

MANUAL – INSTALLATION + SERVICE

Power and Control Module

Third Party Zone Controllers

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PRICE[®]

PCM: THIRD PARTY ZONE CONTROLLERS

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PRODUCT OVERVIEW

Introduction

In this manual, you will find technical descriptions and diagrams of underfloor system components along with their installation instructions. Practical guidelines and recommendations are also provided. If more information is required about this equipment, please contact a Price sales representative.

General Safety Guidelines

This document is intended for use by owner-authorized operating/service personnel who are expected to possess the required training to enable them to perform their tasks properly and safely. This individual must have read and understood this document and any referenced materials prior to performing any task on this equipment. Also, it is essential that this individual be familiar with and comply with all applicable governmental standards and regulations pertaining to the task in question. This individual must also verify that installation and connections comply with local building codes. It is the obligation and responsibility of the operating/service personnel to identify and recognize these inherent hazards, protect themselves, and proceed safely in completing their tasks. Failure to comply with any of these requirements could result in severe personal injury or death to themselves and people at the site, as well as serious damage to the equipment and the property in which it is situated.

The equipment discussed in this manual is relatively complicated apparatus and must be handled with the necessary precautions. Individuals may be exposed to certain components or conditions such as refrigerants, oils, materials under pressure, rotating components, and both high and low voltage during installation, operation, maintenance or service of this equipment. If misused or mishandled, each item has the potential to cause bodily injury or death.

Safety Precautions

When using electrical appliances, basic safety precautions should always be followed including the following:

1. Read all instructions.
2. Do not touch hot surfaces.
3. To protect against electrical shock do not immerse cord, plugs, or Control Box in water or other liquids.
4. Unplug the unit when not in use and before cleaning.
5. Do not operate any appliance with a damaged cord or plug or after the appliance malfunctions or has been damaged in any manner. Return appliance to the nearest authorized service facility for examination, repair or adjustment.
6. The use of accessory attachments not recommended by the appliance manufacturer may cause injuries.
7. Do not use outdoors.
8. Do not let cord hang over edge of a table or counter, or touch hot surfaces.
9. Do not place on or near a hot gas or electric burner, or in a heated oven.
10. Always attach plug to appliance first, then plug into the power source. To disconnect, turn any control to "off", then remove plug from power source.
11. Do not use appliance for other than intended use.
12. Save these instructions.

Safety Symbols

The following symbols are used in this document to alert the reader to areas of potential hazard:



Failure to observe may result in personal injury, death or equipment damage.



Failure to observe may result in equipment damage.

NOTE: Used to highlight additional information helpful to the reader.

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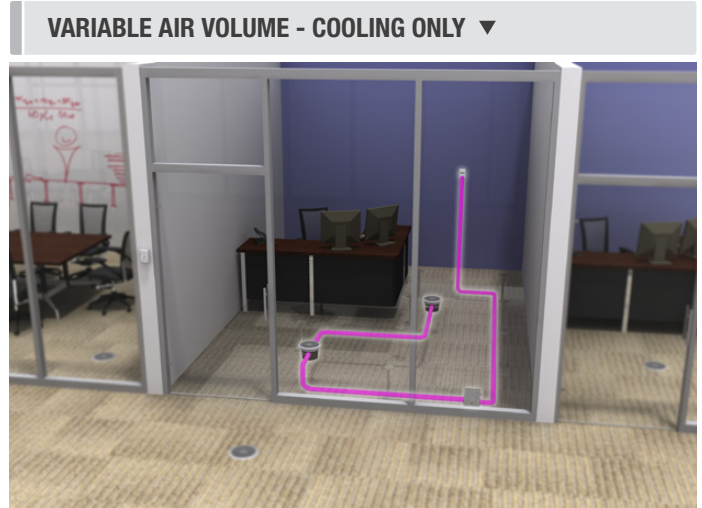
PRODUCT OVERVIEW

