

i-Vu® Smart Valve

Installation and Start-up Guide





Verify that you have the most current version of this document from **www.hvacpartners.com**, the **Carrier Partner Community** website, or your local Carrier office.

Important changes are listed in **Document revision history** at the end of this document.

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Overview

Designed for maximum efficiency in tight spaces, the i-Vu® Smart Valve Smart Valves set new design and performance standards for both pressure dependent and pressure independent zoning applications.

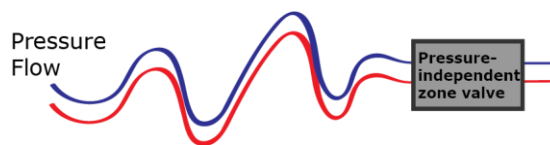
Pressure dependent valve

The pressure dependent valve is equipped with a space-saving 2-way or 3-way ball valve and an electronic rotary actuator. The valve's installation height is 4.33 inches (110 mm) and has the following features:

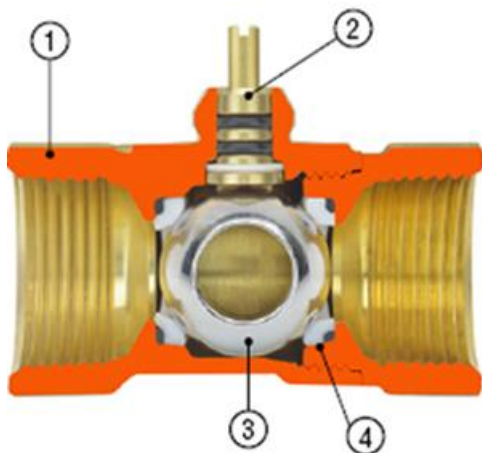
- Ball valve design with zero leakage, which eliminates energy loss
- Self-cleaning ball valve technology providing superior clog resistance
- Low power consumption up to 95% less than conventional valves
- Field-adjustable Cv value to meet your design requirements

Pressure independent valve

The pressure independent valve combines a differential pressure regulator with a 2-way control valve to supply a specific flow for each degree of ball opening, regardless of system pressure fluctuations. The valve performs the function of a balancing valve and control valve in one unit, as well as:



- Smallest pressure independent characterized ball valve in the market
- Actuator runs at 0.3 W, saving energy and transformer power
- Flow is adjustable at the actuator and always balanced
- Permits installation in tight spaces



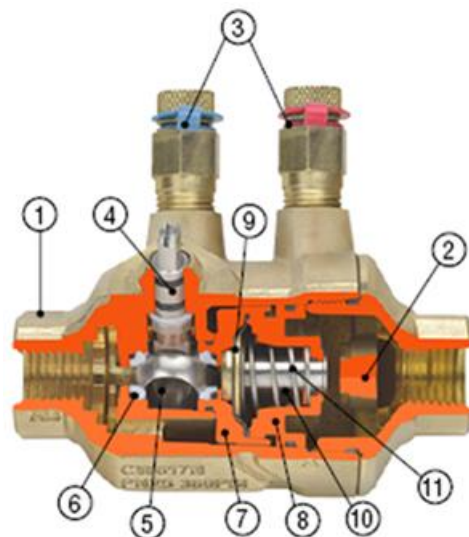
Pressure Dependent Valve

Valve Body

1 Body - NPT

Control Valve

- 1 Stem
- 2 Ball with profile
- 3 Seat



Pressure Independent Valve

Valve Body

- 1 Body
- 2 End Cap
- 3 PT Ports

Control Valve

- 4 Stem
- 5 Ball with profile
- 6 Seat

Regulator

- 7 Regulator Cap
- 8 Regulator Body
- 9 Diaphragm
- 10 Regulator Shaft
- 11 Regulator Spring

Features

Act Net Port

Connects to the Act Net port of the controller for fast and easy communication.

Compact Design

The valve's compact design helps maximize workable space.


Ball Valve Technology

Unlike short stroke globe valves with plug and seat design, the self-cleaning ball helps minimize energy losses caused by clogging (0% A to AB leakage) and eliminates seat leakage. The pressure dependent valve allows for bi-directional flow, unlike traditional paddle style valves.

Actuator with Patented Brushless DC Motor

The brushless DC motor's power consumption, (CQK (Fail Last Position) – 2.5 W running, 0.5 W holding and CQ (Fail-Safe) – 0.6 W running, 0.4 W when holding, saves energy and transformer power. In addition to reducing energy costs, this helps eliminate failures due to stalled motors and prolongs actuator life. It also allows for more units to be powered by a single transformer.



