequence shown for either Hot Water or SCR heater applications (factory wired).

The PIC controller is a full blown DDC controller designed to control overhead equipment ranging from single duct to fan powered units, chilled beams, fan coils and even dual duct units. Pressure control can also be achieved with the PIC controller, either with a bypass valve or an end of line linear gate bypass unit.

One of the key highlights of the PIC controller is the plug and play capability for the thermostat and BACnet. Connecting the supplied cables into the RJ45 jacks, eliminates wiring errors and allows the contractors to get in and off job sites quickly.

The PIC controller comes pre-programmed with a specified sequence which means no field programming required. Balancing of the unit can be done with a Price LCD thermostat, which acts as a thermostat, balancing stat and setup tool all in one.

Great for new installs and retrofits, the PIC controller can be paired with other box manufacturers as well. With the proper calibration curve data, the PIC controller can be setup to work on non-Price terminal units which make them great for retrofits and tenant improvements.



# SEQUENCE OPTIONS

## Need to Control a Single Duct Terminal?

### Try one of these PIC Pressure Independent or Dependent Sequences

- 2800** Pressure Independent Cooling or HCCO
- 2801** Pressure Independent Cooling or HCCO - up to 3 stg EC Heat - Box Mounted
- 2802** Pressure Independent Cooling or HCCO - up to 3 stg binary heat - Field Wired
- 2803** Pressure Independent Cooling or HCCO - tri-state modulating HW heat - Field Wired
- 2804** Pressure Independent Cooling or HCCO - Analog EC Heat - Box Mounted
- 2805** Pressure Independent Cooling or HCCO - Analog Heat - Field Wired
- 2820** Pressure Independent CO2 Tracking
- 2850** Pressure Dependent Cooling or HCCO
- 2851** Pressure Dependent Cooling or HCCO - up to 3 stg EC Heat - Box Mounted
- 2852** Pressure Dependent Cooling or HCCO - up to 3 stg EC Heat - Field Mounted
- 2853** Pressure Dependent Cooling or HCCO - tri-state modulating HW heat - Field Wired
- 2854** Pressure Dependent Cooling or HCCO - Analog EC Heat - Box Mounted
- 2855** Pressure Dependent Cooling or HCCO - Analog Heat - Field Wired



### Remember CO2 control requirements for your space!

Controlling CO2 levels in designated areas will optimize the indoor air quality and ensure conditioned air is being supplied

Additionally, maintaining 40%-60% RH (relative humidity) in a space will help decrease the travel of airborne pathogens



# SEQUENCE OPTIONS

## Need to Control a Fan Powered Unit with Constant Fan?

### Try one of these PIC Pressure Independent or Dependent Sequences

- 6800** Pressure Independent Cooling or HCCO
- 6801** Pressure Independent Cooling or HCCO - up to 3 stg EC Heat - Box Mounted
- 6802** Pressure Independent Cooling or HCCO - up to 3 stg binary heat - Field Wired
- 6803** Pressure Independent Cooling or HCCO - tri-state modulating HW heat - Field Wired
- 6804** Pressure Independent Cooling or HCCO - Analog EC Heat - Box Mounted
- 6805** Pressure Independent Cooling or HCCO - Analog Heat - Field Wired
- 6850** Pressure Independent CO2 Tracking
- 6851** Pressure Dependent Cooling or HCCO
- 6852** Pressure Dependent Cooling or HCCO - up to 3 stg EC Heat - Box Mounted
- 6853** Pressure Dependent Cooling or HCCO - up to 3 stg EC Heat - Field Mounted
- 6854** Pressure Dependent Cooling or HCCO - tri-state modulating HW heat - Field Wired
- 6855** Pressure Dependent Cooling or HCCO - Analog EC Heat - Box Mounted

## Need to Control a Fan Powered Unit with a Variable Fan?

### Try one of these PIC Pressure Independent or Dependent Sequences

- 8800** Pressure Independent Cooling or HCCO
- 8801** Pressure Independent Cooling or HCCO - up to 3 stg EC Heat - Box Mounted
- 8802** Pressure Independent Cooling or HCCO - up to 3 stg binary heat - Field Wired
- 8803** Pressure Independent Cooling or HCCO - tri-state modulating HW heat - Field Wired
- 8804** Pressure Independent Cooling or HCCO - Analog EC Heat - Box Mounted
- 8805** Pressure Independent Cooling or HCCO - Analog Heat - Field Wired
- 8850** Pressure Independent CO2 Tracking
- 8851** Pressure Dependent Cooling or HCCO
- 8852** Pressure Dependent Cooling or HCCO - up to 3 stg EC Heat - Box Mounted
- 8853** Pressure Dependent Cooling or HCCO - up to 3 stg EC Heat - Field Mounted
- 8854** Pressure Dependent Cooling or HCCO - tri-state modulating HW heat - Field Wired
- 8855** Pressure Dependent Cooling or HCCO - Analog EC Heat - Box Mounted

# SPECIFICATIONS

<b>Transformer Options:</b>	120/208/240/277 VAC to 24 VAC, 50/60Hz, 50VA Class 2
<b>PIC Input Power:</b>	24 VAC, 47-63Hz, 6VA (not including output loading), NEC Class 2
<b>Environmental (operating)</b>	0 Deg.C to 55 Deg.C (32 Deg.F to 131 Deg.F), 10 to 90% RH (non-condensing)
<b>Environmental (storage):</b>	-30 Deg.C to 50 Deg.C (-22 Deg.F to 122 Deg.F), 5% to 95% RH (non-condensing)
<b>Inputs:</b>	1 Analog Input: Thermistive, 10k Ohm Type J  1 Thermostat Input: Thermistive, 10k Ohm Type J  (Blank, Dial, LCD, Motion, CO2)  1 Binary Input: Dry Contact  Optional Input Expansion Board: 3 Analog Inputs, selectable for thermistor or voltage. 1 Thermistive Input, 10k Ohm Type J MTA connection
<b>Differential Pressure Sensor:</b>	0-500 Pa (0-2.0 in. w.g.), temperature compensated
<b>Outputs:</b>	5 Binary Outputs: 24 VAC rated at 0.5 amps max. each – switched Hot or COM by jumper  4 Analog Outputs: 0-10 VDC, configurable through LCD thermostat or setup tool, max. 10mA each
<b>Indicators:</b>	Status LEDS for binary/analog heating and cooling outputs  Status LEDS for BACnet – Receive, Transmit, and Fault
<b>Connections:</b>	Thermostat: 1 RJ-45 jack provided. CAT5e straight through cable (568-B standard), CMP plenum rated provided at standard length of 35 ft.  BACnet: 2 RJ-45 jacks provided for daisy-chain connection. 3-position terminal provided for hardwired 3-wire daisy-chain connection (+, -, Net COM).  CAT5e straight through cable (568-B standard), CMP plenum rated provided at standard length of 35 ft.  Service Port: RJ12 service port for RJ12 cable when using LCD-Setup Tool or Linker device
<b>Circuit Board:</b>	Lead free, 94V-0 flame rating
<b>Actuator:</b>	24 VAC, 50/60Hz, 2VA,  40 in-lb torque rating  90 second run time
<b>Quality Standard:</b>	ISO 9001:2015
<b>Weight (including actuator):</b>	0.816 kg (1.8 lbs)

# LCD SETUP TOOL

The PIC & PIC-SD controllers arrive on site fully programmed with a specific sequence of operation. If any parameter changes are required, an LCD-Setup tool can be ordered to make these changes.

