Price Controls

price®

Why choose Price controls?

Price control products offer a new level of control for even the most specialized commercial building applications.
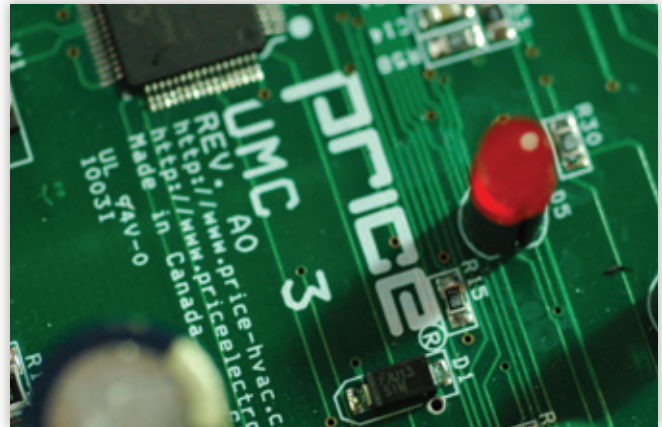
Price manufactures a comprehensive line of control solutions incorporating the latest technologies using hi-speed surface mount pick and place equipment.

- System Controls by Price offer the **latest innovations** in DDC technology, allowing building owners **to save energy and provide superior occupant comfort.**

- **Standalone and BACnet networking options** are available on several products, allowing **integration into large systems.**

- Designed by Price for optimal fit with Price air distribution products.

- **Short Lead Times** - Factory stocked, calibrated and mounted at all Price factories.

- Dozens of customizable sequences, resulting in the best possible performance and comfort.
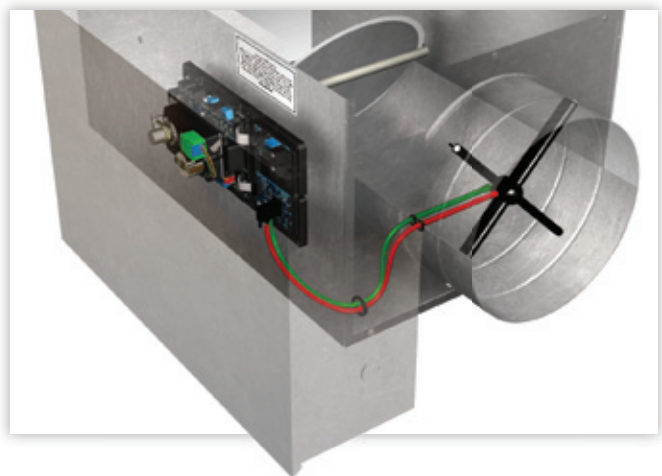
Advantages

Confidence in Price Controls

· Over 10 years of electronics manufacturing experience

· Ongoing product innovation

· Highly trained designers and programmers

· **Application and systems experts work with customers to provide control solutions**

· **Rigorous testing** of all components ensures the highest quality

All networked Price products use the BACnet standard for communication, meaning all products will work together as a system without any special programming or protocol converters (gateways). This ensures reliable operation in the field and allows the building owner to expand their system around a standard communication protocol.

Controls/Terminal Unit Packages

No other supplier creates an **'out of the box' Controls System solution for terminal units** like Price. Most competitors require the use of programmable controllers that require custom field programming to control a terminal unit. **Adding Controls designed and manufactured by an experienced terminal unit and HVAC manufacturer ensures a better, more functional terminal unit.**
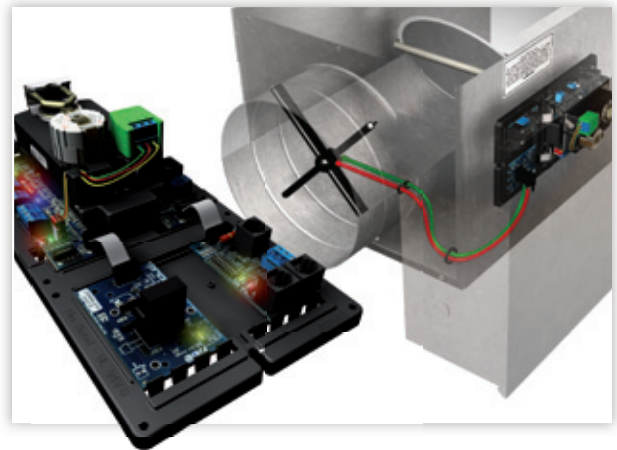
Controls for Commercial Spaces