Underfloor Systems Control Zones

INTERIOR ZONES

Variable Air Volume - Cooling Only

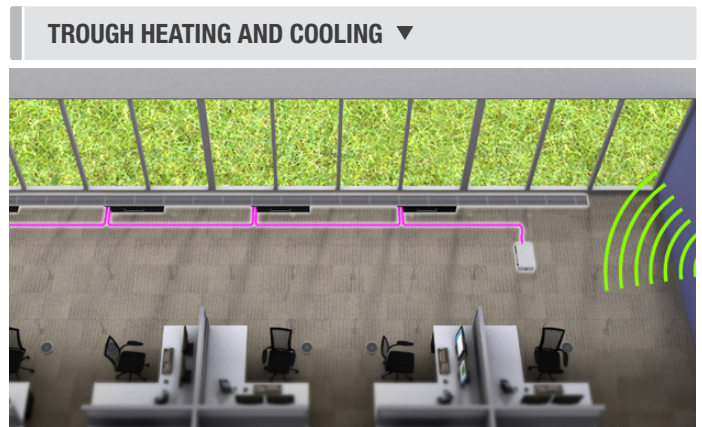
If independently controlled zones are desired, fed from an open plenum, variable volume baskets can be used. These variable volume baskets are controlled by a PCM, with one PCM per control zone. Using a room thermostat, the PCM can modulate the basket's damper position to meet the cooling demand of the space without over cooling.



PERIMETER ZONE

Trough Heating and Cooling

Use of linear floor grilles with integrated heating elements offer a system with heightened flexibility and efficiency as it omits the use of fan terminal units and ducting. These perimeter trough units come with an optional plenum damper, allowing for both heating and cooling through the same trough. These dampers are controlled by the PCM, which coordinates the modulation of the dampers to meet the space demand during cooling, and closing of the dampers during heating mode.



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General Description

The Power and Control Module for Third Party Zone Controllers allows for control of Price ModuFlex products using a third party zone controller while maintaining the single cable power and control and plug-and-play connections of the ModuFlex control solutions.

The PCM is a rugged galvanized enclosure complete with 50 VA or 100 VA transformer (depending on zone size). This transformer will power all the controllers inside the PCM as well as the ModuFlex products. Two and five port options exist for control of twelve and thirty dampers, respectively. A 0-10V damper signal is sent from the third party zone controller to the ModuFlex controller, which handles all of the damper movement and calibration.