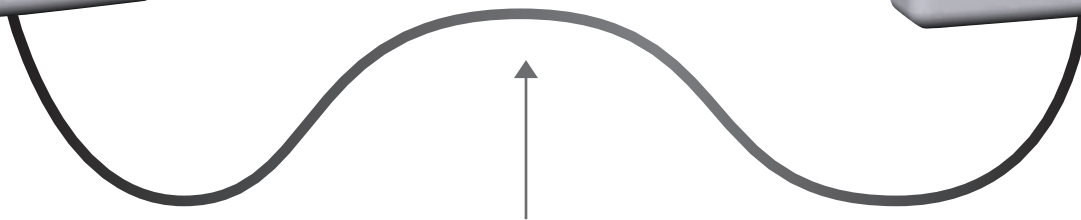
The LCD-Setup tool ships with an RJ12 cable for easy connection to the service ports at the bottom of the thermostats.

**NOTE:** The LCD-Setup tool is to be used with Dial and Blank Face thermostats from Price. (If LCD stats are already on site, this tool is not required).

Dial Thermostat  
PIC-TS-Dial



LCD Setup Tool  
LCD-Setup



RJ12 Cable  
(comes with LCD-Setup Tool)

**NOTE:** The Linker tool and software can be ordered if programming the controller with a sequence is required, for example, reps that stock controls. Otherwise, the LCD setup tool is all you need!

# EXPANSION MODULES

The PIC universal DDC controller is extremely flexible and is available with both BACnet and VAV expansion modules. This allows the PIC to perfectly fit the customer's application and control costs. The expansion modules are extremely easy to install. Just use the included ribbon cable connector and plug into the PIC. The cables are keyed to prevent incorrect hookup.

**NOTE:** BACnet and the VAV transducer come built into the board of the PIC-SD controller.

## VAV EXPANSION MODULE

The expanded range VAV module now allows you to operate your terminal unit to a higher maximum flow. When controlling low flow air volumes, the transducer maintains a high level of accuracy, even with a very low velocity pressure signal, allowing low flow rates to be accurately controlled and regulated. Combining these benefits, you will achieve a much greater turn down ratio than ever before, which is now being required in today's highly efficient buildings such as classrooms, LEED buildings, or anywhere energy consumption is paramount.

E.g.	Size	Old Range	New Range
	5"	63-350	63-428
	8"	125-800	125-1000
	14"	439-3000	439-3600

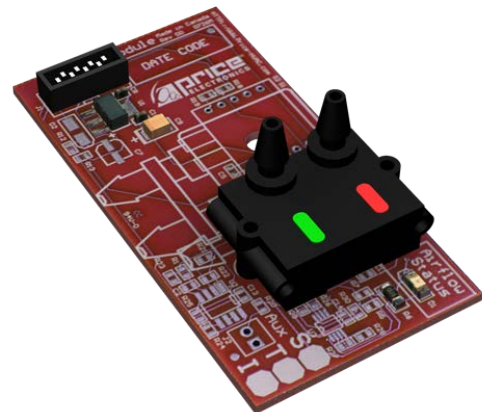
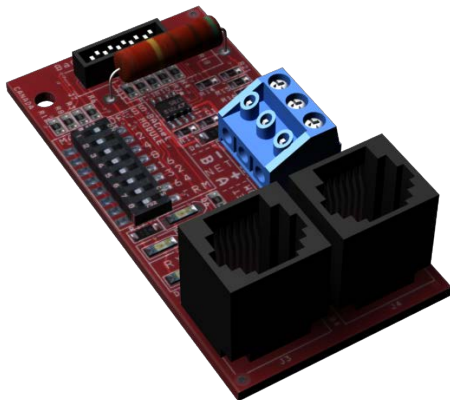
## BENEFITS

### Lower minimum

Energy savings  
 Better comfort control  
 Lower risk of overcooling/overheating  
 Typically used in buildings with occupancy control or demand control ventilation (DCV) for low flow rates during low unoccupancy periods

### Higher maximum

More flexibility in terminal unit selection  
 Costs savings (reduced size of terminal unit)  
 More adaptable to changes after installation  
 Less unique products on jobsite.  
 Reduces potential installation errors



## BACNET EXPANSION MODULE

The BACnet MS/TP expansion module adds BACnet capabilities to the PIC. This allows the PIC controller to connect to a Price BACnet system, or any other BACnet BAS.

## VAV EXPANSION MODULE

The VAV expansion module adds full pressure independent control to the PIC & PIC-SD. Using this highly accurate sensor with the PIC's proportional integral control allows fast and reliable airflow control.





Price Intelligent Controller - SD  
for HVAC Zone Control

**PRICE**<sup>®</sup>

The Science of Comfort<sup>™</sup>

# PIC-SD ZONE CONTROLLER

The PIC-SD is a powerful yet cost effective VAV zone controller for single duct terminals.

The PIC-SD controller comes pre-programmed with a specified sequence, resulting in no field programming required. With its plug & play thermostat connection and smaller footprint, this controller is great for retrofits and stand-alone applications.

The PIC-SD is available with several thermostat options allowing the designer to match the specific needs of the customer. All Price thermostats, except the wireless model, come with an RJ45 jack allowing for plug & play connection with the supplied NETC35 cable.