NATIVE **BACnet** MS/TP

Flexible PIC Controller can be applied to a variety of commercial applications

Price Intelligent Controller - PIC

This universal Direct Digital Controller (DDC) provides accurate zone control.

An advanced and configurable proportional integral (PI) controller specifically designed for VAV terminals, the PIC offers preprogrammed and verified control sequences for all Price terminal models, plus custom sequencing on request.

The PIC Features

· **Powerful, expandable and flexible**

· Exceptional user comfort and energy efficiency

· Installation is fast and easy with error proof RJ-45 thermostat connections

· **Easy to install "Plug and Play" components for standalone installations ▶**

· **Interfaces with any BACnet BAS system**

· **Arrives on site fully programmed and calibrated to save time in the field**

· Pluggable terminal block for easy field wiring

· Indicator LEDs on outputs show current status

T-stats

· **Price has a broad range of thermostats:** Blank Face, Dial, LCD, LCD with Motion Sensor, and Wireless

· All thermostat models have a service port that allows for configuration without having to access the plenum

· Match the right type of thermostat to the job or upgrade to wireless and motion sensor solutions!

Controls for Critical Spaces

Room pressurization and accurate air volume control
is critical in health care and laboratory applications.

Venturi valves are pressure independent and immediately adjust to duct pressure variations,
which make them ideal for critical spaces. Price offers several control configurations specifically
designed for venturi valves.

Price Intelligent Controller for Venturi Valves – PIC-VV

Built specifically to provide volumetric tracking of a pair of supply and exhaust venturi valves.

This DDC controller is ideal for labs, isolation rooms and patient rooms where space pressure must be generated and maintained.

- Optional BACnet network module provides the flexibility to tie into any existing or future compliant BAS system.

- An LM module on both valves feeds accurate air flow data to the PIC-VV, which maintains a user defined volumetric offset for room pressure control. This allows for reliable and repeatable readings of the air flow.

Linear Module (LM) - Linearization Module for electronic flow feedback

Based on valve plunger position, the LM Module linearizes the flow signal to simplify integration into any controller used with the valve.

- **Each LM Module is factory calibrated and matched to its venturi valve for optimal accuracy.**

- The LMX option includes an alarm output signal to notify when the valve is out of its operating pressure range.

- An LCD service tool allows for adjustment of sequence parameters and settings, and configuration in the field.

Fully Integrated Systems

Packaged rooftop equipment is very common in industrial and commercial buildings. These units, typically ranging from 5 to 50 tons, require varying levels of rooftop control capability, from a standalone system to a completely networked system with graphical interface. A networked rooftop controller is a much more powerful controller than a standalone unit as it needs to gather information from the network and calculate load demands.

Price Rooftop Unit Controller – PRTU

This state-of-the-art proportional integral (PI) digital controller is a reliable and technologically advanced system that provides occupant comfort and energy savings throughout an entire facility.

