



MANUAL – INSTALLATION

Low Pressure By-Pass Units

LGB Series

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PRICE[®]

LOW PRESSURE BY-PASS UNITS

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LOW PRESSURE BY-PASS UNITS

INSTALLATION & MOUNTING INSTRUCTIONS

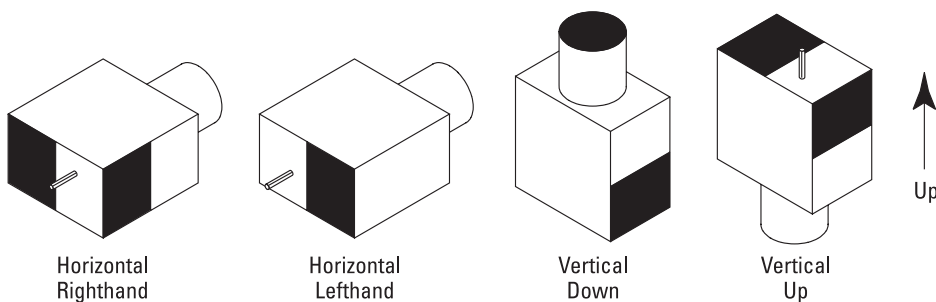
Installation

1. LGB unit can be installed as shown in Figure 1.
2. LGB units should be level to within 1" (25mm) from side to side to ensure the bypass damper does not bind.
3. A minimum clearance between wall and casing of 1 1/2 inlet duct diameters should be maintained on by-pass side of box.
4. For installation of the PIC controller to the LGB unit, refer to Page 2.
5. For installation of the MEP-4003 KMC actuator, refer to Page 6.
6. For installation of the Kreuter MCP3631 pneumatic actuator supplied as standard from E.H. Price, refer to drawing on page 7.
7. Refer to the following control package drawings for the wiring diagrams, parts lists and sequence of operation:
 - EC (Cooling): Page 8.
 - EC1 (Cooling with Perimeter Reheat): Page 9.
 - EHC (Heating / Cooling): Page 10.
 - EHC1 (Heating / Cooling with reheat): Page 11 & 12.For mounting of temperature sensor, refer to drawing on Page 13.
8. For balancing procedure, refer to drawing on page 13.

Maintenance

LGB is designed for zero maintenance. No oil or grease should be placed on tracks: they are designed to run dry; adding lubricants will add friction and collect dirt.

FIGURE 1 ▼



LOW PRESSURE BY-PASS UNITS

INSTALLATION & MOUNTING INSTRUCTIONS

Support: Having difficulty installing or configuring this product? Price is here to help.

Controls Application Support: 204.654.5613 (option 4) | controls@priceindustries.com | priceindustries.com/resources/type/literature

Mounting Instructions

Mount the PIC by sliding the actuator U-bolt over the damper shaft. The back end of the PIC is secured by installing the white plastic keeper (tied to the actuator motor with an elastic band) with two sheet metal screws. This keeps the PIC from moving when the actuator is turning, but still allows it to “float” to avoid binding on the shaft if the controller were screwed firmly in place.

Rotate the damper shaft all the way in one direction (either clockwise or counter-clockwise) and then depress the gray pivot clutch on the actuator, located directly below the green terminal block, to unlock the actuator, and rotate it all the way in the same direction the shaft was rotated in.

Tighten the nuts on the U-bolt clamp and secure the actuator to the damper shaft.

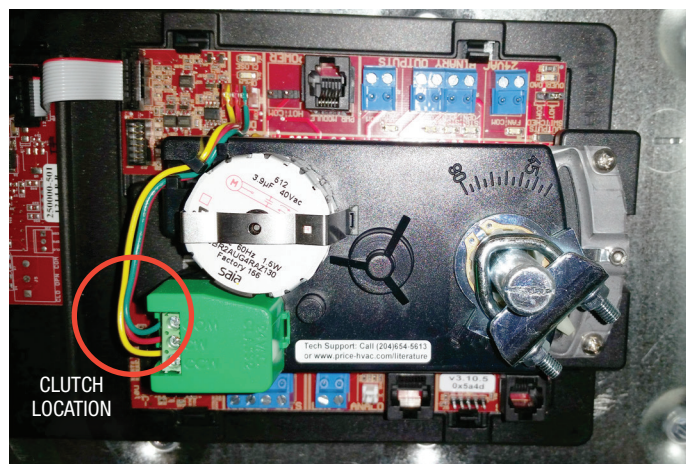
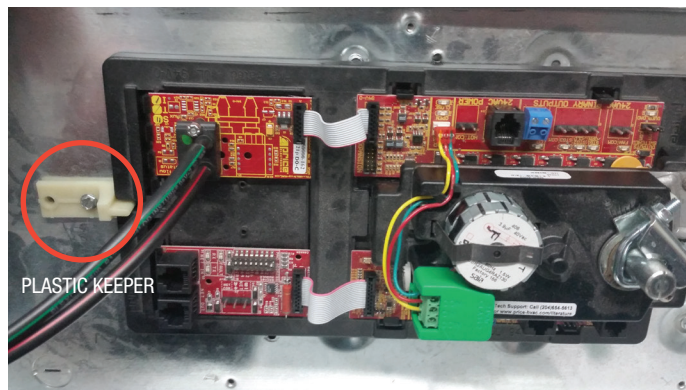
Depress the clutch again and verify the actuator and shaft can rotate through the full 90° range of motion.

NOTE: It does not matter if you choose clockwise or counter-clockwise to rotate the shaft and actuator before tightening the nuts. The PIC will calibrate on power up. All that matters is that the damper shaft and actuator have the full 90° range of motion.