## PIC-SD FEATURES

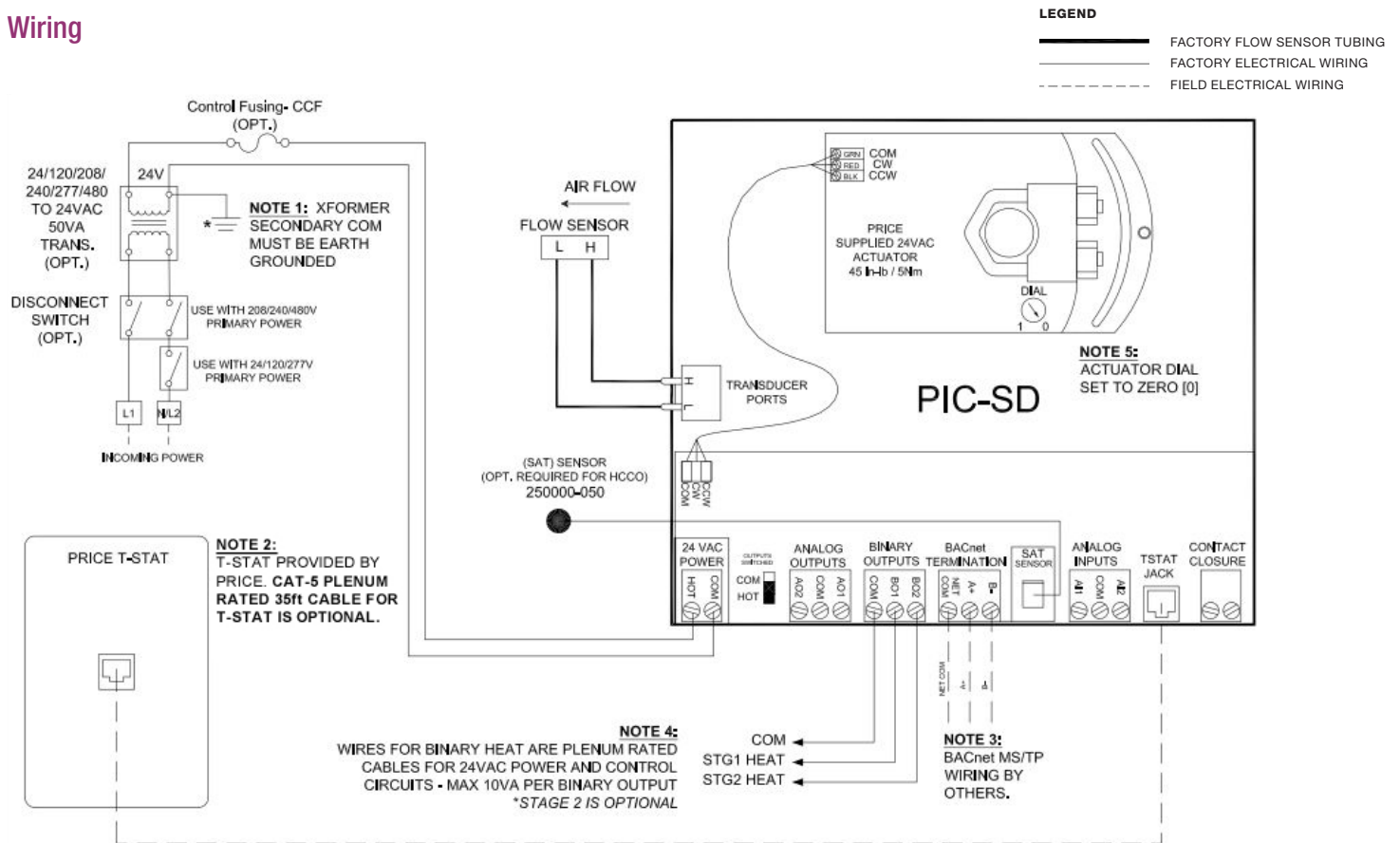
- Fast and error proof RJ-45 thermostat connection
- Integrated Belimo actuator
- Two 24 VAC binary outputs field selectable between hot and common switching
- Two fully-configurable analog (0-10 VDC) outputs for heating, cooling, and auxiliary
- Built in BACnet MS/TP and VAV flow sensing
- Pluggable terminal blocks for easy field wiring
- Diagnostic LEDs for BACnet and controller status



# WHY PICK THE PIC-SD?

The PIC-SD is a compact controller that can be selected when you need to be competitive on a project. With its smaller footprint, the PIC-SD is great for chilled beam and fancoil applications utilizing the 2 analog or 2 binary outputs available for 2-pipe. The PIC-SD is also useful when you need stand-alone control of a single duct terminal, where a building management system is not required.

## Wiring



### Control Sequence

All PIC-SD controllers come factory programmed for their sequence of operations. A typical sequence is shown (#1811). This shows the wiring to the PIC-SD as a single duct terminal with heat/cool changeover and two stages of binary (on/off) electric reheat. More detailed information on the control sequence and wiring can be found in the PIC-SD operation and maintenance (O&M) manual.

### Power

The PIC-SD requires low voltage 24 VAC connection to operate. Price can supply a factory mounted transformer in a variety of voltages or the installer can use an alternate 24 VAC power source.

### Thermostat

All PIC-SD thermostats use an RJ-45 connection. Price can supply this cable (standard model is 35 feet and can be doubled to 70 feet with a cable coupler), or the installer can build their own cables on site. To save time and cost on site, Price recommends purchasing our 35-foot cable with the PIC-SD.

### BACnet

The BACnet connection requires a low capacitance twisted pair and network ground wire. Price recommends using a plenum rated CAT5 cable for this (using the orange and orange complement pair for Net - and Net + and the brown and brown complement together for Net ground). Price recommends not exceeding 30 devices and 1,000 feet per MS/TP segment. This ensures a fast and reliable BACnet network.

# SEQUENCE OPTIONS

## Need to Control a Single Duct Terminal?

Try the PIC-SD for your Stand-Alone VAV Box application with one of these available Single Duct Sequences

- 1810** Pressure Independent without Reheat
- 1811** Pressure Independent 1-2 Stages of Electric Reheat
- 1812** Pressure Independent Tri-state hot water Reheat
- 1813** Pressure Independent Analog Electric Reheat
- 1814** Pressure Independent 1-2 Stages of Electric Reheat - Field Wired
- 1815** Pressure Independent Tri-state hot water Reheat - Field Wired
- 1816** Pressure Independent Analog Reheat - Field Wired



# SPECIFICATIONS

**Transformer Options:** 120/208/240/277 VAC to 24 VAC, 50/60 Hz, 50VA Class 2

**PIC-SD Input Power:** 24 VAC, 50/60Hz, 6VA (plus external loads), Class 2

**Environmental (operating):** 10°C to 50°C (50°F to 122°F), 5% to 95% R.H. (non-condensing)

**Environmental (storage):** -30°C to 50°C (-22°F to 122°F), 5% to 95% R.H. (non-condensing)

**Inputs:** 2 analog inputs: 0-10 VDC

1 binary input: dry contact closure

1 thermistor input: 10k ohm- type "J"

**Differential Pressure Sensor:** 0-500 Pa (0-2.0 in. w.g.), temperature compensated

**Outputs:** 2 analog outputs: 0-10 VDC - configurable through LCD thermostat or setup tool - max 10mA each

2 binary outputs: 24 VAC rated at 0.5 amps max each - switched HOT or COM by jumper

**Indicators:** White status LED, red/green LEDs for BACnet receive and transmit

**Connections:** RJ-45 straight through cable (568-B standard) required for thermostat connection. Recommended optional cable is available from Price (35 foot, plenum rated)

Maximum cable length from controller to thermostat is 70 feet

RJ-12 on thermostat for Linkersoft setup/commissioning tool

Removable terminal blocks for 24 VAC power and I/O connections

MTA-100 header for connection to supply air temperature probe (10k)

**Circuit Board:** Lead free, 94V-0 flame rating

**Actuator:** 24 VAC, 50/60Hz, 2.0 VA, 45 in-lb torque rating

95 second run time

Brushless DC motor for long life

Noise level <35 dB (A)

**Quality Standard:** ISO 9001:2015

**Weight (including actuator):** 0.70 kg (1.55 lbs)





# PRODIGY® MASTER JUNCTION PANEL

## PRODIGY® Pressure Relief Collar

The PRODIGY® Pressure Relief Collar slips over the PRODIGY® inlet to provide a simple and inexpensive solution to control duct static pressure. The PRC's dual shutters gradually open in response to excessive pressure.