The PRTU can interface with virtually any packaged rooftop unit to control the cooling and heating stages as well as the fan operation.
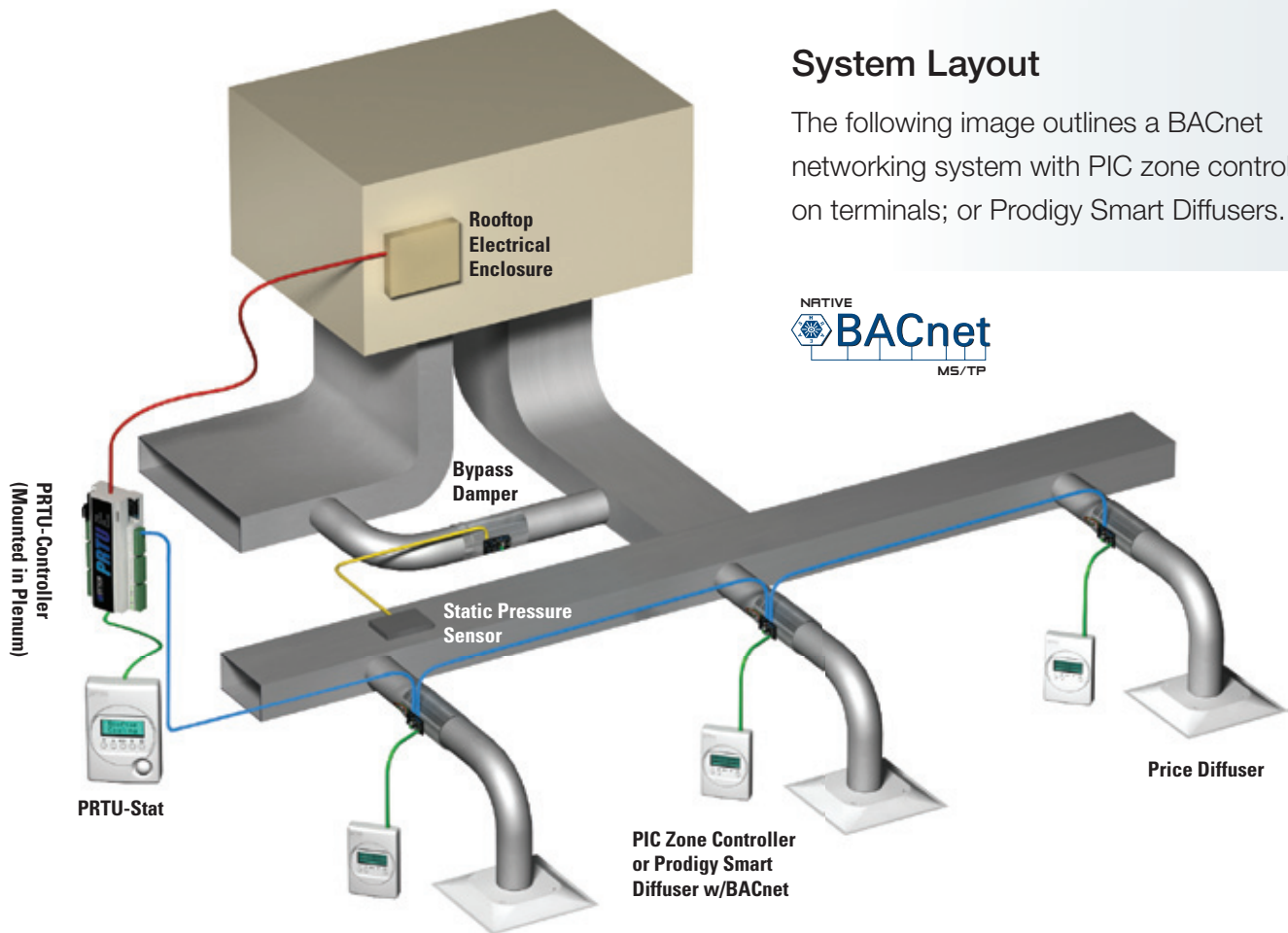
Access the PRTU from the Internet

Accessing your system via the internet allows worldwide access to the building for fast and easier monitoring and troubleshooting. The Price web server allows the user to view all status variables like room temperatures, humidity levels, air flows, etc. for every zone controller on the network, as well as change temperature and air flow set-points right from the PC.

Rooftop Electrical Enclosure

PRTU-Controller (Mounted in Plenum)

Bypass Damper

Static Pressure Sensor

PRTU-Stat

PIC Zone Controller or Prodigy Smart Diffuser w/BACnet

Price Diffuser

System Layout

The following image outlines a BACnet networking system with PIC zone controllers on terminals; or Prodigy Smart Diffusers.