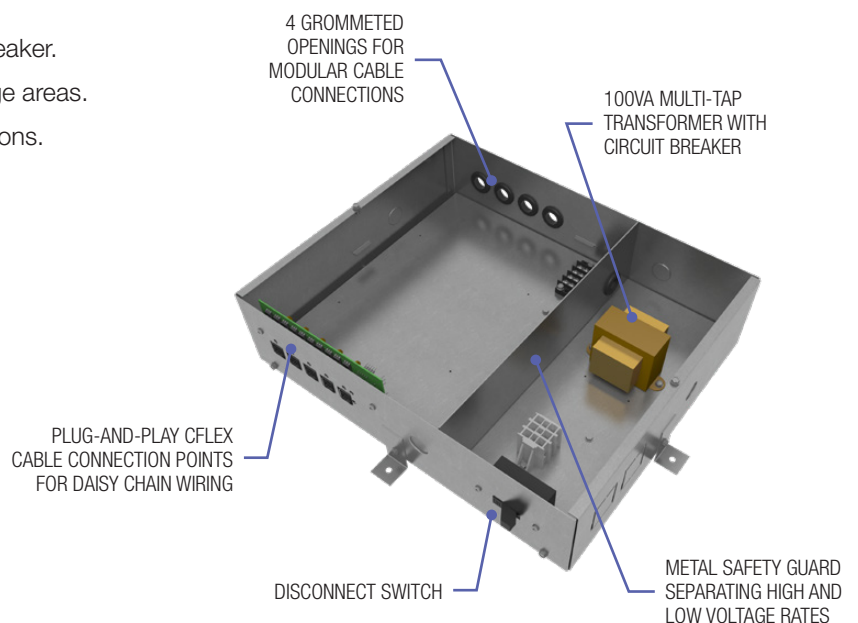
Features of the PCM

- Control up to 12, or 30 underfloor dampers depending on zone size.
- Modular connections to dampers – Use RJ-12 and/or RJ-45 cables included with dampers to connect underfloor dampers to PCM.
- Outputs protected by self-resetting thermal fuses – Prevents damage to circuit board in the event of a damaged cable. Fault LED lights when dampers are trying to drive on an output with damaged cable.
- Analog Input - Use to deliver damper control signal from third party zone controller to the ModuFlex product controller.
- LED Indication – For ease of troubleshooting – displays status, damper directions, BACnet status, and output fault.
- Pluggable terminal blocks – For easy installation.
- High-Voltage disconnect switch.
- 50 or 100 VA multi-tap transformer with circuit breaker.
- Metal safety guard separating high and low voltage areas.
- Grommeted openings for modular cable connections.
- Pluggable 24VAC power terminal.

Operation

The PCM for Third Party Zone Controllers receives a 0-10 VDC signal for cooling damper, heating damper or heating control signal from a zone controller or thermostat by others. The PCM calibrates the Price ModuFlex dampers and controls the dampers based on the signal, maintaining single cable power and control with the pug-and play connectors.

The controller regulates the dampers and/or heater proportional to the input signal, with a 0V signal being fully closed and a 10V signal being fully open.



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INSTALLATION & MOUNTING INSTRUCTIONS

Installation

1. Place the PCM in the underfloor plenum in the center of the controlled zone using a cable.
2. Supply power and ground to terminal per wiring diagram.
NOTE: This task must be completed by a certified and licensed electrician.
3. Connect 0-10VDC from controller/thermostat by others to cooling damper, heating damper or heating signal input terminal as required.
4. Connect underfloor dampers using modular cables supplied with dampers. Follow these general rules:
 - A. Connect no more than 30 dampers total
 - B. Daisy chain up to 6 dampers per output – no more
 - C. Do not connect dampers with RJ-12 plugs to heating units (if present) which use RJ-45 plugs.
5. Follow the instructions provided by the manufacturer of the third party zone controller for connection to thermostats and BAS systems.
6. Flip the PCM's power switch to the ON position.