<p>Snap Fit</p> <p>The valves connect to the actuator, enabling operators and technicians to install valves quickly, easily, and without additional tools. This helps simplify commissioning.</p>	
<p>Stem Extension for Insulation</p> <p>Unlike conventional valve actuators, which are normally covered by pipe insulation, the stem extension allows easy actuator removal, without damaging the surrounding insulation, helping simplify operation and maintenance activities.</p>	

Safety Notes

- This device has been designed to use for stationary heating, ventilation, and air conditioning systems, and must not be used outside the specified field of application
- Outdoor application: only possible if no (sea)water, snow, ice, insulation or aggressive gases, interfere directly with the actuator, and the ambient conditions must remain, at all times, within the thresholds, as stated in the Specifications below.
- Only authorized specialists may carry out installation. All applicable legal or institutional installation regulations must be complied with during installation.
- The device may only be opened at the manufacturer's site. It does not contain any parts that can be replaced or repaired by the user.
- Cables must not be removed from the device.
- The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.

Specifications

Actuators

Electrical connection	3 ft. (.9 m) cable
Power consumption	CQK (Fail Last Position) – 2.5 W running, 0.5 W holding CQ (Fail-Safe) – 0.6 W running, 0.4 W holding
Power supply	24Vac, $\pm 20\%$, 50/60 Hz, 24 Vdc, $\pm 10\%$
Overload protection	CQK (Fail Last Position) – electronic throughout 0° to 90° rotation CQ (Fail-Safe) – electronic throughout full stroke
Transformer sizing	CQK (Fail Last Position) – 4VA CQ (Fail-Safe) – 1.1VA
Running time (Motor)	75 seconds
Failure mode run time (Fail-Safe only)	60 seconds
Humidity	5 to 95% RH non-condensing
Ambient temperature range	+35°F to +104°F (+1.7°C to +40°C)
Storage temperature range	-40°F to +176°F (-40°C to +80°C)
Housing	NEMA 2, IP40, IL enclosure type 2
Housing material	UL94-5VA
Quality standard	ISO 9001
Agency listings	cUL(us) according to UL60730-1A/-2-14, CAN/CSA E60730-1:02; UL60730-1/2-14, 2-18, CE mark according to 2004/108/EC and 2006/95/EC

Pressure Dependent Valves

2-way and 3-way pressure dependent valves	
Service	Chilled or hot water, 60% glycol
Flow characteristic	2-way - equal percentage 3-way - linear, diverting, or switching
Controllable flow range	2-way - 75°F (24°C) 3-way - 90°F (32°C)
Sizes	.5 in. (13 mm), .75 in. (19 mm)
End fitting	NPT female

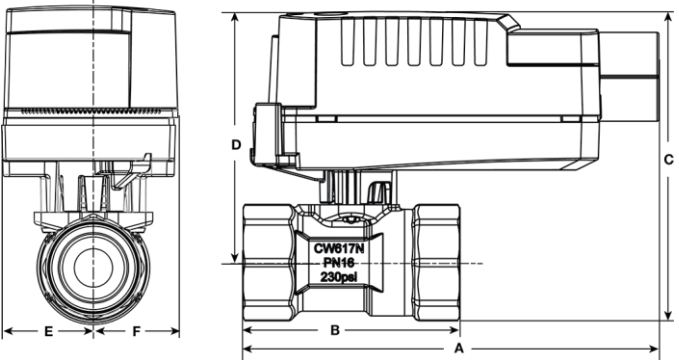
Media temp. range	36° to 212°F (2°C to 100°C)
Media temp limit	250°F (120°C)
Maximum allowable operating temperature	212°F (100°C) NOTE If temperature exceeds 212°F [100°C] operating range due to a boiler control failure the valve will safely contain the hot water but manufacturer's product warranty becomes invalid.
Body pressure rating	360 psi
Close-off pressure	75 psi
Differential pressure (ΔP) range	0 to 40 psi
Leakage	0%

2-way pressure dependent valves

Dimensions

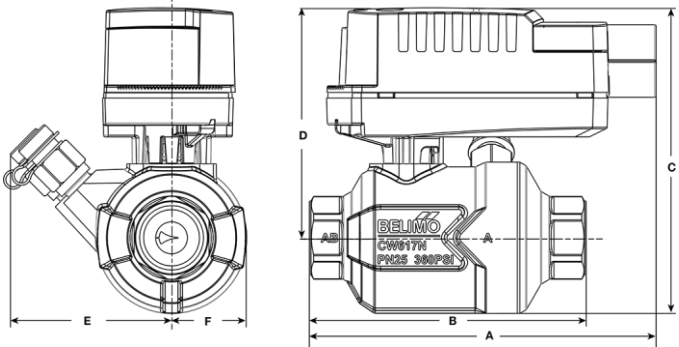
Technical drawings of a 2-way pressure dependent valve. The left drawing is a top view showing dimensions E and F. The right drawing is a side view showing dimensions A, B, C, and D. The valve body is labeled CW617N PN16 230psi.