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.

Power the PIC using 24VAC, the secondary 24VAC common of the transformer must be earth grounded, or power with Price PPM power module by plugging the supplied cables into the RJ-12 power jacks.



LOW PRESSURE BY-PASS UNITS

INSTALLATION & MOUNTING INSTRUCTIONS

Control Sequence 2865 - (PIC Controller)

Heat/Cool Changeover or Cooling Only with Analog Modulating Reheat - Pressure Department

Note: Sequence 2865 will control all sequences from 2860 through 2865.

Components

24VAC PIC controller c/w KMC MEP-4003 40 in-lb actuator for factory or field mounting directly to the damper shaft which includes an adjustable mechanical stop.

A wide range of thermostat options are available with the PIC controller, and shall be connected using the supplied 35 ft CAT5E (NETC35) cable from Price.

Available thermostats from Price:

- Blank Face Sensor thermostat
- Dial thermostat
- LCD thermostat (default thermostat in AIO)
- LCD with Motion Sensor
- Wireless thermostat and Base

Note: the LCD thermostat can be used to adjust parameters as required onsite. The LCD thermostat replaces the need for the Linker device onsite when a PIC controller is ordered for the LGB unit.

115VAC 20VA transformer c/w all necessary field mounting hardware.

IMPORTANT: When an electric duct reheat coil is installed, the minimum air volume must be field set to maintain or exceed the minimum face velocity, as indicated on the electric reheat coil nameplate and any pressure differential or airflow switch that is being used. Using the LCD thermostat, the Heating Min and Max damper positions can be set within the Service Menu.

(Refer to Page 19 of the PIC Installation manual on how to set the min and max heating flows)

Cooling Mode (Cool Supply Air):

On an increase in room temperature, the PIC controller will regulate the actuator to open the damper and increase the flow of cool air. As the space temperature increases, the damper position is maintained at the Cooling Maximum setting.

On a decrease in room temperature, the PIC controller will regulate the actuator to close the damper and reduce the flow of cool air. As the space temperature decreases further into the cooling proportional band, the damper position is maintained at the Cooling Minimum setting.

Heating Mode (Warm Supply Air):

On a decrease in room temperature, the PIC controller will regulate the actuator to open the damper and increase the flow of warm air. As the space temperature decreases, the damper position is maintained at the Heating Maximum setting.

On an increase in room temperature, the PIC controller will regulate the actuator to close the damper and reduce the flow of warm air. As the space temperature increases above the heating proportional band, the damper position is maintained at the Heating Minimum setting.

LOW PRESSURE BY-PASS UNITS

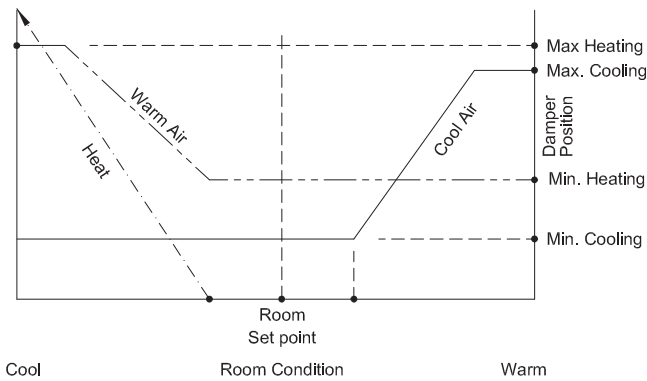
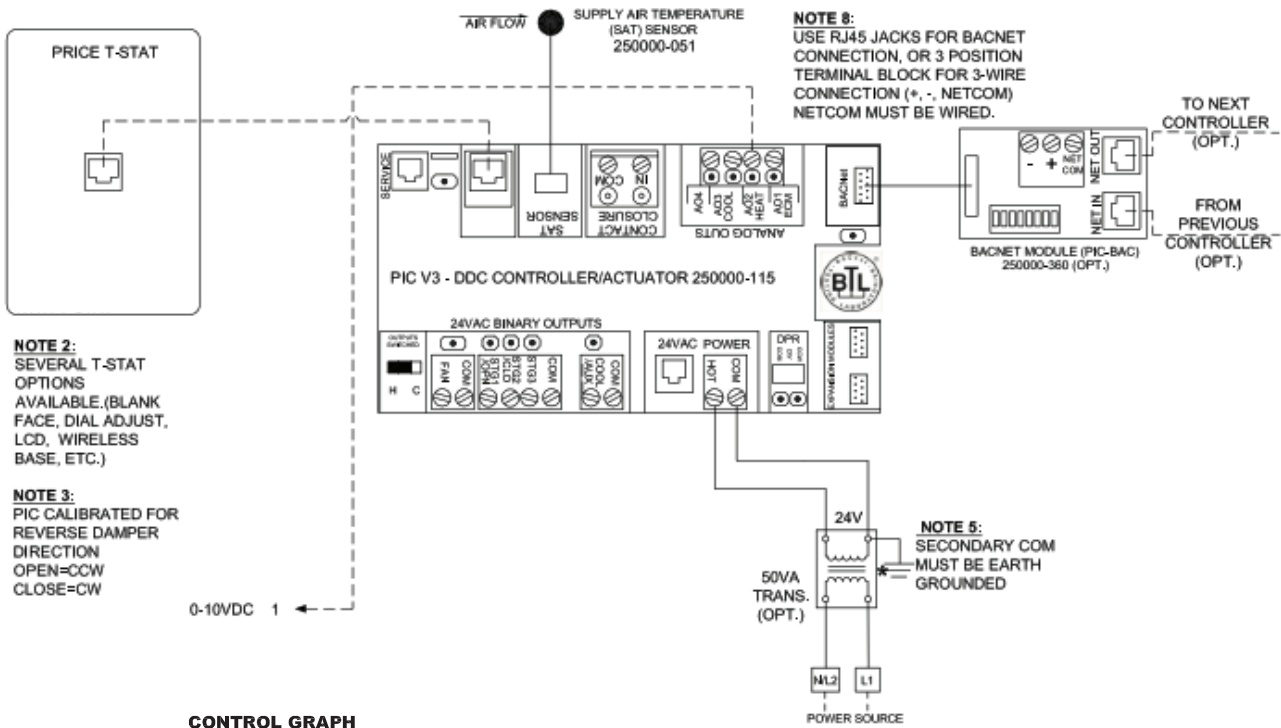
INSTALLATION & MOUNTING INSTRUCTIONS