## BACnet Interface Option

- Allows PRODIGY® master units to be connected to a BACnet MS/TP network
- Once connected, information such as room temperature, room setpoint and room load can be shared with a BAS system allowing intelligent control
- No tools required for networking. Just use the supplied RJ-45 connections plenum rated network cable. It's as easy as plugging in a laptop



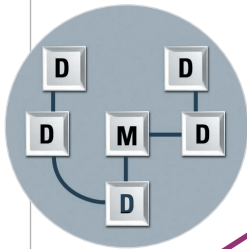
## Thermostat

The Prodigy diffuser comes with a wide range of thermostat options; Blank Face, Dial, LCD, LCD-Motion, LCD-CO2, and Wireless

When a thermostat is not supplied, the PPD1 Setpoint dial can be used to set the setpoint of the diffuser

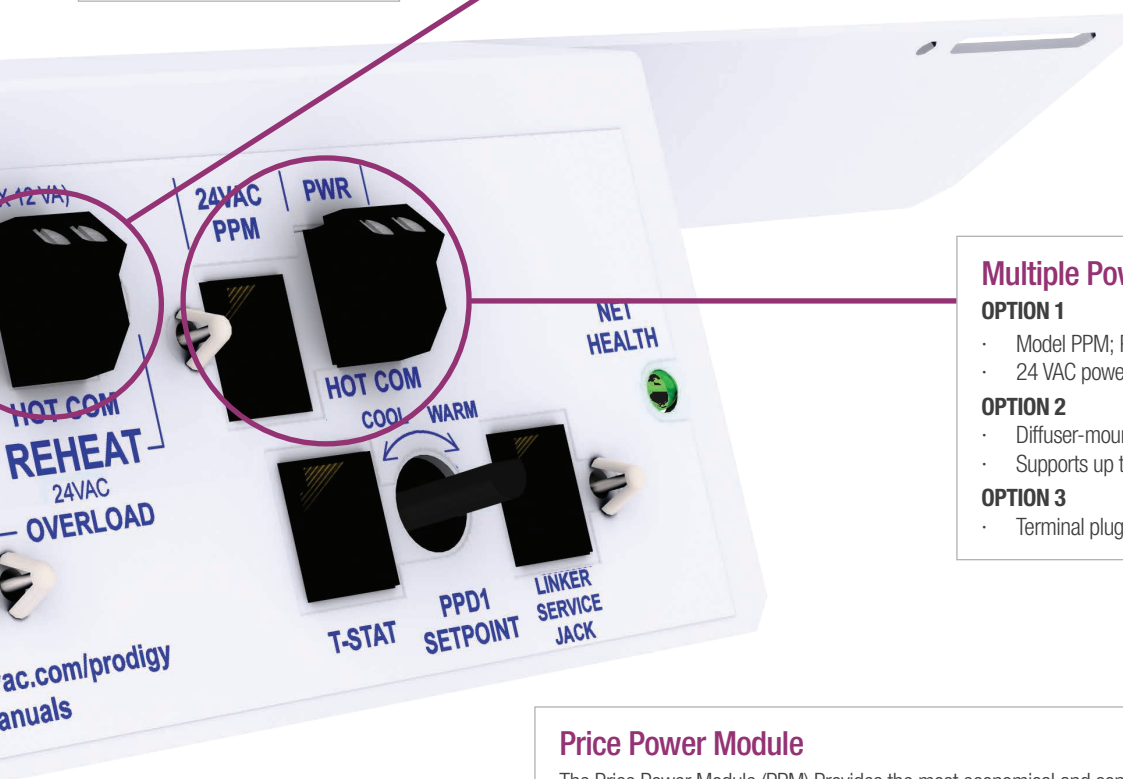
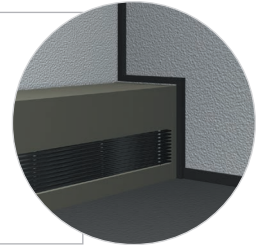
## Parallel Drone Output Jacks

- Each master can control up to 5 drones
- Very low current draw (2.5 VA per unit)
- 2 snap-in-jacks on drone and master provide ultimate layout flexibility
- LED lights for power & PRODIGY® status



## Auxiliary Heat

- 2 terminals supply 24 VAC pulsed signal to control auxiliary heating
- 3 output signal options optimize control, comfort & equipment life of electric or hot water systems
- LED status lights for signal & overload notification



## Multiple Power Supply Options

### OPTION 1

- Model PPM; PRODIGY® Power Module
- 24 VAC power supply for up to 15 PRODIGY®

### OPTION 2

- Diffuser-mounted 20 VA transformer
- Supports up to 6 PRODIGY® diffusers

### OPTION 3

- Terminal plug for field supplied 24 VAC

## Price Power Module

The Price Power Module (PPM) Provides the most economical and convenient method for powering multiple PRODIGY® diffusers because costs of conduit, wiring and electrician time are dramatically reduced.

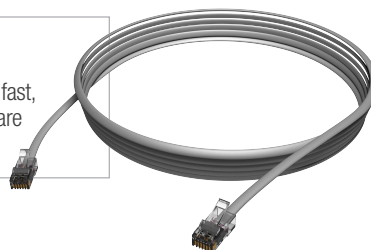
### FEATURES:

- 96 VA Class 2 Transformer (Input voltages 120/204/277/480 VAC 50/60 Hz)
- 24 VAC output
- Supports up to 15 PRODIGY® Diffusers
- Master On/Off switch and green power indicator LED
- 6 individually protected output jacks (Red LED lights on overload, automatic reset when fault is corrected)



## Cables and Connectors

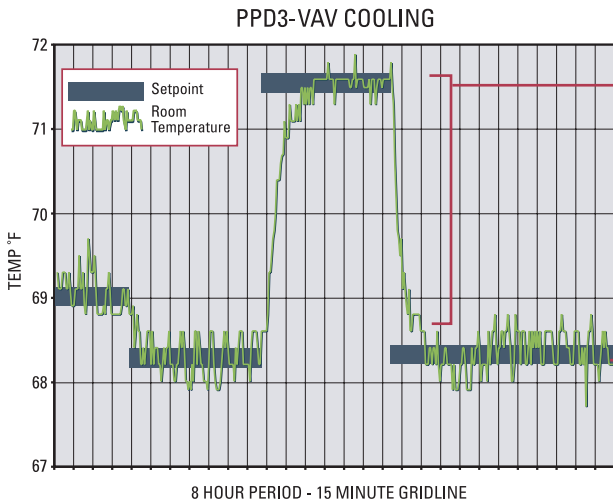
Low voltage 6 conductor cables and connectors are available to facilitate fast, simple and foolproof installation of the entire PRODIGY® family. All cables are plenum rated and safe to use anywhere in the building.



# PRODIGY® SMART DIFFUSER

Price's PRODIGY® Smart Diffuser combines proven air performance technology with advanced DDC electronic control to provide the ultimate in space temperature control and system efficiency. The device incorporates an adjustable damper which modulates inside the diffuser assembly. The electronics to control the device are mounted on the top of the back pan, out of sight from the occupied space.