Valve Nominal Size		Dimensions (Inches [mm])					
In.	DN [mm]	A	B	C	D	E	F
½" Fail Last Position	15	4.5" [114]	2.05" [52]	3.27" [83]	2.71" [69]	1.88" [48]	1.88" [48]
¾" Fail Last Position	20	4.5" [114]	2.4" [61]	3.42" [86.9]	2.77" [70]	0.94" [24]	0.94" [24]
½" Fail-Safe	15	4.5" [114]	2.05" [52]	3.27" [83]	2.71" [69]	0.94" [24]	0.94" [24]
¾" Fail-Safe	20	4.5" [114]	2.4" [61]	3.42" [86.9]	2.77" [70]	1.88" [48]	1.88" [48]

3-way pressure dependent valves																																																							
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Pressure Independent Valves

Service	Chilled or hot water, 60% glycol
Flow characteristic	Equal percentage
Controllable flow range	75°F (24°C)
Sizes	.5 in. (13 mm), .75 in. (19 mm)
End fitting	NPT female ends
Media temp. range	36° to 212°F (2°C to 100°C)
Media temp limit	250°F (120°C)
Maximum allowable operating temperature	212°F (100°C) NOTE If temperature exceeds 212°F [100°C] operating range due to a boiler control failure the valve will safely contain the hot water but manufacturer's product warranty becomes invalid.
PT ports	Included
Body pressure rating	360 psi

Close-off pressure	200 psi																																																
Differential pressure (ΔP) range	5 to 50 psi																																																
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Understanding the part numbers

The following charts explain the variables that make up the part numbers for the actuators and valves. See the complete list of available products in the *Appendix* (page 21).

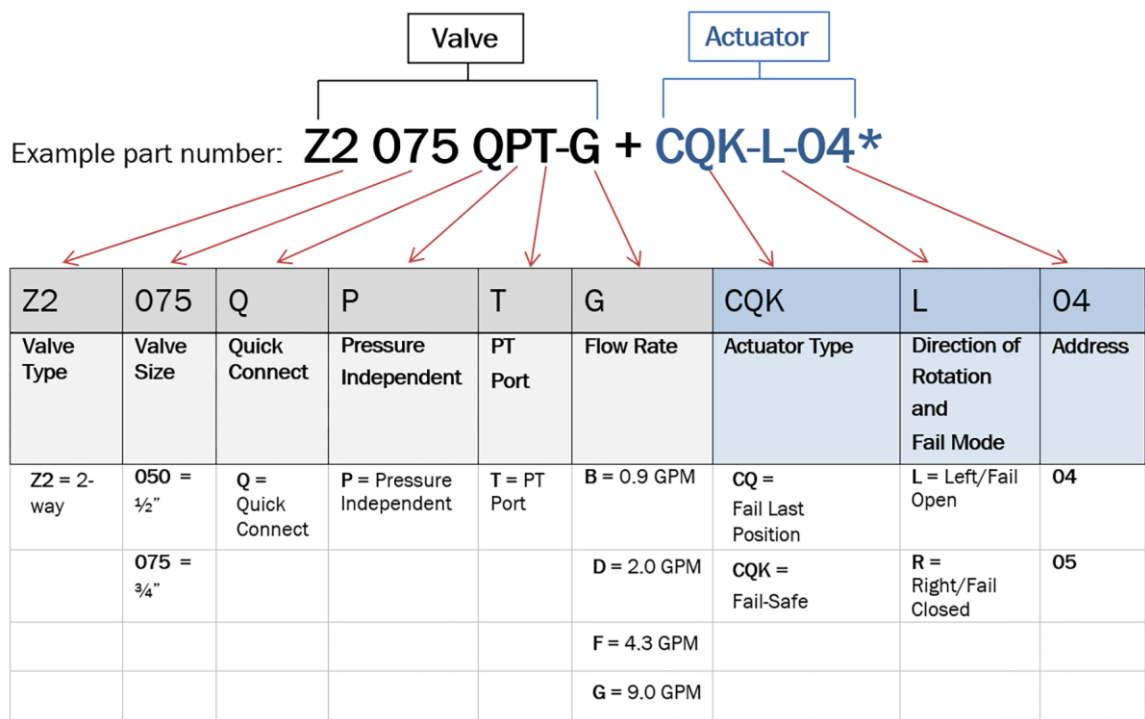
Pressure Dependent i-Vu® Smart Valves

Example part number: **Z2 050 Q-F + CQK-L-04***

Z2	050	Q	F	CQK	L	04
Valve Type	Valve Size	Quick Connect	Flow Coefficient Cv	Actuator Type	Direction of Rotation and Fail Mode	Address
Z2 = 2-way	050 = 1/2"	Q = Quick Connect	<u>2-way</u>	CQ = Fail Last Position	L = Left/Fail Open	04
Z3 = 3-way	075 = 3/4"		F = 1.4	CQK = Fail-Safe	R = Right/Fail Closed	05
			J = 5.9			
			K = 9.8			
			<u>3-way</u>			
			E = 1.0			
			H = 2.7			
			J = 4.6			