Reheat Operation:

On a decrease in room temperature, the PIC controller will modulate the 0-10VDC output to increase the heat proportionally to the room demand.

Note: All heating outputs on the PIC controller are available for use, regardless of which PIC LGB sequence is selected.

CONTROL SEQUENCE 2865 ▼



LOW PRESSURE BY-PASS UNITS

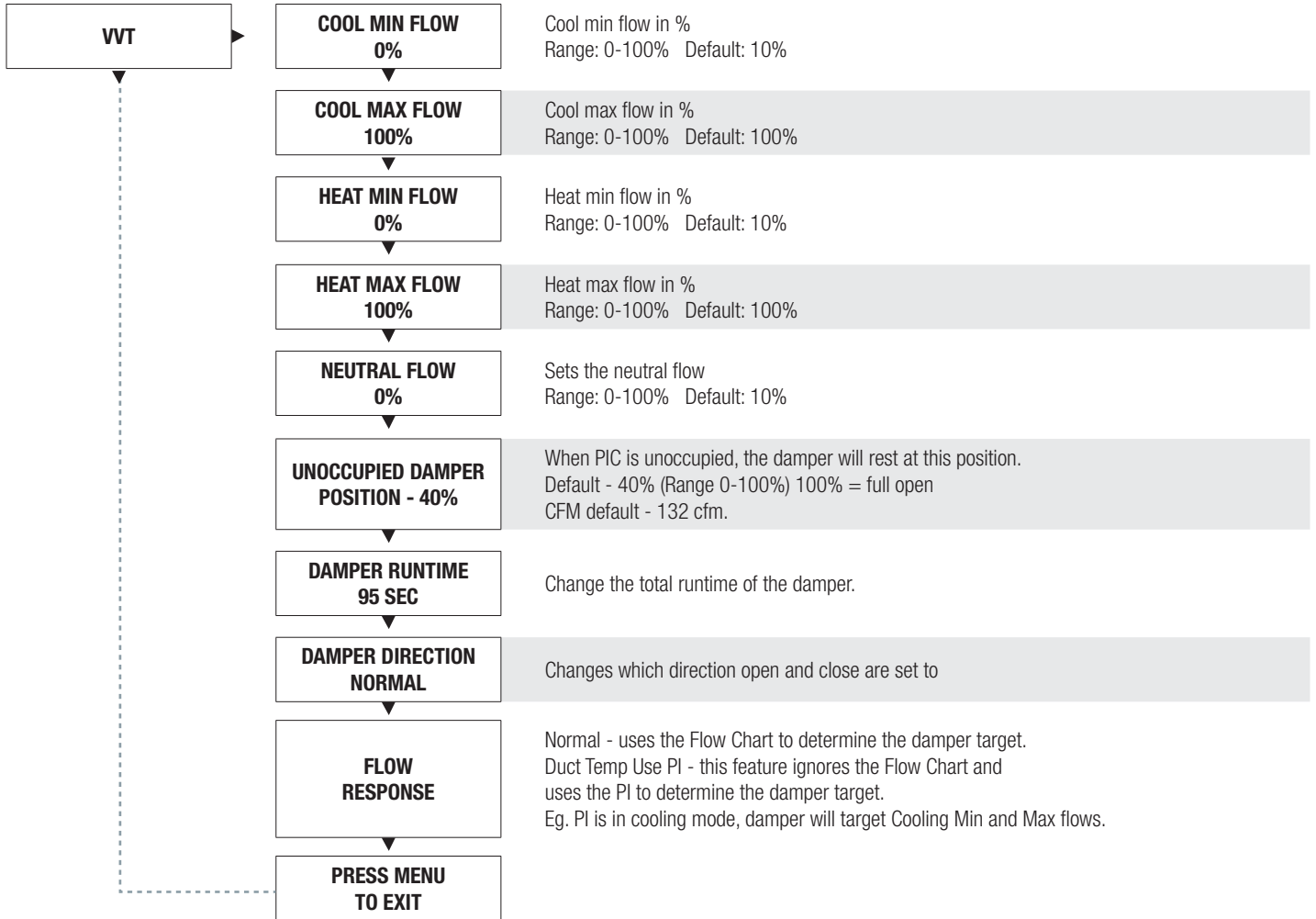
INSTALLATION & MOUNTING INSTRUCTIONS

Hold down the **Menu** button on the LCD Thermostat for **5 seconds** until prompted for a passcode; use **▲** and **▼** to enter the passcode; **DOWN, UP, UP, DOWN**.