PRODIGY®'s advanced DDC control techniques provide an exceptional level of stable, precise control, which responds faster than thermal expansion devices. Space temperature control within 1°F of set point, true VAV cooling and heating, activation of perimeter heat and optional BACnet interface are all possible with PRODIGY®. For more information, please contact your local Price Representative.

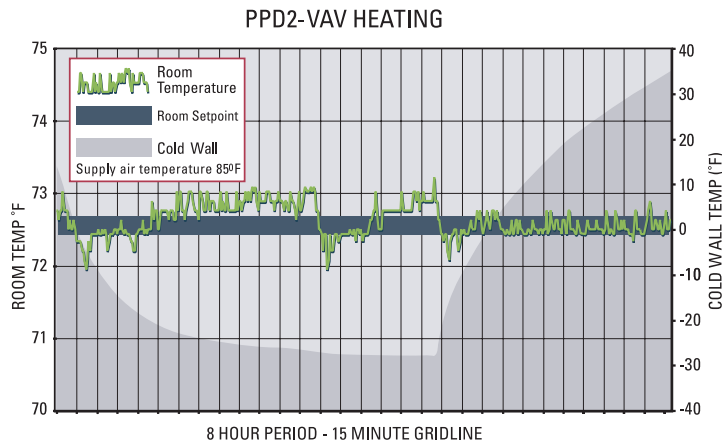


## Fast Response

PRODIGY® responds to set point changes with remarkable speed. Typically, it meets demand for new setpoint within 15 minutes, measured in the occupied zone.

## Accurate Control

Robust PI control and positive damper position feedback eliminates thermal overshoot. PRODIGY® is able to maintain control of room temperature within +/- 1°F (0.5°C) of setpoint.



## True VAV Heating

Model PPD2 with wall mounted Thermostat demonstrates the same fast response and accurate control of true VAV heating, even under extreme variations in outdoor temperature, as indicated by shaded area.

The founding principles of our company have never changed - business integrity, first-class service and a commitment to people. Price manufacturing endeavours arose from our belief that we could supply superior products and services at a reasonable price. Our mission is to become the worldwide supplier of preference for air distribution products and services. You can rely on Price – our products and services – with confidence.



Product Improvement is a continuing endeavour at Price; therefore, specifications are subject to change without notice. Consult your Price sales representative for current specifications or more detailed information.



# SPECIFICATIONS

<b>Transformer Options:</b>	120/208/240/277 VAC to 24 VAC. 50/60Hz, 20 VA Class 2
<b>Prodigy Input Power:</b>	24 VAC, 60Hz, 3VA (not including output loading)
<b>Environmental (operating)</b>	0 Deg.C to 55 Deg.C (32 Deg.F to 131 Deg.F), 10 to 90% RH (non-condensing)
<b>Environmental (storage):</b>	-30 Deg.C to 50 Deg.C (-22 Deg.F to 122 Deg.F), 5% to 95% RH (non-condensing)
<b>Inputs:</b>	1 Thermostat Input: Thermistive, 10k Ohm Type J  (Blank, Dial, LCD, Motion, CO2)
<b>Outputs:</b>	1 Binary Output: 24 VAC rated at 0.5 amps max.  2 RJ12 Jacks for Drone connection (max. 5)
<b>Indicators:</b>	Status LEDES for binary/analog heating and cooling outputs  Status LEDES for BACnet – Receive, Transmit, and Fault
<b>Connections:</b>	Thermostat: 1 RJ-45 jack provided. CAT5e straight through cable (568-B standard), CMP plenum rated provided at standard length of 35 ft.  BACnet: 2 RJ-45 jacks provided for daisy-chain connection. 3-position terminal provided for hardwired 3-wire daisy-chain connection (+, -, Net COM).  CAT5e straight through cable (568-B standard), CMP plenum rated provided at standard length of 35 ft.  Drone Diffuser Connections: RJ12 CMP plenum rated 35 ft. cables provided with Drone units
<b>Circuit Board:</b>	Lead free, 94V-0 flame rating
<b>Actuator:</b>	24 VAC, 50/60Hz, 3 VA synchronous motor  90 second run time
<b>Quality Standard:</b>	ISO 9001:2015

## PRICE WEB SERVER



### ACCESS PRICE CONTROLS FROM THE INTERNET

Viewing your system via the internet allows **worldwide access to your building** for faster and easier monitoring and troubleshooting. The Price Web Server allows the user to view all status variables such as room temperatures, air flows, etc. for every zone controller on the network, as well as change temperature and air flow set points right from your smart phone, tablet or laptop.

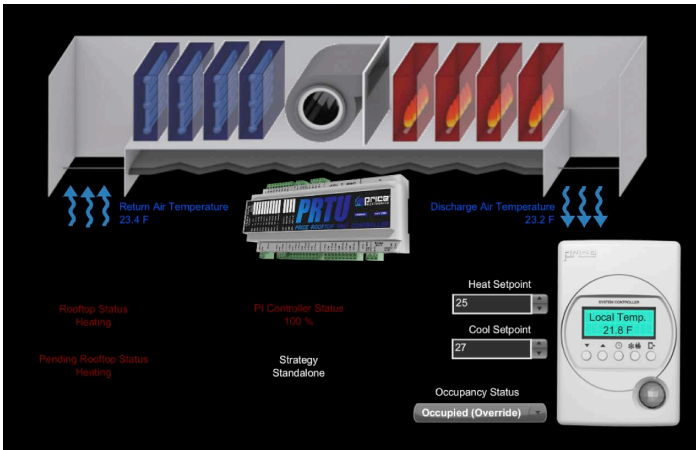
### KEY FEATURES:

- Package includes Price WEB Server, IP Router, BACnet Router and IP Switch as required
- Access via any web browser via smart phone or tablets
- No software or USB keys required
- Remote access via designated Static IP address
- High resolution graphics
- Multiple users with separate access levels

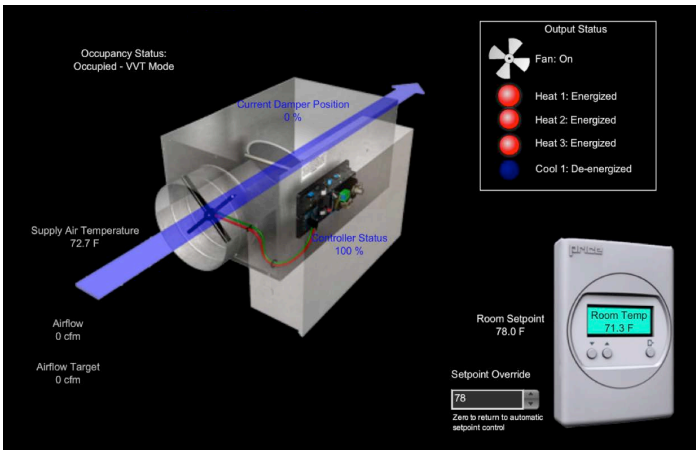
### Fully Functional Graphics Package Includes:

- Links to every zone and rooftop controller
- Important details about every zone and rooftop controller displayed graphically, with equipment and ductwork illustrations and animations for on/off operations or status notifications.
- Details include such variables as:
  - Air temperatures and set-points (SAT, Room Temp.)
  - Fan Status
  - Damper positions
  - Air flow values
  - Rooftop operations
- Customized graphics including built-in templates for Price Controllers
- Easy to use drag and drop design with no programming required
- Advanced functionality such as monitoring, trending and alarming
- Web browser interface allowing easy access to log into your site!