*C = Carrier Corporation


Pressure Independent i-Vu® Smart Valves

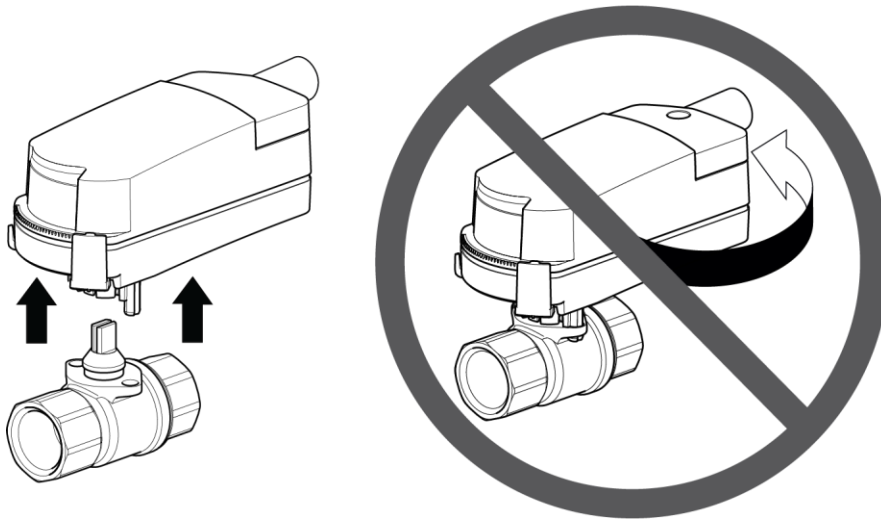



*C = Carrier Corporation

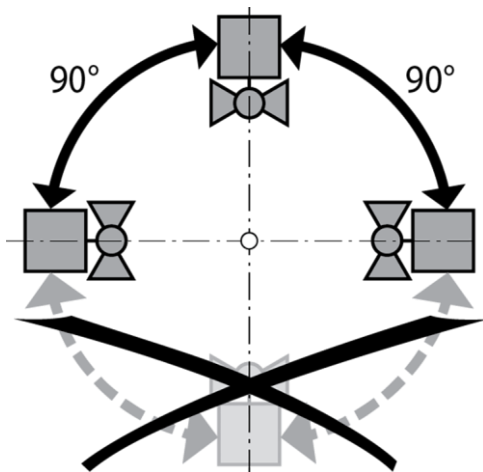
Installing the valve and actuator

To remove the actuator

 **WARNING** Pull straight up. Do not twist to remove.



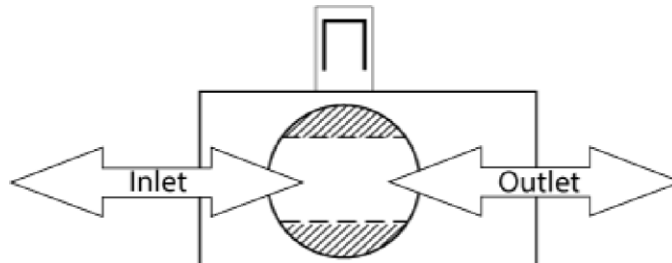
 **WARNING** Pressure dependent and pressure independent valve assemblies can be installed in a vertical or horizontal arrangement, as long as the actuator is positioned to avoid water from dripping on the actuator.



Flow Patterns

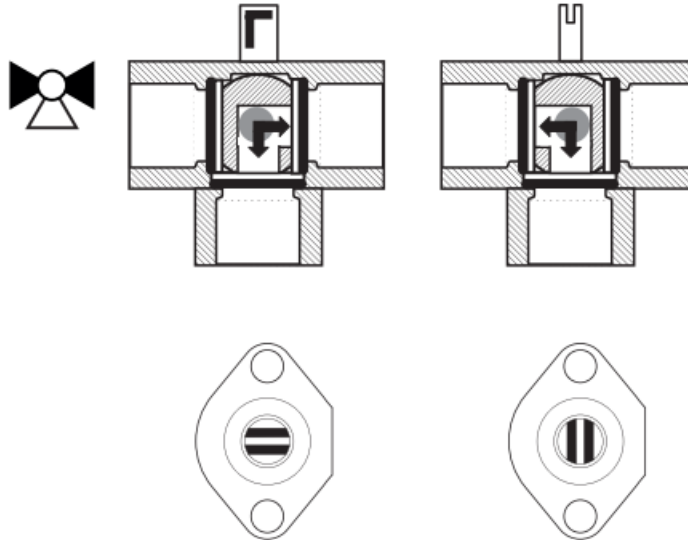
Pressure dependent Valves

Pressure dependent 2-way valves can be piped with flow entering and exiting either port.