VVT Menu

(Pressure dependent mode)

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

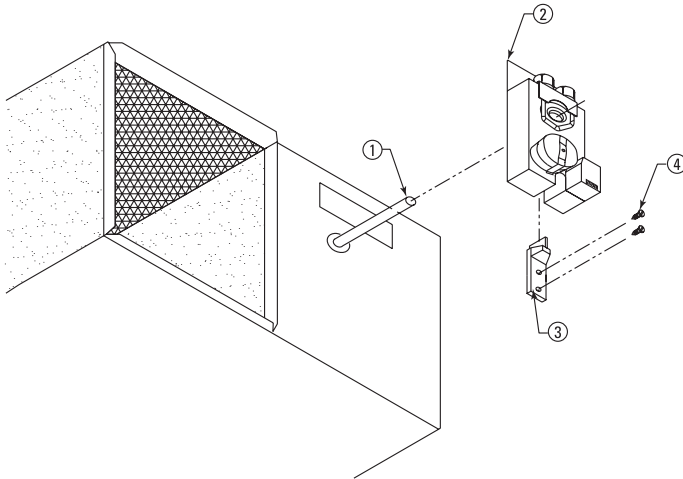


LOW PRESSURE BY-PASS UNITS

INSTALLATION & MOUNTING INSTRUCTIONS

Electric Actuator Mounting Detail

KMC MEP-4003 Series



Item	Qty	Description
1	1	LGB Shaft
2	1	KMC Actuator MEP 4003 Series
3	1	Non-Rotation Bracket (provided w/Actuator)
4	2	Self-Tapping Screw

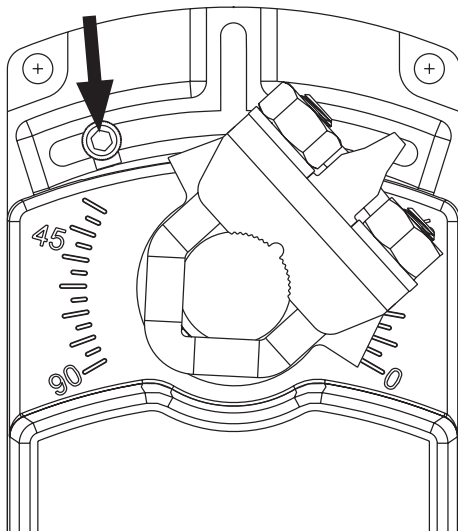
Minimum Airflow Calibration Procedure

1. Closing rotation is in the clockwise (CW) direction
2. With power to the controls disconnected, move the actuator to the full counterclockwise (CCW) position manually using the actuator clutch.
3. Determine the angle of minimum position required for the application
4. Loosen set screw and move to desired minimum position.

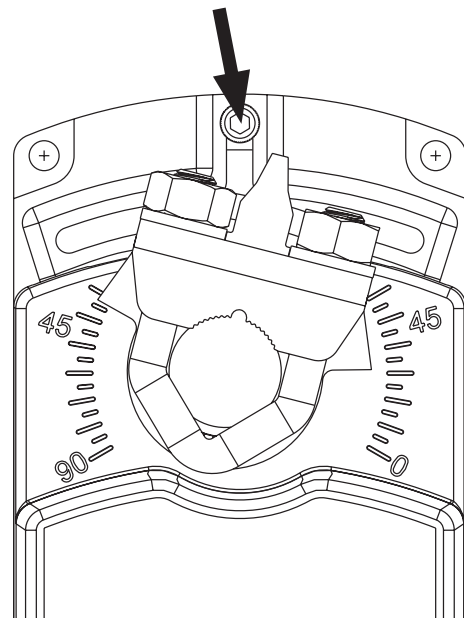
5. Rotate the actuator manually to minimum position using the clutch.
6. With the actuator at minimum position, adjust the position more accurately using airflow measurements.

Alternatively, minimum positions can be set in software using the Price USB Linker.

MINIMUM SETPOINT ▼



MAXIMUM SETPOINT ▼



LOW PRESSURE BY-PASS UNITS

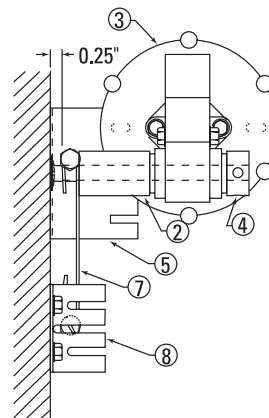
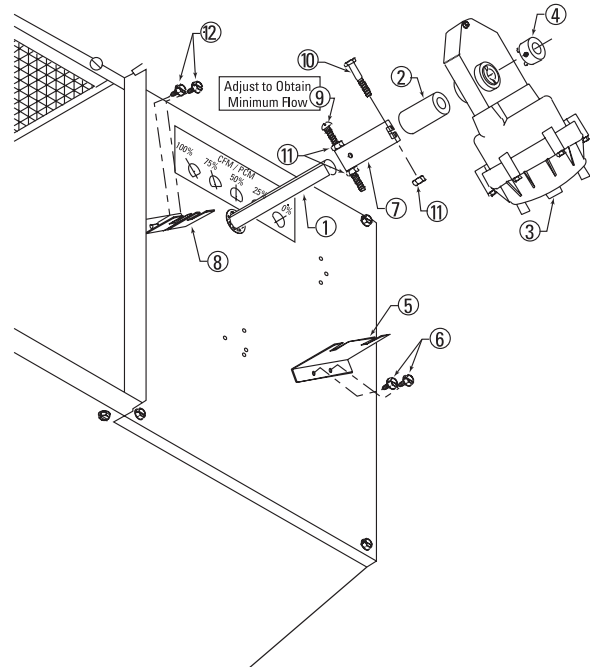
INSTALLATION & MOUNTING INSTRUCTIONS

