



PRICE®

IRDV INTERNAL RETROFIT VARIABLE VOLUME CONTROL ASSEMBLIES SERVICE & INSTALLATION MANUAL

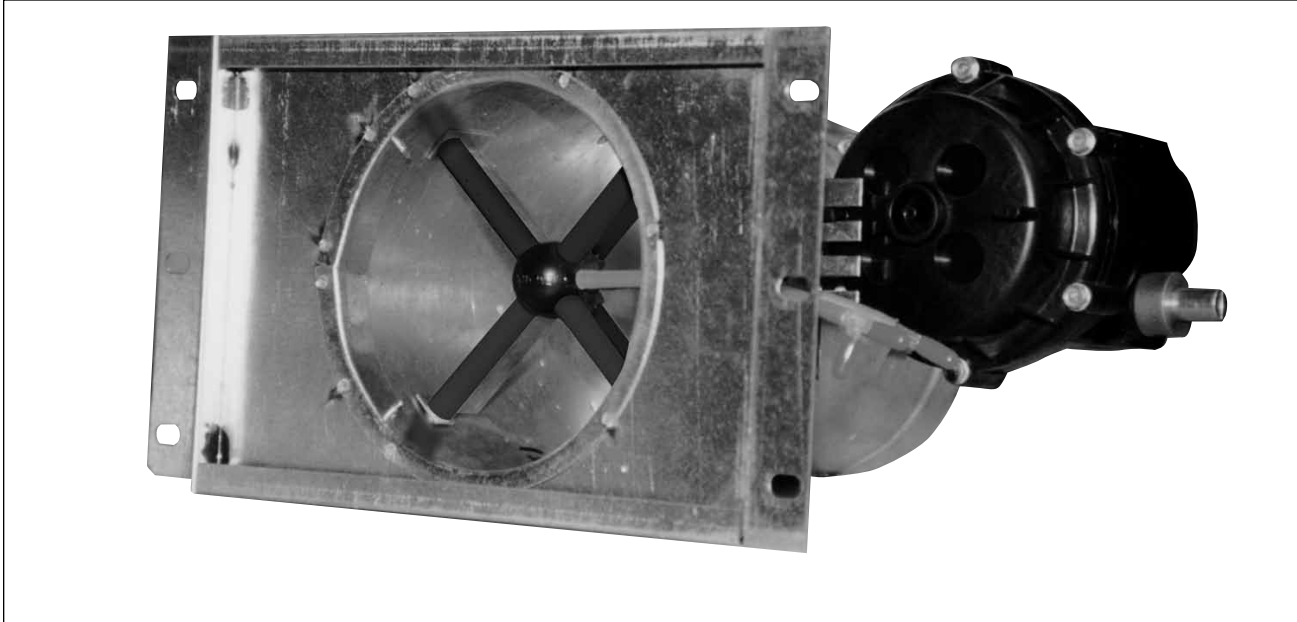
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www.price-hvac.com

General Information

PRICE Internal Retrofit Unit (variable air volume) are designed to replace mechanical constant volume regulators in existing Buensod and Krueger terminals. This retrofit is simply accomplished by removing the original mechanical regulator through the existing access panel and installing the retrofit unit on the old regulator flange. Factory drilled mounting slots are provided to accommodate the hole pattern of the old regulator flange.

In addition to the benefits of variable air volume operation, Price internal retrofit units offer enhanced control and reduced pressure drop when compared to the existing mechanical regulator. The choice of direct digital controls provides further advantages of monitoring and control.



Features

- Mechanical units can be easily retrofitted through the existing access door without ductwork modifications.
- Units fabricated from 22 GA zinc coated steel, mechanically sealed, leak resistant.
- Slotted mounting holes are provided for fastening to existing regulator flange.
- Damper leakage less than 2% of nominal flow at 3.0" inlet static as tested by ASHRAE Standard 130.
- Multipoint flow sensor averages and amplifies velocity for accurate control.
- Pressure independent operation.
- Available with pneumatic, electronic or direct digital controls.
- Actuator is factory mounted, controller is shipped loose for field mounting. Controls enclosure is an available option.
- Gauge taps are provided for flow measurement and balancing with pneumatic controls.