The PRTU features:

- Up to 30 zones per Rooftop Controller.

- Modules for input/output (I/O) expansion - allow for numerous equipment and sensor hookups.

- **The ASHRAE standard BACnet router option - allows for advanced control and monitoring of a building system.**

- **Real Time Clock and Calendar** – allows for scheduling, which leads to energy savings.

- **Polling Data from Network** - controls the packaged rooftop unit based on data collected from each zone.

- **Network Occupancy Control** – scheduled occupancy control and schedule override through the PRTU.

- **Optimized Staging** - eliminates offset error by suspending second stage cooling or heating when the first stage continues to meet space temperature requirements.

- **Equipment Safety Timers** - programmable safeties to prevent outputs from cycling too fast.

When You Need Flexibility

Whether installed on a brick or glass wall, the Price Wireless Thermostat provides accurate system control anywhere in the occupied space.

Price Wireless Thermostat

For installations where running CAT5 and other wiring is inconvenient or even impossible, Price offers a wireless thermostat option.
Using cutting-edge wireless technology, a base station mounted under the floor or in the ceiling communicates with a battery powered remote thermostat.
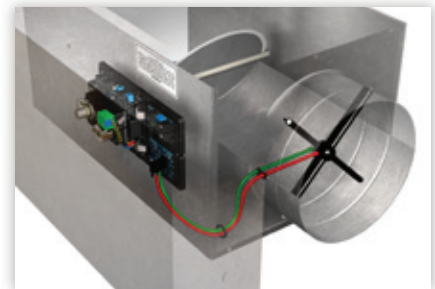
Features:

· **Range: up to 50 feet through standard wall**

· FCC and IC certified wireless module

· Off-the-shelf user replaceable batteries

· Compatible with new-generation Price controls

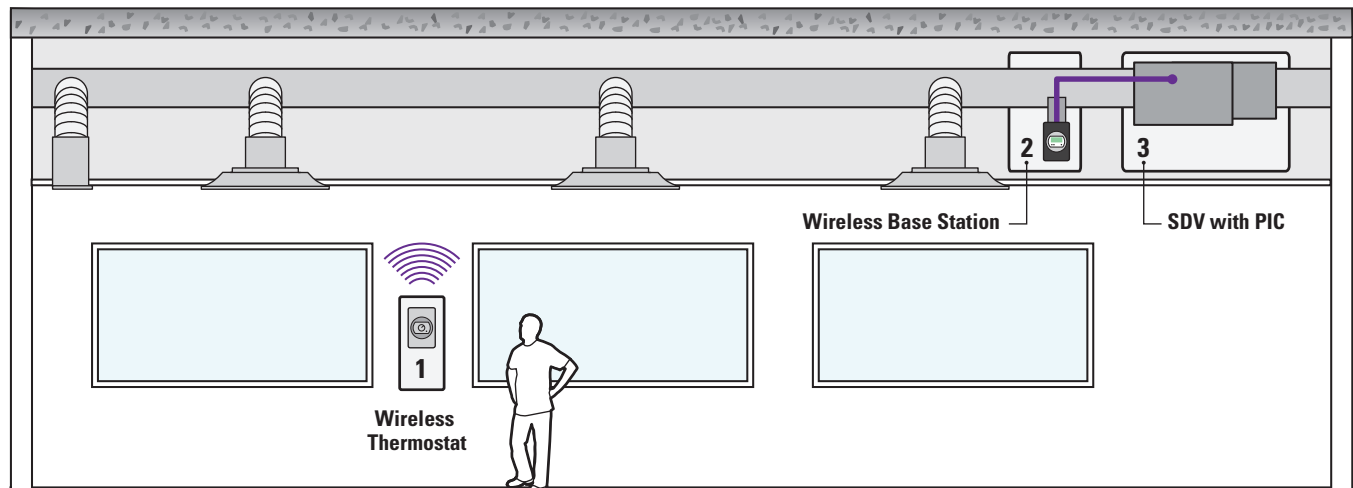· **Connects to the PIC for zone control and to the Prodigy Smart Diffuser**