Pneumatic Actuator and MFS Kit Installation Details

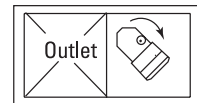
Kreuter Rotary MCP3631 Series

Item	Qty	Description
1	1	Shaft
2	1	PVC Spacer 0.5" ID x 1/.688" Long
3	1	Pneumatic Actuator MCP3631-XXXX KRT
4	1	Drive Bushing HLO-1006
5	1	Actuator Clip
6	2	SMS #10 x 0.5 A HSWH PL
MFS Kit		
7	1	Minimum Flow Lever
8	1	Stop Bracket (not required on LGB 6 & 8)
9	1	MS .25 - 20 x 4.0 SL RD PL
10	1	CS .25 - 20 x 1.25 HX PL
11	3	Nut .25 - 20 NC HEX PL
12	2	SMS #10 x 0.5 A HSWH PL

Direct Acting (See details below for reverse acting)



Direct Acting



Reverse Acting

LOW PRESSURE BY-PASS UNITS

INSTALLATION & MOUNTING INSTRUCTIONS

Control Sequence 2500

Cooling Only (EC Package)

Control Sequence 2500 is a direct acting arrangement for cooling applications.

Components

24 volt reversible actuator for factory or field mounting directly to the damper shaft and includes adjustable end stops.

24 volt modulating digital thermostat for field mounting. The setpoint range can be adjusted with a Price USB LINKER setup as well.

115 to 24 volt 20VA transformer c/w all necessary field mounting hardware.

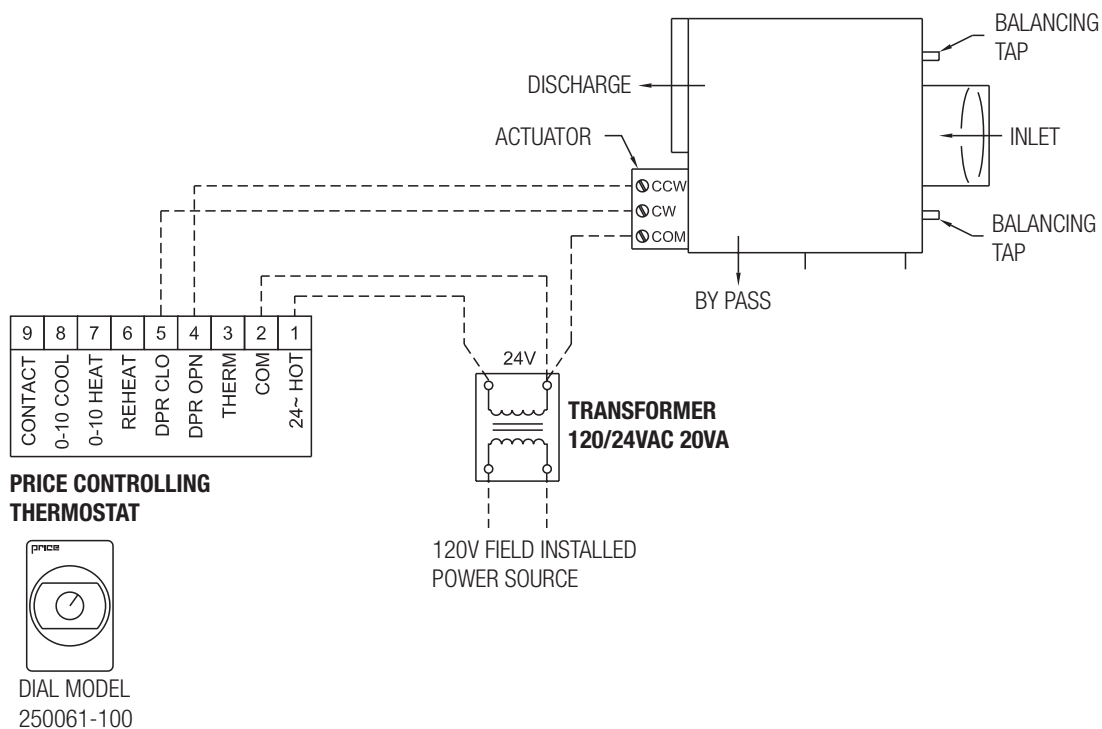
Sequence of Control

1. On a rise in room temperature, the thermostat energizes the actuator. The actuator slowly rotates the damper shaft ↻ to increase the cold air to the room.
2. On a fall in room temperature, the thermostat reverses the above action. The actuator slowly rotates the damper shaft ↻ to decrease cold air to the room.

General

1. The thermostat used in the C control package has a modulating control algorithm: as the room temperature approaches the desired set point, it will energize the actuator with shorter on times and longer off times to prevent overshoot of the set point.

CONTROL SEQUENCE 2500 ▼



LOW PRESSURE BY-PASS UNITS

INSTALLATION & MOUNTING INSTRUCTIONS

Control Sequence 2501

Cooling with Reheat or Perimeter Heating (EC1 Package)

Control Sequence 2501 is a direct acting arrangement for cooling applications with 1 stage of reheat or perimeter heating.

Components

24 volt reversible actuator for factory or field mounting directly to the damper shaft and includes adjustable end stop.

24 volt modulating electronic thermostat for field mounting. The setpoint range can be adjusted with a Price USB LINKER setup as well.

115 to 24 volt 20VA transformer c/w all necessary field mounting hardware.

IMPORTANT: When an electric duct reheat coil is installed, the minimum air volume must be field set to maintain or exceed the minimum required face velocity, as indicated on the electric reheat coil nameplate and any pressure differential or airflow switch that is being used. Use the adjustable end stop on the actuator.

Sequence of Control

1. On a rise in room temperature, the thermostat energizes the actuator. The actuator slowly rotates the damper shaft \curvearrowright to increase the flow of cold air to the room.