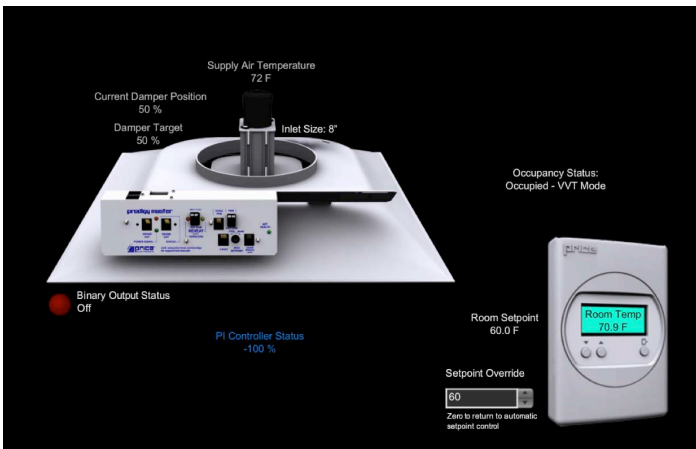
# PRICE WEBSERVER GRAPHICS & CUSTOMIZATION



Price Rooftop Unit Graphic



Price Intelligent Controller Graphic



Price Prodigy<sup>®</sup> Diffuser Graphic

# SPECIFICATIONS

<b>WEB Server Input Power:</b>	24 VAC, 50/60Hz, 6VA Class 2, 10A, 58V Fast blow fuse protection/Mini Blade, 1kA breaking capacity
<b>(Including routers):</b>	24VAC, 50/60Hz, 40VA (minimum) Class 2
<b>Environmental (operating)</b>	-4 Deg F to 113 Deg F (-20 Deg C to 45 deg C) operating, -40 Deg F to 122 Deg F (-40 Deg C to 50 Deg C) storage
<b>Inputs:</b>	1 Ethernet Port for access; 10/100 mbps (Default IP Address: 192.168.97.20)
<b>Protocol:</b>	BACnet/IP Protocol
<b>Features:</b>	Web based graphical interface via web browser Pre-built template graphics for Price controls (PIC, Prodigy, PRTU, PCV & BFC) Animated features for template graphics Remote access capability with designated static IP address Historical Trending Alarm Condition Monitoring w/email notification Flash Memory for internal storage Multiple User Permissions Supports up to 10 simultaneous users at one time Can support 100 user profiles Battery Backup – Real Time Clock
<b>Storage:</b>	8GB NAND Flash Memory
<b>Processor &amp; Memory:</b>	<b>CPU:</b> 1.2 GHZ quad-core ARM Cortex A53 <b>RAM:</b> 1 GB LPDDR2-900 SDRAM
<b>Capacity:</b>	Support up to 2000 nodes; points, graphics, trends and alarms (Limits on control points depend on communication speed and network bandwidth)
<b>Quality Standard:</b>	ISO 9001:2015
<b>Size:</b>	6.25 in. x 3.5 in. x .25 in.
<b>Weight:</b>	0.181 kg (0.4 lbs)





## Emanuelson-Podas Offices

Location: **Edina, MN**

Engineer: **Emanuelson-Podas, Inc.**

Interior Design Consultant: **Julie Yager**

Price Representative: **TMS Johnson**

Price Products: **Terminal Units, Controls, Grilles, Diffusers**

For 60 years, the engineers at Emanuelson-Podas, Inc. have brought “air, power, light and water to the places that matter” for clients across the U.S. and Canada, and have done so with a value set similar to Price: family, service and trust.

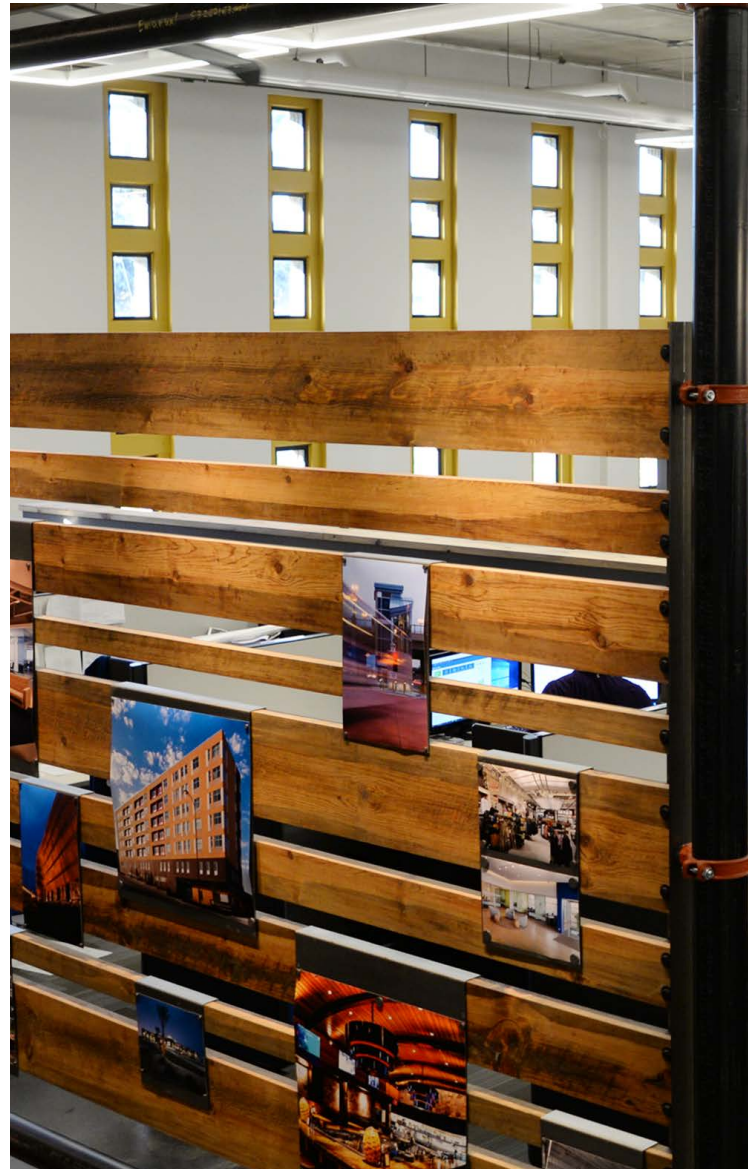
This fundamental alignment in vision and the resulting quality of work have made good partners of Emanuelson-Podas and Price in the past, including the provision of Price Intelligent Controllers (PICs) and Single Duct VAV (SDV) assemblies to a national chain of fitness centers.

Decades of working side by side with Price meant that, when it was time to gut and renovate their own 26,000 sq.ft. offices in 2016, Emanuelson-Podas trusted Price to provide them with individualized controls for each zone within their new space, selecting 19 Price SDV8s with PICs (single duct digital controlled terminal units).