Input/Output Description

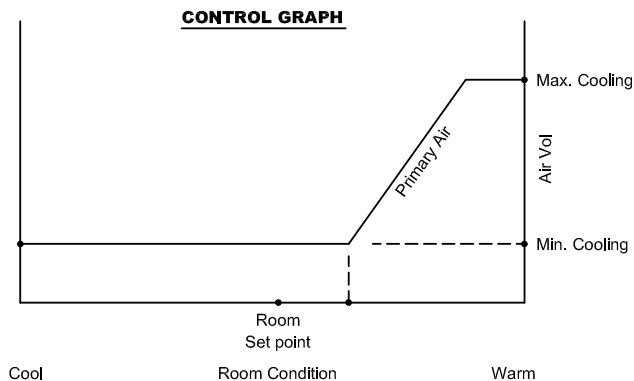
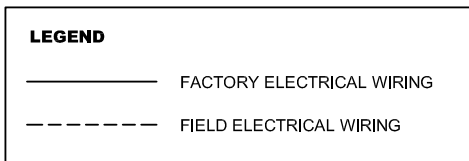
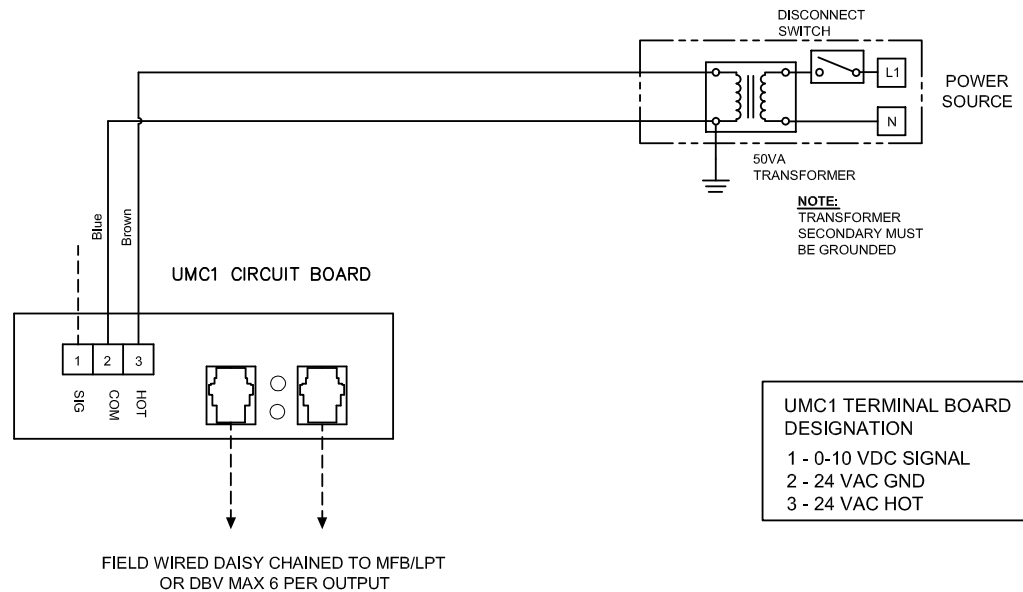
Analog 0-10VDC Inputs	
AI4 – Cooling	Can be configured (along with AI5) to control the PCM from a third party thermostat. In this configuration, AI4 is the 0-10VDC cooling load input. Can also be used for simple voltage monitoring when analog inputs are not configured as control source.
AI5 – Heating	Can be configured (along with AI4) to control the PCM from a third party thermostat. In this configuration, AI5 is the 0-10VDC cooling load input. Can also be used for simple voltage monitoring when analog inputs are not configured as control source.

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INSTALLATION & MOUNTING INSTRUCTIONS

Wiring

Below is an example of a typical PCM layout.



Sequence of Operation -- VAV Cooling.

Cooling: On an increase in space temperature the UMC1 modulates the dampers open. If the room temperature continues to increase the damper will open to the maximum cooling position. On a decrease in space temperature the UMC1 will modulate the damper to close. If the room temperature continues to decrease then the damper will close to the minimum cooling position.

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MAINTENANCE

Troubleshooting

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

Fault	Solution
Controller appears to be not responding or have no power. Green light on the controller is not blinking. Thermostat green indication light not on, or LCD screen is blank.	Check thermostat first for either green indication light, or LCD display. If either of these does not appear, then check the 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.
Dampers don't move, and red FAULT light is illuminated.	Red fault light means there is a short in the cable from CW/CCW to COM. Find shorted cable(s) in that string of dampers and replace.
Damper acts erratically	If the CW/CCW lines in the cable are shorted together (and not shorted to the COMMON), it could cause the dampers in a string to act erratically and drive in random directions. Find bad cable(s) in the string, and replace.

Hardware Specifications

Power Requirements	24VAC, 47-63 Hz 6VA (not including output loading) NEC Class II
Ambient Ratings	32° to 131° F (0° to 55° C) 10 to 90% RH (non-condensing)
Outputs	24VAC Binary (x5 or x2). Max 0.5 Amps Each jack connects up to 6 dampers Damper outputs - Either two or five ports (two of which may be heating ports). Each port can be connected to a maximum of 6 dampers.
Inputs	Analog 0-10VDC inputs
Enclosure Size	15.5 in. x 12.75 in. x 4 in.
Enclosure Weight	15 lbs. (6.8kg)

This document contains the most current product information as of this printing.
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