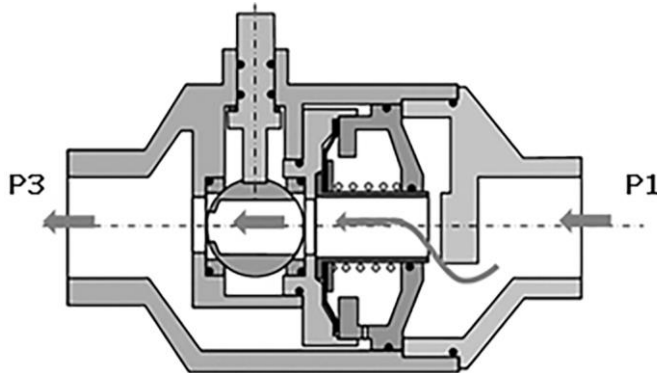
For on/off control of coil flow, the pressure dependent 3-way valve is piped with supply entering the bottom port.

For a pressure dependent 3-way switching application, pipe hot and cold, supply water to either side port, and the appropriate seasonal supply water will exit the bottom port for regulation by another 2-way valve; typically installed in the return pipe.



Pressure independent flow pattern

The pressure independent valve consists of a differential pressure regulator and a control valve. The control valve is throttled to match the flow command of the control signal. The differential pressure regulator holds the pressure drop across the ball of the valve. As system pressure changes, the differential pressure regulator moves in response to keep the flow stable. Pressure (P1) at the inlet pressure independent valve is high and pressure (P3) at the outlet is low.

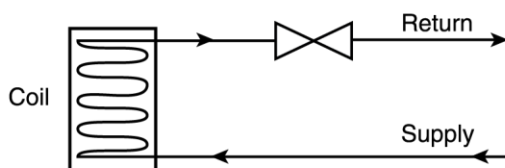


The differential pressure between (P1) and (P3) must be between 5 and 50 psi to achieve pressure independent flow. When differential pressure increases, the regulator opening is decreased. When differential pressure decreases, the regulator opening is increased. This allows for the constant pressure differential across the ball of the valve.