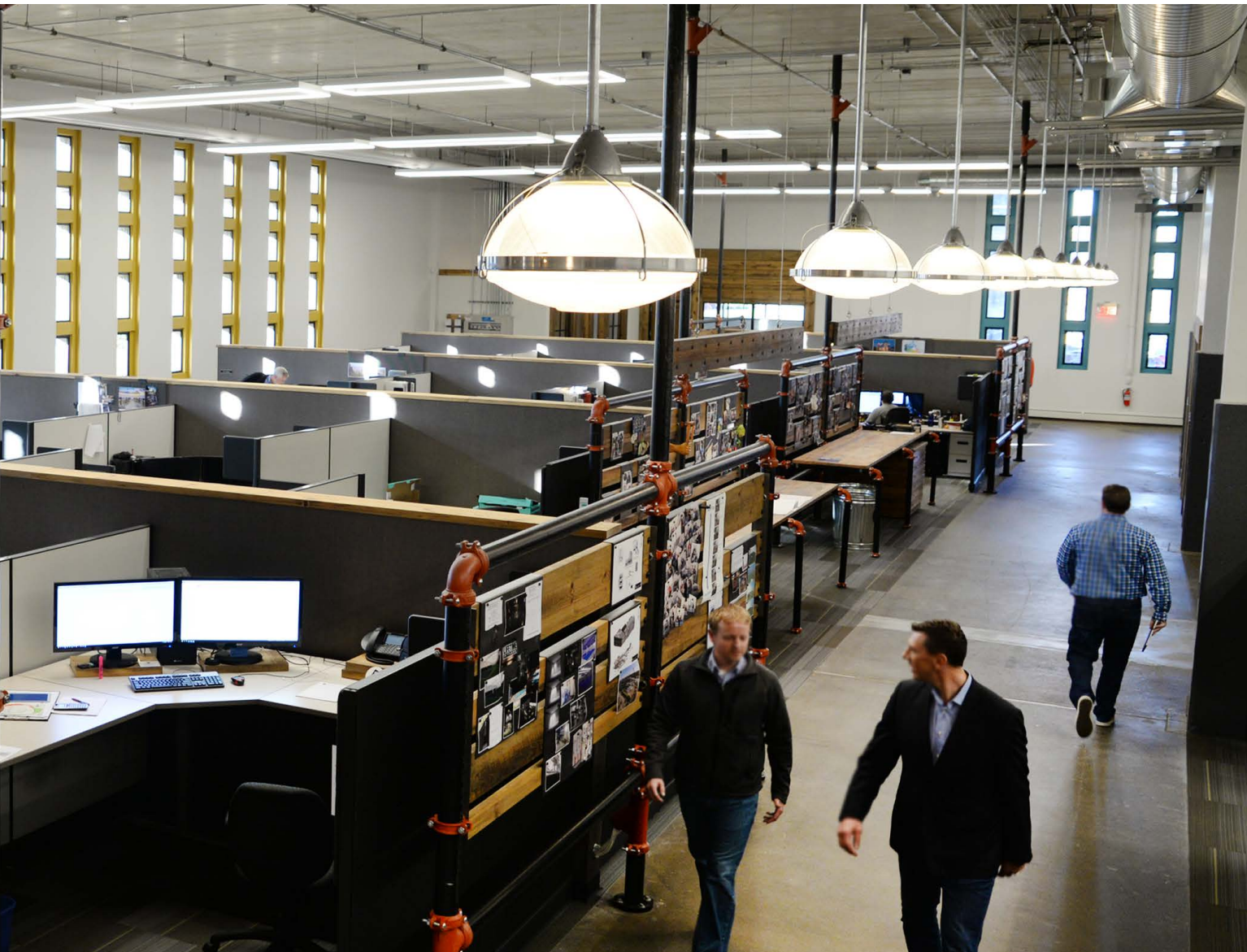
While the controls are now tied into a Building Automation System (BAS), the ability to locally commission and adjust each of the SDV8s in the building via their thermostats was a top priority during the construction process, as the **timeline was only 10 weeks**. Price’s built-in short lead times and factory calibration and mounting made it possible to provide the SDV8s within this particularly tight timeframe, ensuring that construction could continue as scheduled. The building also includes several unique spaces beyond just offices, including a gym and an events center frequently used outside of office hours, making individualized control both a short term and a long term need for this building.

The clean and efficient design of Price’s SDV8s results in quiet operation and minimal pressure drop. Their compact configuration makes this unit especially easy to apply in retrofit spaces such as the Emanuelson-Podas offices. Emanuelson-Podas also selected a variety of Price grilles, registers and diffusers to complete the space.

Emanuelson-Podas’ new facility is reflective of their forward-thinking vision and Price is proud to have provided a system solution that will continue to match their evolving needs.









# Representative Project List

## Controls Applications

### Mazda Headquarters

Richmond Hill, ON

Representative: EH Price Toronto

### Goodyear Headquarters

Akron, OH

Representative: Air Control Products

### North Royalton Library

North Royalton, OH

Representative: Air Control Products

### Caterpillar

Raleigh, NC

Representative: Hoffman & Hoffman

### Cedar Rapids Public Library

Cedar Rapids, IA

Representative: Rist & Associates

### Upper Iowa University

Fayette, IA

Representative: Rist & Associates

### Manuel Lujan Sr. Building

Santa Fe, NM

Representative: Mechanical Representatives, Inc.

### TD Ameritrade-Edina

Edina, MN

Representative: Air Flow, Inc.

### TD Ameritrade-Peachtree

Buckhead, GA

Representative: Tom Barrow Co.

### GeoEye

Denver, CO

Representative: CFM Company

### Q Medical Center

Winnipeg, MB

Representative: EH Price Winnipeg

### Amazon.com Corporate Campus

Grand Forks, ND

Representative: Therm-Air Sales Corp

### Lafayette Community Bank

Lafayette, IN

Representative: Colby Equipment Company, Inc.

### MacDon Industries

Winnipeg, MB

Representative: EH Price Winnipeg

### Sugar Land Surgery Center

Sugar Land, TX

Representative: HD Grant Co., Inc.

### Lowe's Headquarters

Charlotte, NC

Representative: Hoffman & Hoffman

### Pueblo West Library

Pueblo, CO

Representative: CFM Company

### Manitoba Public Insurance

Winnipeg, MB

Representative: EH Price Winnipeg

### Green School House

Phoenix, AZ

Representative: Air Specialty Products

### Fraunhofer CSE

Boston, MA

Representative: Buckley Associates

### Arizona State University

Tempe, AZ

Representative: Air Specialty Products

### Assurity Life Insurance Company

Lincoln, NE

Representative: AIRCAD, Inc.