2. On a fall in room temperature, the thermostat reverses the above action. The actuator slowly rotates the damper shaft \curvearrowleft to decrease flow of cold air to the room.
3. If the room temperature continues to fall, the thermostat activates the control relay of the reheat coil or the perimeter heating.

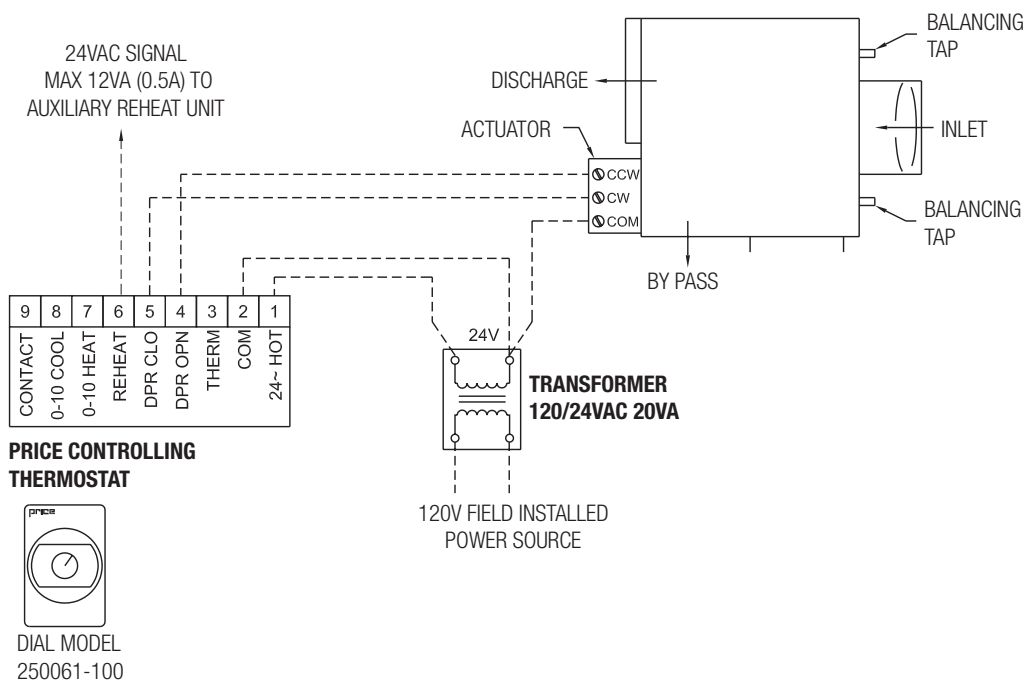
General

The thermostat used in the control package has a modulating control algorithm: as the room temperature approaches the desired set point, it will energize the actuator with shorter on times and longer off times to prevent overshoot of the set point.

Notes

1. When the auxiliary heating unit is equipped with a built-in 24 volt transformer, use the appropriate wiring diagram.
2. All heating relays, water control valves or magnetic contactors used with control package EC1 must have a maximum total coil rating of 12 VA.

CAPTION ▼



LOW PRESSURE BY-PASS UNITS

INSTALLATION & MOUNTING INSTRUCTIONS

Control Sequence 2502

Heating / Cooling with Automatic Change Over (EHC Package)

Control Sequence 2502 is a direct acting arrangement for heating / cooling applications with automatic change over.

Components

24 volt reversible actuator for factory or field mounting directly to the damper shaft and includes adjustable end stops.

24 volt modulating electronic thermostat c/w change over sensor for field mounting. The setpoint range can be adjusted with a Price USB LINKER setup as well.

115 to 24 volt 20VA transformer c/w all necessary field mounting hardware.

Sequence of Control

A. Cooling Mode – Cool air supplied in duct system.

1. The change over thermistor senses cool air in the LGB unit and signals the room thermostat to control the cold air supply.
2. On a rise in room temperature, the thermostat energizes the actuator. The actuator slowly rotates the damper shaft ↻ to increase the cold air to the room.
3. On a fall in room temperature, the thermostat reverses the above action. The actuator slowly rotates the damper shaft ↻ to decrease cold air to the room.

B. Heating Mode – Warm air supplied in duct system.

1. The change over thermistor senses warm air in the LGB unit and signals the room thermostat to control the heating air supply.
2. On a rise in room temperature, the thermostat energizes the actuator. The actuator slowly rotates the damper shaft ↻ to decrease the heating air to the room.
3. On a fall in room temperature, the thermostat reverses the above action. The actuator slowly rotates the damper shaft ↻ to increase heating air to the room.