1. Price Wireless Thermostat (Mounted in Room)

2. Price Wireless Base Station (Mounted in Plenum)

3. Price PIC Controller (Main Circuit board)

Wireless Base Station

SDV with PIC

Wireless Thermostat

Personal Zone Control

Enhances traditional system design by adding the element of personal control.
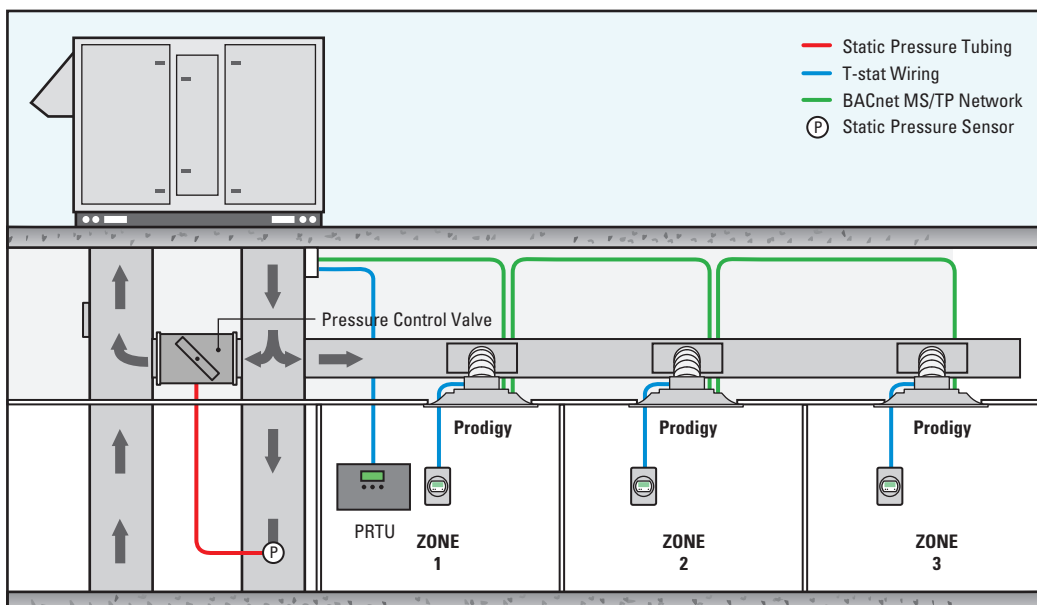
Price Prodigy® Smart Diffuser

An externally powered VAV diffuser, the Prodigy diffuser features a high-torque gear motor for fast response, long life, and reliable operation. A room temperature sensor provides constant feedback to the microprocessor controller located in the diffuser, enabling precise control of the space temperature.

Features:

- **Fast, silent AC Motor**
- BACnet networking option for BAS integration
- **Combine with Price Rooftop Unit Controller (PRTU) for VVT (pressure dependant) zone control**

- Re-heat output available on the master unit
- Compatible with wireless thermostat systems
- Supports up to 5 drone units
- "Plug and Play" connections for easy installation

Legend:
- Static Pressure Tubing
- T-stat Wiring
- BACnet MS/TP Network
- P Static Pressure Sensor