Internal Retrofit For:

- Buensod Design 14 Model H, HL Single Duct
- Buensod Design 14 Model H, HL Dual Duct
- Buensod Design 16 Model H, HL Single Duct
- Buensod Design 16 Model H, HL Dual Duct
- Krueger Model CVM Single Duct
- Krueger Model CVM Dual Duct

Buensod is registered trademark of Hart & Cooley Inc.

Product Key

IRXV X000

Controller Type

- P — Pneumatic
- E — Electronic
- D — Digital

Primary Air

- 5 — DDC Controls by others
- 8 — Pressure Independent controls by Price.

✓ Product Selection Checklist

- 1] Select Unit Inlet Size based on control parameters.
- 2] Select Control type (Pneumatic, Electronic, Digital) based on system design.
- 3] Select Control Sequence based on system design.

General Description

The assembly is designed to replace mechanical constant volume regulators in existing terminals for VAV pressure independent operation.

The terminal unit controls are supplied by the controls contractor and either factory or field mounted and wired. For information concerning controls, components, sequence of operation, etc., please refer to the documentation provided by the controls contractor.

Receiving Inspection

After unpacking the assembly, check it for shipping damage. If any shipping damage is found, report it immediately to the delivering carrier. During unpacking and installation do not handle by the inlet velocity sensor, damper shaft, or tubing. Damage may result.

Installing the Internal Retrofit Terminal Unit

Installation is accomplished by removing the original mechanical regulator through the existing access panel and installing the assembly on the old regulator flange.

Factory drilled mounting slots are provided to accommodate the hole pattern of the old regulator flange.

Controls can be mounted directly to the outside of the original terminal using sheet metal screws. Foam gasketing is provided around the face of the valve to prevent air leakage.

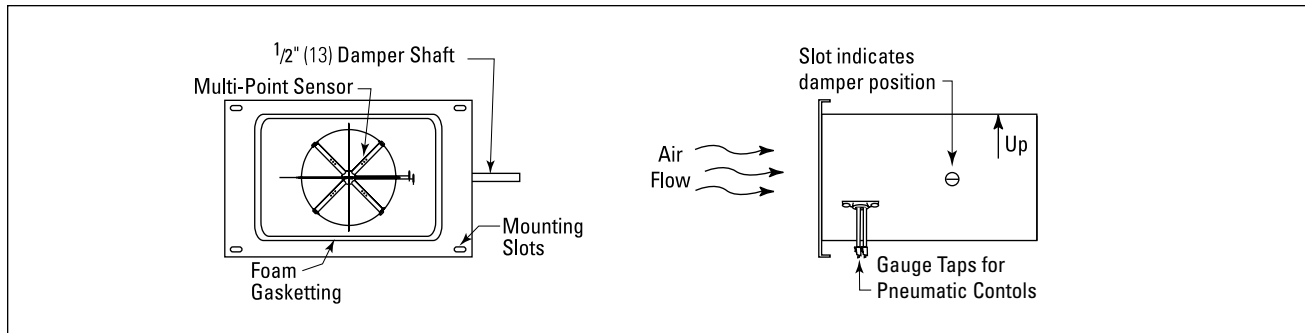
Terminal Controls

If controls are supplied by Price, the actuator would be factory mounted and controller shipped loose or mounted inside an enclosure.

For factory mounted Electronic or Digital controls, a wiring diagram will be included with the unit indicating the factory mounted components. For field wiring of room sensors and other accessories, refer to the control contractor's documentation. If controls have been field supplied, refer to the controls contractor's documentation for all wiring information.

For factory supplied Pneumatic controls, color coded tubing and brass T-fittings are supplied for field connecting. We recommend using the following color sequence for ease of maintenance:

- RED = HI Port for airflow sensor
- GREEN = LO Port airflow sensor
- WHITE = Thermostat line
- BLUE = Main Air
- YELLOW = Branch Output to Actuator



Damper rotation is always clockwise to the open position. An identification mark on the end of the shaft indicates the damper position. Capped "T"s are provided in the sensing lines from the amplifying sensor. These allow field connection of a differential pressure gauge for accurate air flow measurement.