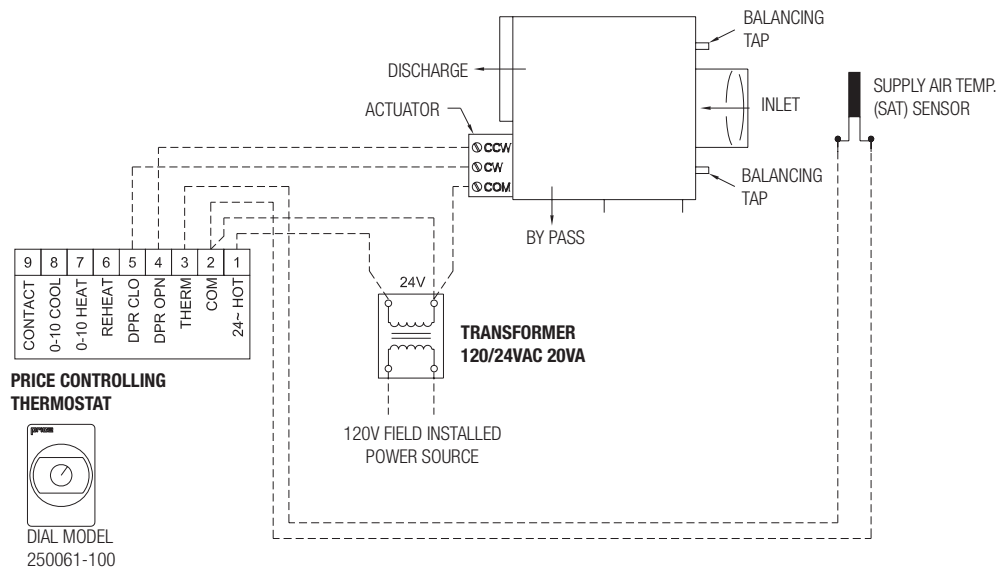
General

1. The thermostat used in the control package has a modulating control algorithm: as the room temperature approaches the desired set point, it will energize the actuator with shorter on times and longer off times to prevent overshoot of the set point.

Notes

1. The heating/cooling change over thermistor uses a dynamic heat/cool changeover algorithm.

CONTROL SEQUENCE 2502 ▼



LOW PRESSURE BY-PASS UNITS

INSTALLATION & MOUNTING INSTRUCTIONS

Control Sequence 2503

Heating / Cooling with Automatic Change Over and Reheat or Perimeter Heating (EHC1 Package)

Note: Sequence 2865 will control all sequences from 2860 through 2865.

Control package 2503 is a direct acting arrangement for heating/cooling applications with heat/cool changeover, along with the option to wire in 1 stage of binary reheat. An additional analog 0-10VDC output is also available for reheat.

Components

24 volt reversible actuator for factory or field mounting directly to the damper shaft and includes adjustable end stops.

24 volt modulating electronic thermostat c/w change over sensor for field mounting. The setpoint range can be adjusted with a Price USB LINKER setup as well.

115 to 24 volt 20VA transformer c/w all necessary field mounting hardware.

IMPORTANT: When an electric duct reheat coil is installed, the minimum air volume must be field set to maintain or exceed the minimum required face velocity, as indicated on the electric reheat coil nameplate and any pressure differential or airflow switch that is being used. Use the adjustable end stop on the actuator.

Sequence of Control

A. Cooling Mode – Cool air supplied in duct system.

1. The change over thermistor senses cool air in the LGB unit and signals the room thermostat to control the cold air supply.
2. On a rise in room temperature, the thermostat energizes the actuator. The actuator slowly rotates the damper shaft ↻ to increase the flow of cold air to the room. On a fall in room temperature, the thermostat reverses the above action. The actuator slowly rotates the damper shaft ↻ to decrease flow of cold air to the room.
3. If the room temperature continues to fall, the thermostat activates the control relay of the reheat coil or the perimeter heating.

B. Heating Mode – Warm air supplied in duct system.

1. The change over thermistor senses warm air in the LGB unit and signals the room thermostat to control the heating air supply.
2. On a rise in room temperature, the thermostat energizes the actuator. The actuator slowly rotates the damper shaft ↻ to decrease the flow of heating air to the room.
3. On a fall in room temperature, the thermostat reverses the above action. The actuator slowly rotates the damper shaft ↻ to increase flow of heating air to the room.
4. If the room temperature continues to fall, the thermostat activates, as the case may be, the control relay of the reheat coil or the perimeter heating.

General

1. The thermostat used in the control package has a modulating control algorithm: as the room temperature approaches the desired set point, it will energize the actuator with shorter on times and longer off times to prevent overshoot of the set point.