Pressure Control Valve

Prodigy — ZONE 1 — PRTU

Prodigy — ZONE 2

Prodigy — ZONE 3

Networked system layout with Prodigy

Underfloor Modulating Controllers
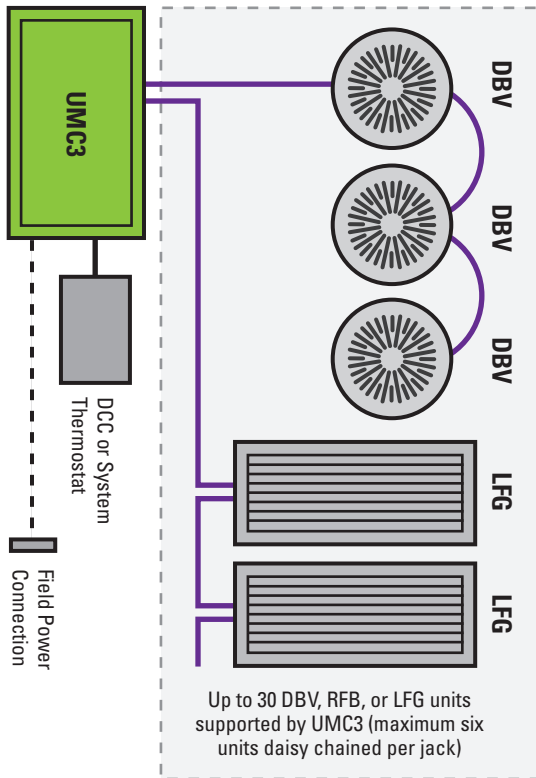
UMC3 – Zone Controller

This underfloor controller is used to control groups of diffusers that serve a single zone. The controller's main function is to read the space temperature from a thermostat or BMS signal and then actuate the diffusers in response to the zone demand. The UMC3 is typically used in interior zones or cooling only applications.
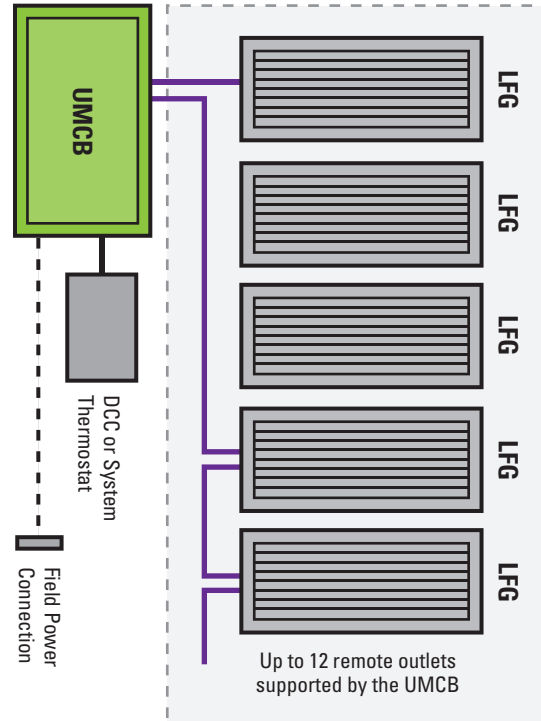
Features:

· **BACnet network capabilities**

· **Five RJ12 output jacks to convey power and control signals to 30 round floor baskets (DBV) or boots (RFB)**

· **Two RJ12 output jacks to convey power and control signals to 12 linear floor grilles with integrated heaters (LFGH)**

· "Plug and Play" connections for easy installation

· 96 VA class 2 transformer

· Damper status lights (Yellow LEDs)

· Line overload indicator LEDs for each output jack

· Five Thermostat options (room sensor, dial, LCD, LCD with motion sensor, and wireless)

UMC3 – Zone Controller

UMC3

DBV

DBV

DBV

LFG

LFG

DCC or System Thermostat

Field Power Connection

Up to 30 DBV, RFB, or LFG units supported by UMC3 (maximum six units daisy chained per jack)