The factory supplied sensing lines are color coded. Red indicates the total pressure or "HI" line which should be located on the upstream side. Green indicates the static pressure or "LO" line which should be located on the downstream side.

An optional protective enclosure may be provided to house the terminal unit control components. The enclosure cover is removable with two sheet metal screws.

The velocity sensor is normally supplied as standard with the terminal unit. However, in some cases a flow sensing device supplied by the controls contractor may be factory or field mounted. Refer to the submittal drawing for illustration.

The air volume ranges listed are recommended for optimum performance. A minimum value of zero is also acceptable if no heating coils are attached.

Selection of air flow limits below the listed values is not recommended. Stability and accuracy may not be acceptable at lower than recommended air flow limits. The actual performance will vary depending on the terminal unit controls supplied.

Air Volume Ranges

Unit Size	CFM	L/S
	Min.* - Max	Min.* - Max
4	50 - 225	24 - 106
5	63 - 350	30 - 165
6	66 - 450	31 - 212
7	99 - 650	47 - 307
8	132 - 800	62 - 378
9	167 - 1050	79 - 496
10	221 - 1350	104 - 637
12	304 - 2100	143 - 991
14	439 - 3000	207 - 1416
16	568 - 4000	268 - 1888

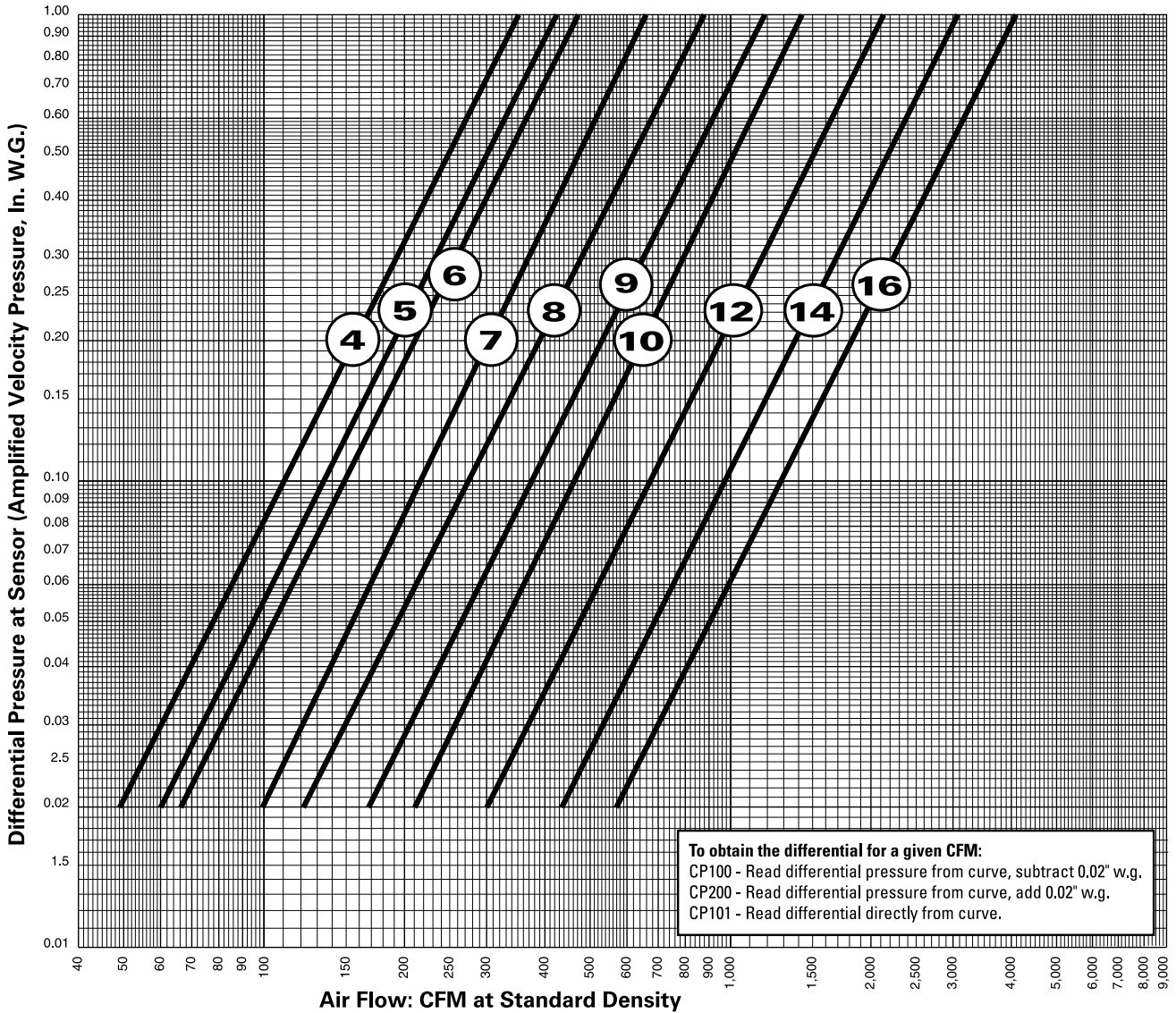
Notes:

Factory calibrated controls must be selected within the above flow range limits. A minimum value of zero is also available. When an auxiliary flow setting is specified, the value must be greater than the minimum setting and within the range limits.

On controls mounted by Price but supplied by others, the air volume ranges are guidelines only.

*Selection of air flow limits below the listed values is not recommended. Stability and accuracy may not be acceptable at lower than recommended air flow limits. The actual performance will vary depending on the terminal unit controls supplied.

SP300 Calibration Curves



Calibration Equation

$$VP = \left(\frac{Q}{K}\right)^2$$

- VP** - differential pressure at sensor, inches w.g.
- Q** - air flow rate, cfm at standard density.
- K** - calibration constant

Unit Size	K
4	340
5	426
6	468
7	673
8	890
9	1155
10	1487
12	2141
14	3045
16	4074

NOTES

1. Gauge taps are normally supplied with pneumatic controls to allow field measurement of the differential pressure at the sensor with a manometer, magnahelic or other measuring device.

If the terminal velocity controls utilize a flow-through transducer, a proper velocity pressure reading will NOT be read at the gauge taps and the calibration curves CANNOT be used for field measurement. The flow-through transducer operates on the principle of mass flow rather than pressure differential.

Controls utilizing a dead-ended pressure transducer will allow field measurement with the gauge taps and calibration curves provided.
2. Setting flow limits for a differential pressure of less than 0.02 inches is NOT recommended. Stability and accuracy of flow limits may not be acceptable due to low velocity pressure signal. Performance will vary depending on the terminal unit controls provided.
3. For field calibration of air flow limits refer to the control contractors documentation.



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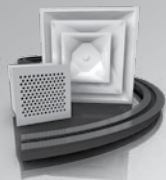
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The founding principles of our company have never changed - business integrity, first class service and a commitment to people. Price manufacturing endeavors arose from our belief that we could supply superior products and services at a reasonable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

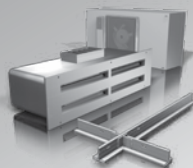
Warranty: The Company warrants and guarantees that all goods within this catalog that have been manufactured by the Company have been manufactured in accordance with the specifications published herein and will be free from defects in material and workmanship for a period of twelve (12) months from the date of Bill of Lading issued by the Company. The Company will replace defective product at its option, but will not be responsible for labor or material charges in replacing product or consequential damages. Any installation not conforming with the Company's specifications, manuals, bulletins or instructions or any misuse or any modification not authorized by the Company voids this warranty. This warranty is in lieu of all Provincial, State, and Federal statutory warranties and the conditions herein are in substitution and replacement of such warranties, statutory or otherwise.

Your Local Price Representative:

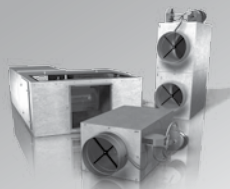
Grilles & Diffusers



Critical Environments



Terminals



Sustainable Building



Noise Control