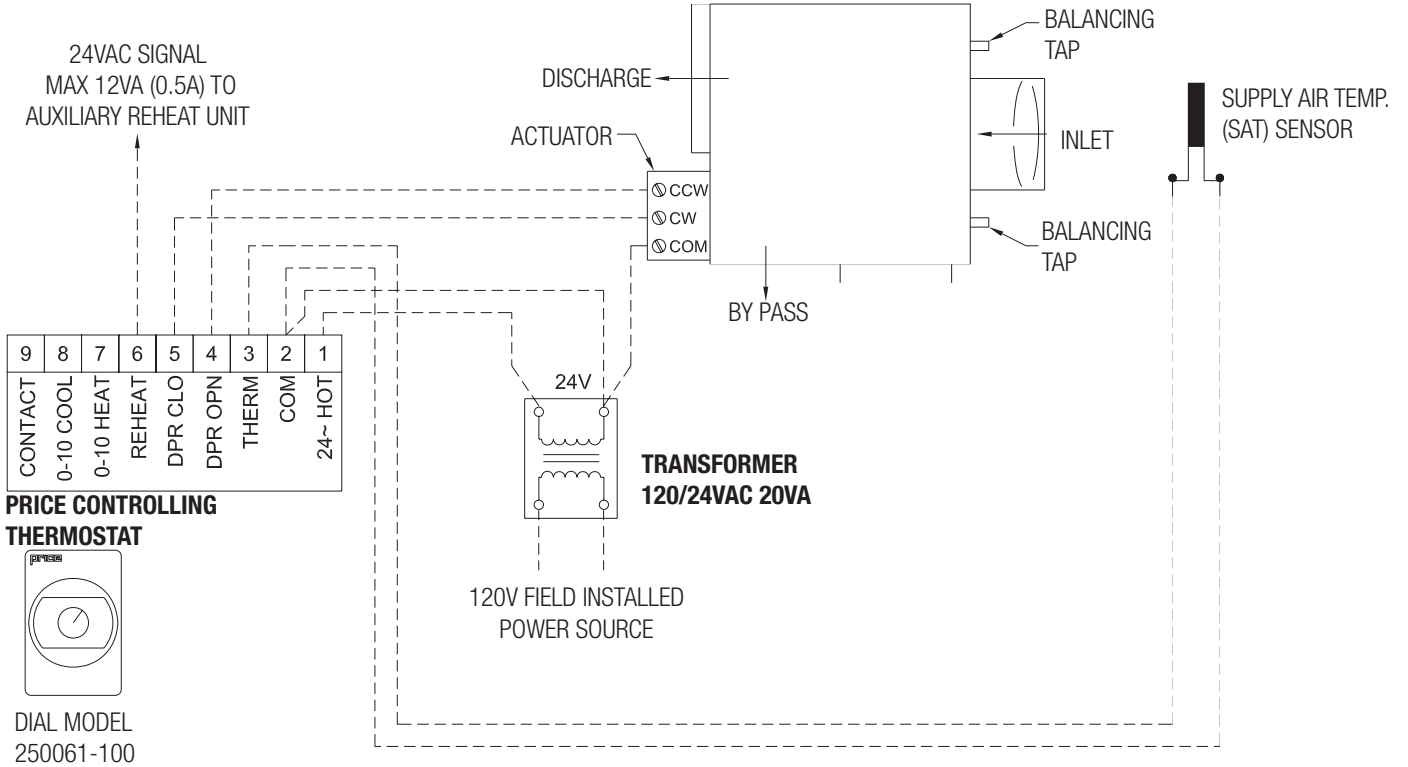
Notes

1. The heating/cooling change over thermistor uses a dynamic heat/cool changeover algorithm.

LOW PRESSURE BY-PASS UNITS

INSTALLATION & MOUNTING INSTRUCTIONS

CONTROL SEQUENCE 2503 ▼



LOW PRESSURE BY-PASS UNITS

INSTALLATION & MOUNTING INSTRUCTIONS

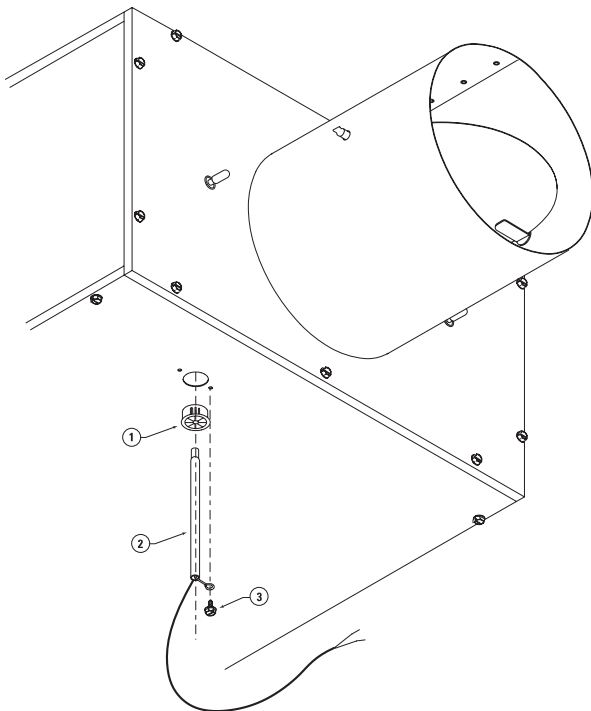
Temperature Sensor

Item	Qty	Description
1	1	Universal Bushing
2	1	Temperature Sensor
3	1	SMS #10 x .5 A HSWH PL

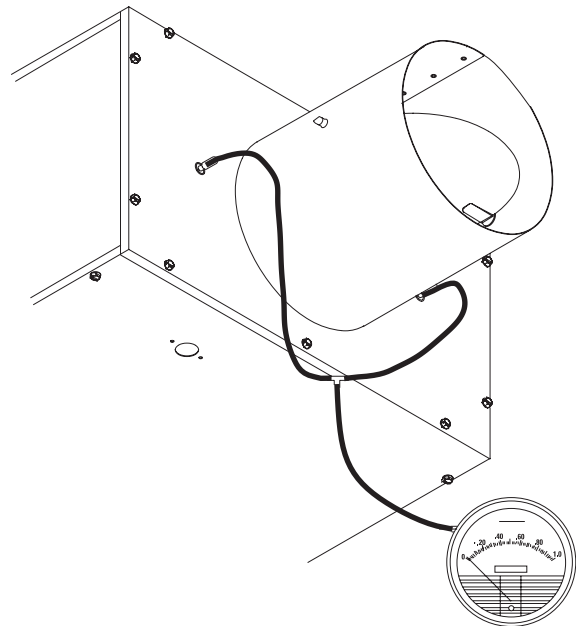
Balancing Procedure

1. Open the dampers of all supply outlets on the discharge duct from the terminal unit.
2. Adjust the room thermostat so that 100% of the air from the terminal unit is delivered to the room.
3. Adjust the inlet damper of the terminal unit to provide the required total amount of air.
4. Starting with the outlet the furthest away, adjust the damper of each air outlet to the required air volumes.
5. Take a static pressure reading using the dual pressure taps on the inlet panel (to obtain an average reading, link the two pressure taps together using two equal lengths of tubing connected by a "T").
6. Adjust the room thermostat to provide 100% by-pass air flow (or the minimum air volume to the room, if required).
7. Position the by-pass sliding damper so that the static pressure reading obtained in step 5 remains unchanged.
8. Readjust the room thermostat to its operating set point.

TEMPERATURE SENSOR INSTALLATION DETAIL ▼



BALANCING PROCEDURE ▼



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