UMCB – Terminal Unit Controller

UMCB

LFG

LFG

LFG

LFG

LFG

LFG

DCC or System Thermostat

Field Power Connection

Up to 12 remote outlets supported by the UMCB

DBV = VAV Twist Outlets
LFG = Linear Floor Grille

UMCB – Terminal Unit Controller

As the name implies, this controller is mounted directly on an underfloor terminal unit to control the functions of the terminal unit. The UMCB (with Price thermostat) is capable of actuating the unit's dampers, fan, heating coil and valves, plus, up to 12 air outlets. A Building Automation System (BAS) can also be used instead of a thermostat as an input for the UMCB.
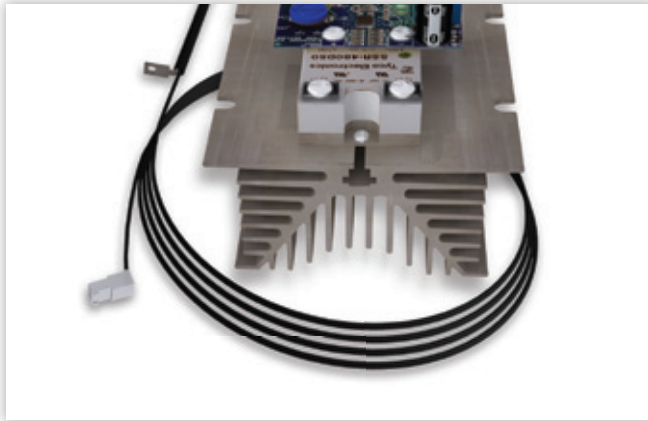

Features:

- BACnet network capabilities

- 19 terminal block connections capable of output signals such as cooling and heating control, ECM fan motor control, fan relay, reheat (binary, analog, and tristate), etc.

- Two RJ12 Output jacks used to convey power and control signal to 12 remote outlets

- Two RJ45 jacks for network connection

- Four thermostat options (room sensor, dial, LCD and LCD with motion sensor, wireless)
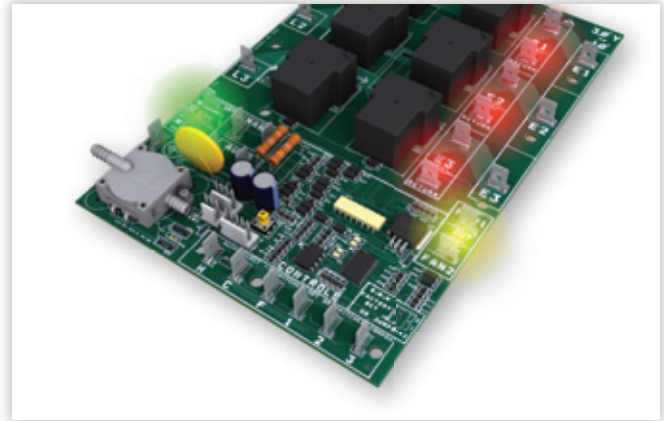
Additional Price Control Technology

SCR Controller with Discharge Air Temperature (DAT) – Silicon Controlled Rectifier

Acts like an electronic switch that turns on and off large amounts of power to the load (heater)

The Price SCR controller's proportional control of the duct heater maintains room set-points more accurately than on/off or staged systems, providing maximum comfort in the space. This controller uses a Zero Crossing feature that allows a soft start of the electronic load, which eliminates power surges.

Features:

- Factory or Field installable optional DAT Probe for maintaining outlet air.

- **DAT helps prevent overshooting temperature which wastes energy and can cause occupant discomfort.**

- **Silent Operation** - Solid state switching of the coil elements eliminates noisy contactors or the requirement for more costly mercury contactors.

Price Silent Guard (PSG)

An all-in-one solution to duct heater control

The Price Silent Guard heater control module provides efficient operation of duct heaters with a wide range of features to cover all control, safety and troubleshooting concerns. **The complex internal wiring normally associated with duct heater assemblies is eliminated and replaced with the sleek and compact all-inclusive PSG circuit board.**

Features:

- **Quiet PCB relays.**

- **Indicator LEDs for each stage of heat and fan output**

- Auto reset 24 VAC thermal fuse

- On-board digitally filtered air flow switch

- **Status LEDs show current mode and help with trouble-shooting** (ie: not enough air, manual reset trip, etc.)

ECM Deluxe Speed Controller

The Price Deluxe ECM speed controller works with high efficiency ECMs. This low voltage (24 VAC) speed control allows for full manual (push button adjust) or BAS (2-10VDC signal) control of the ECM. The bright digital display allows for easy setup of the system. Optional wall mount is available.