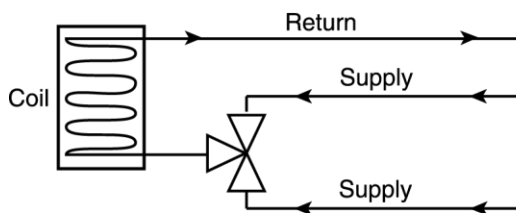
Piping diagrams

Pressure dependent valves - typical piping

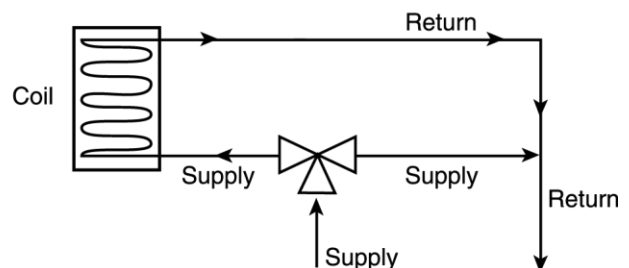
2-way Switching Valve Piping Diagram



3-way Switching Valve Piping Diagram

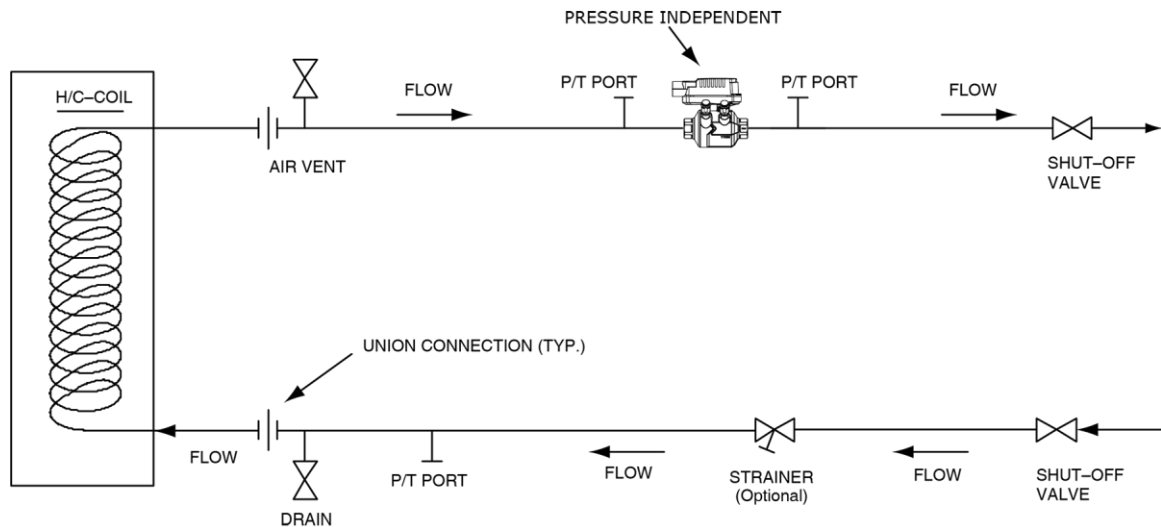


3-way Diverting Valve Piping Diagram

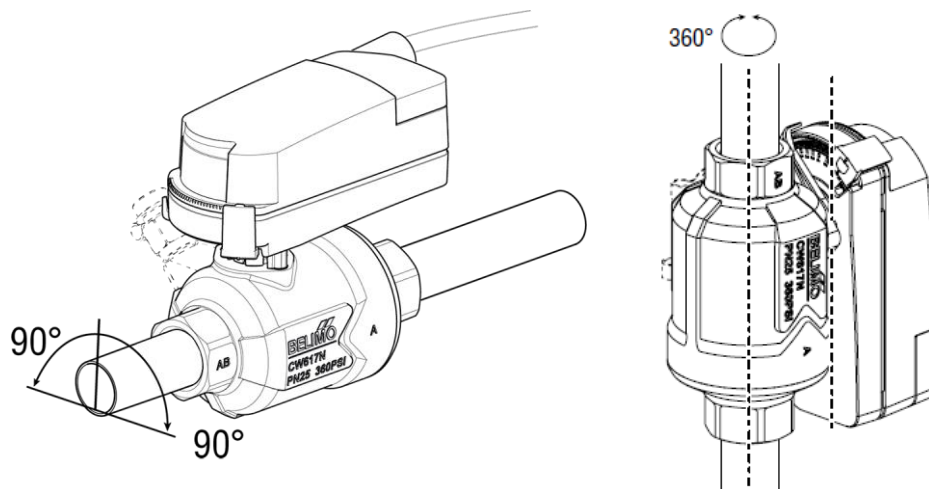


Pressure independent valves - typical piping


We recommend that you install pressure independent valves on the return side of the coil. This diagram represents a typical application. Consult engineering specification and drawings for project details. PT ports are recommended, if not supplied on either side of the valve and the supply side of the heat transfer device, to allow for pressure/flow measurement/calculation.



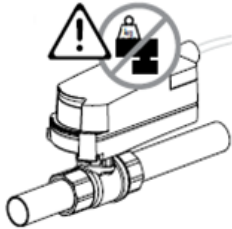
⚠ WARNING Pressure independent valves should be installed with flow in the direction of the arrow on the valve body. If installed backwards, there could be damage to either the diaphragm or the regulator. The valve assembly can be installed in a vertical or horizontal arrangement.