### Emanuelson-Podas Offices

Edina, MN

Representative: TMS Johnson

Q Medical Center



MacDon Industries



Assurity Life Insurance Company



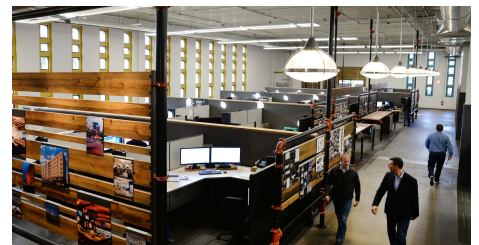
Lowe's Headquarters



Upper Iowa University



Emanuelson-Podas Offices







MANUFACTURING DIVISION

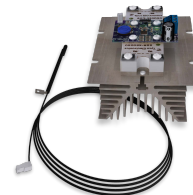
# PRICE ELECTRONICS

Part of the Price Group of Companies ([www.priceindustries.com](http://www.priceindustries.com)), Price Electronics provides full turnkey contract manufacturing services for several North American customers.

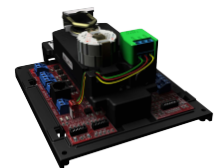
Based in Winnipeg, Canada in a modern facility, Price employs the latest lean principles in the manufacturing of high reliability products for its customers. Price's current customer base includes companies from the HVAC, industrial automation, medical and transportation sectors.

The products Price manufactures are often expected to operate in harsh or hostile environments where quality and reliability are critical.

Price Electronics provides a full range of services to its customers including project management, new product development and contract manufacturing services. Price's manufacturing capabilities include automated equipment, set up to cost-effectively support a full range of production volumes and product technologies. Price Electronics is committed to providing outstanding value to our customers through excellent quality and continuous process improvement.



SCR W/DAT CONTROLLER



PRICE INTELLIGENT CONTROLLER



ECM DELUXE CONTROLLER



PRODIGY SMART DIFFUSER



# CONTROLS FIELD COMMISSIONING SERVICES

The next time you are involved in a project that is using Price products and controls, consider the need for the field commissioning service that we offer. This service adds value and gives you peace of mind; knowing that the commissioning is conducted prior to occupancy ensures that all Price devices and equipment are installed correctly. Arranging on-site commissioning from the start of the project can save the building owner time and money.

To have a job commissioned, contact the Controls Applications team to help with quoting and lead time: [controls@priceindustries.com](mailto:controls@priceindustries.com)

## COMMISSIONING SERVICES OFFERED

### Rooftop Unit Controllers

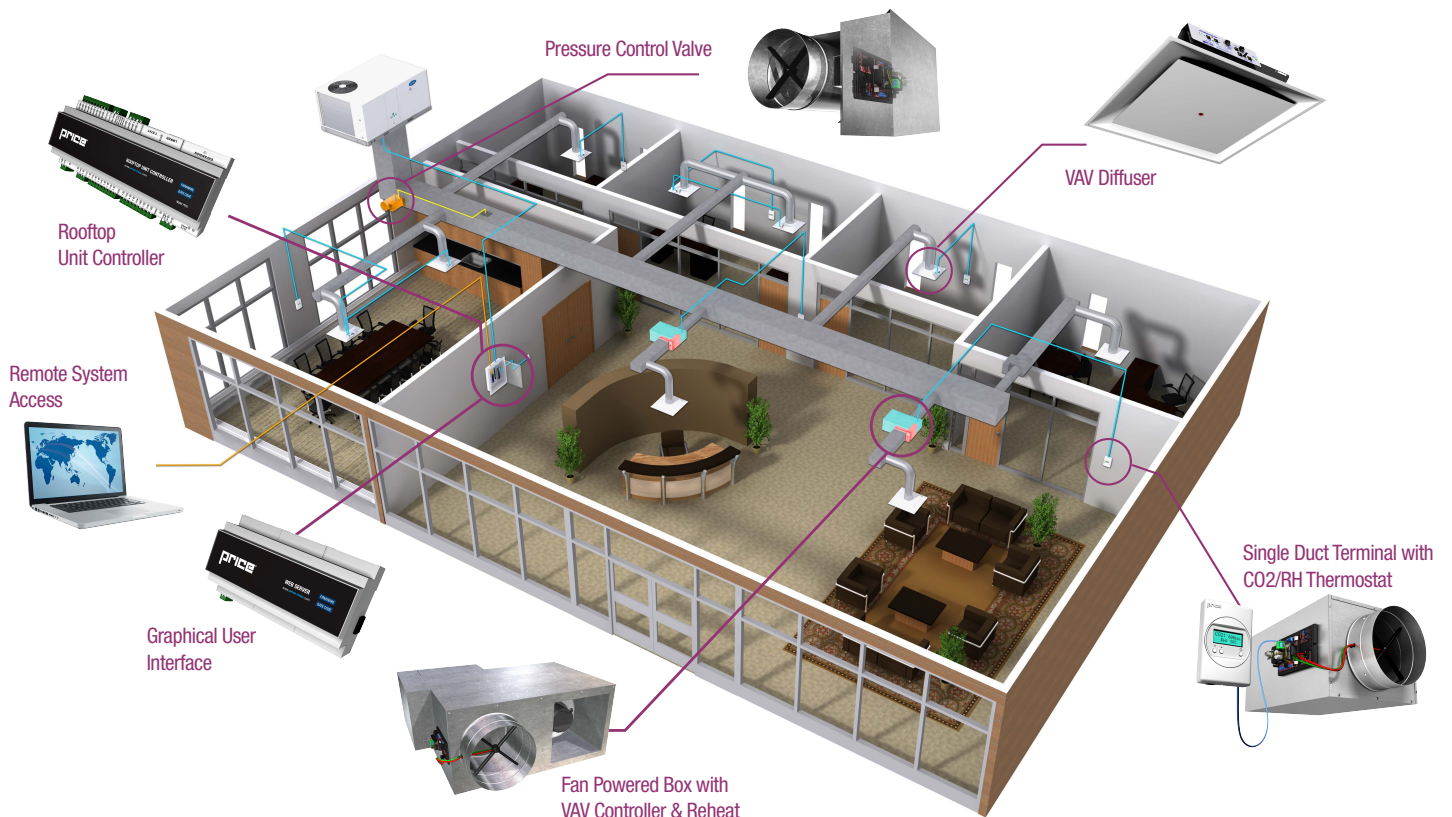
- Ensure power to controller
- Verify wiring connectivity from rooftop unit to rooftop controller
- Heating stage testing (test in both stand-alone and networked modes)
- Cooling stage testing (test in both stand-alone and networked modes)
- Supply fan testing
- SAT/RAT sensor testing

### Variable Air Volume (VAV) Controls

- Ensure power and connectivity to controller
- Verify damper operation
- Test for heating and cooling capabilities
- BACnet MAC addressing verification
- Verify that the airflow values are set for both heating and cooling
- Verify pressure set point on pressure control valves

### Web Server and Graphical User Interface

- Verify system power and connectivity
- Create graphical user interface for zone and rooftop control
- Configure zone naming schemes
- Test various set points from the web server







## **PRICE** | CONTROLS

Product Improvement is a continuing endeavour at Price. Therefore, specifications are subject to change without notice. Consult your Price Sales Representative for current specifications or more detailed information. Not all products may be available in all geographic areas. All goods described in this document are warranted as described in the Limited Warranty shown at [priceindustries.com](https://www.priceindustries.com). The complete Price product catalog can be viewed online at [priceindustries.com](https://www.priceindustries.com).