Features:

· **Dual outputs for controlling two ECM motors**

· Red three-digit digital display for reading out:

   · **Speed 0-100%**

   · **Motor RPM** (for motor number 1 only)

   · **BAS input voltage** (digital readout of incoming BAS voltage signal)

· Building Automation System input (2-10VDC) for remote control

· Also available: ECM Standard Speen Controller, see www.price-hvac.com for more details.

Calibration Software: Linkersoft

The LINKER is a USB interface to Price controls. It is used in conjunction with FREE setup and balancing software available from Price. **The menu structure is easy to follow, and allows anyone, from building owners, operators and contractors, to make any required changes to settings and parameters.**

Features:

· **Allows for on-site balancing during commissioning**

· VVT mode: for pressure dependent operation

· VAV mode: for pressure independent operation

· **Set-point limits allow for adjustment of set-point min. and max. ranges**

· Output adjustments for fan sequences and heat

· **Available for download from: www.price-hvac.com/software/Linkersoft**

Resources and Support

Price Engineer's HVAC Handbook

The Most Comprehensive Guide to HVAC Fundamentals

The Price Engineer's HVAC Handbook is a compilation of the engineering knowledge related to the application of air distribution and noise control products and approaches gained at Price over the past 60 years.

The Handbook contains chapters on controls and its applications, which feature liberal use of examples and graphics to help illustrate and explain concepts and systems.

Chapter 6: Control Theory

Chapter 11: Controls

Contact your local Price sales representative to reserve your copy.

Support Services

From superior technical support, to proper implementation of controls and training, we understand that for you to succeed you require more than just a product solution. The application and support services we provide are equally important for the proper implementation of your control strategy. **Price offers a complete range of support services, where and when you need it most.**

Take advantage of our:

- **Dedicated controls classes** - Provide you with hands-on training and expertise
- **Website** - www.priceelectronics.ca
- **Website** - www.price-hvac.com
- Promotional literature
- Videos
- **Application and sequence review**
- **Field commissing/ Start-Up**

Product List

PIC Series
Price Intelligent Controller Series

PIC
Price Intelligent Controller

PIC - HP
Hydronic Products

PIC-FC
Fan Coil

PIC-VV
Venturi Valve

Controllers

Field Device

PRTU
Price Rooftop Unit Controller

PAC
Price Analog Controller

UMC3
Underfloor Modulating Controller - 3rd Generation

UMCB
Underfloor Modulating Controller for Terminals

Linker
Field Linker Device

Heater Controllers

Speed Controllers

Smart Diffuser

SCR
Heater Controller

PSG
Heater Controller

ECM
Standard Speed Controller

ECM
Deluxe Speed Controller

USC
Universal Speed Controller

PRODIGY
Linear Enclosure

Thermostats

Wireless

LCD with Motion Sensor

LCD

Dial

Room Sensor

price®

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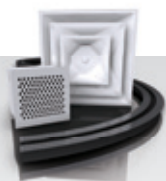· Price Technical Center West
· Phoenix Manufacturing Facility

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· Canadian Head Office
· Price Research Center North
· International Sales Office
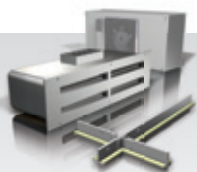· Winnipeg Manufacturing Facility

PRICE INDUSTRIES

130B Pippin Road
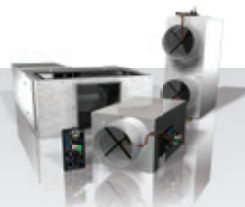Vaughan, Ontario Canada L4K 4X9

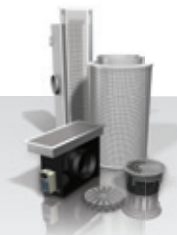· Toronto Manufacturing Facility

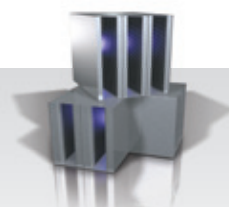Grilles & Diffusers   Critical
Environments   Terminals &
Controls   Sustainable
Building   Noise Control

www.**price-hvac**.com