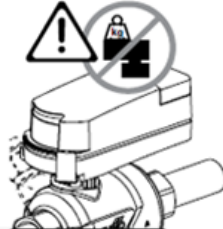
Installing the actuator

 **WARNING** Do not place a heavy weight on the actuator.

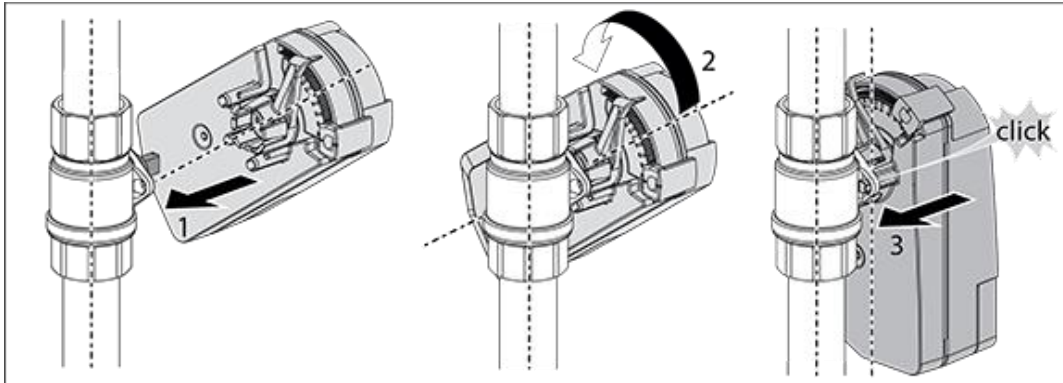
Pressure dependent



Pressure independent

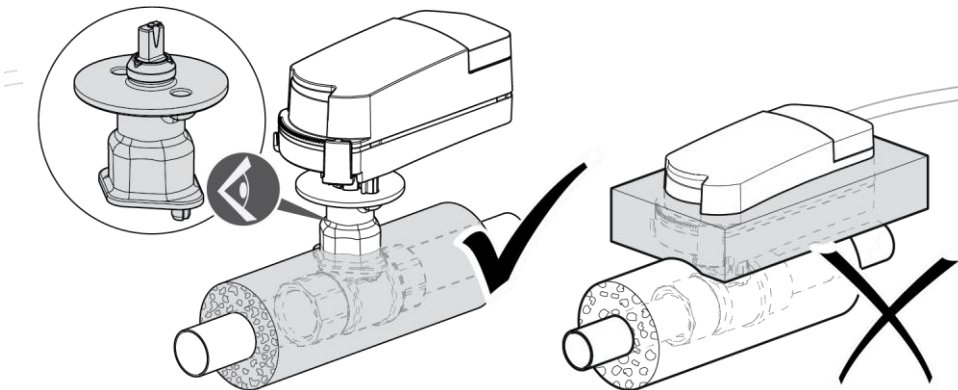


Attach the actuator to the valve body. Align the actuator guide pins to the valve bonnet openings and press down until you hear a click. To remove the actuator, grasp it with your hand and pull it away from the valve body.



Insulation

Insulation should wrap the pipe and valve body but not the actuator. For chilled water applications, use the stem extension accessory to raise the actuator above the valve body to provide space for insulation.



Wiring the actuator to the Act Net port

Wire the actuator cable to the controller's Act Net port. The wires are in a different order on the actuator than on the Act Net port.

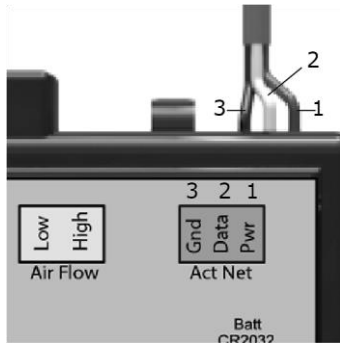
NOTE Use an 18 AWG, or larger, wire with a maximum length of 300 feet (91.4 meters).

Wire the Act Net terminals on the controller with the following color wires from the valve's actuator.

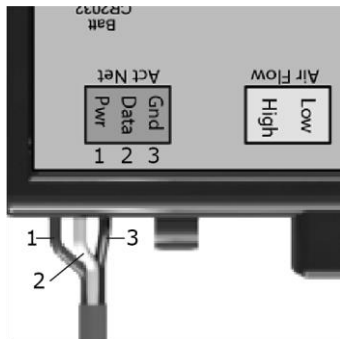
- 1** - Pwr - Red
- 2** - Data - Orange
- 3** - Gnd - Black



Controller mounted upright



Controller mounted upside down



Setting up the i-Vu® Smart Valve in the i-Vu® interface

Your control program must have one BACnet Analog Output (BAO) microblock to set the position and one BACnet Analog Input (BAI) microblock to get the actual position. If you use multiple valves, each valve needs one BAO and one BAI.

The process is different for Open controllers versus TruVu controllers.

For Open controllers

To set the valve's position

- 1 In the i-Vu® interface, on the **Properties** page > **I/O Points** tab, locate the BAO that controls the valve's position.
- 2 Select **Special** in the **I/O Type** drop-down list.
- 3 Set the **Exp** to **00**.
- 4 Set the **Num** to **102** for a valve with address 4 (**Reheat Valve-1**) and **103** for a valve with address 5 (**Reheat Valve-2**).

Name	Type	Value	Offset/Polarity	Locked	Exp:Num	I/O Type
Hot Water Valve	(BAO)	0 % ▾	0	<input type="checkbox"/> 0	00:102	Special ▾
Hot Water Valve	(BAO)	0 % ▾	0	<input type="checkbox"/> 0	00:103	Special ▾

To get the valve's position

- 1 In the i-Vu® interface, on the control program's **Properties** page > **I/O Points** tab, locate the BAI that retrieves the valve's position.
- 2 Select **Special** from the **I/O Type** drop-down list.
- 3 Set the **Exp** to **00**.
- 4 Set the **Num** to 102 for a valve with address 4 (**Reheat Valve-1**) and **103** for a valve with address 5 (**Reheat Valve-2**).

Name	Type	Value	Offset/Polarity	Locked	Exp:Num	I/O Type
Hot Water Valve	(BAI)	0 % ▾	0	<input type="checkbox"/> 0	00:102	Special ▾
Hot Water Valve	(BAI)	0 % ▾	0	<input type="checkbox"/> 0	00:103	Special ▾

For TruVu controllers

To set the valve's position

- 1 In the i-Vu® interface, on the **Properties** page > **I/O Points** tab, locate the BAO that controls the valve's position.
- 2 Set **I/O type** to **Act Net**.
- 3 Set **Exp** to match the valve number (**4** or **5**)
- 4 Set the **Num** to **1**.

To get the valve's position

- 1 In the i-Vu® interface, on the control program's **Properties** page > **I/O Points** tab, locate the BAI that retrieves the valve's position.
- 2 Set **I/O type** to **Act Net**.
- 3 Set **Exp** to match the valve number (**4** or **5**)
- 4 Set the **Num** to **1**.

Name	Type	Value	Offset/Polarity	Locked	Exp:Num	I/O Type	Sensor/Actuator Type	Min / Max
Smart Valve 4 FB	(BAI)	49.9 °F	0	<input type="checkbox"/> 0.0	04:01	Act Net	No Translation	
Smart Valve 5 FB	(BAI)	65.0 °F	0	<input type="checkbox"/> 0.0	05:01	Act Net	No Translation	
Smart Valve 4	(BAO)	50.0 %	0	<input type="checkbox"/> 0.0	04:01	Act Net	No Translation	
Smart Valve 5	(BAO)	65.0 %	0	<input type="checkbox"/> 0.0	05:01	Act Net	No Translation	

Calibrated Point Data:

To set the valve's address on the Act Net network

i-Vu® Smart Valve Smart Valves come pre-addressed from the factory. If you need to change the address, do the following:

- 1 In the i-Vu® Smart Valve navigation tree, select the control program.
- 2 Go to **Driver > Act Net Network Details > Properties** tab > **Act Net Address Setting** section.
- 3 Enter the serial number, which is located on the actuator, in the **Serial Number** fields.
- 4 Select **Reheat Valve-1** or **Reheat Valve-2** from the **Device** drop-down list.
NOTE **Reheat Valve-1** sets to address **4** and **Reheat Valve-2** sets to address **5**.
- 5 Click **Accept**. When the changes are applied, the **Operation Status** of the **Act Net Address Setting** table displays **Success**.

▼ Act Net Address Setting

Serial Number	Device	Operation Status
01841 - 10400 - 250 - 200	Reheat Valve-1 ▼	
<input type="text"/> - <input type="text"/> - <input type="text"/> - <input type="text"/>	No Change ▼	
<input type="text"/> - <input type="text"/> - <input type="text"/> - <input type="text"/>	No Change ▼	
<input type="text"/> - <input type="text"/> - <input type="text"/> - <input type="text"/>	No Change ▼	

For more details on correcting duplicate addresses, see *Troubleshooting* (page 20).

Verifying communications with the i-Vu® Smart Valve Valves

In the interface, all the devices connected to the controller are listed on the control program's **Driver Properties** > **Act Net Network Details** > **Properties** tab > **Act Net Statistics** section.



Act Net Statistics			
Device Description	Device Address	Device Status	Serial Number
On-board Actuator	1	Normal operation	01724-20262-250-130
Reheat Valve- 1	4	Normal operation	01841-10400-250-200
Reheat Valve- 2	5	Normal operation	01841-10398-250-200

NOTE The controller only detects devices on the Act Net when powered up. If the i-Vu® Smart Valve (reheat valve) is not detected, remove and then re-apply power to the controller.

Troubleshooting

Duplicate Act Net addresses

NOTE Device status color will show red even if the device does not respond or is locked.

i-Vu® Smart Valve Smart Valves come pre-addressed from the factory. If two actuators with the same address are on the Act Net together, **Duplicate address on network** shows in the control program's **Driver > Act Net Network Details > Properties** tab > **Act Net Statistics > Device Status** section.

For example, if two actuators with address 4 are on the network, this error message appears in the row with **Device Address 4**.

▼ Act Net Statistics			
Device Description	Device Address	Device Status	Serial Number
On-board Actuator	1	Normal operation	01724-20262-250-130
Reheat Valve- 1	4	Duplicate address on network	--
Reheat Valve- 2	5	No communication with device	--

Resolution:

- 1 Choose one actuator to assign as the vacant address.
- 2 Make a note of the actuator's serial number, found on the side of the actuator.
- 3 Enter the serial number in the **Act Net Address Setting > Serial Number**.
- 4 In the Device drop-down list, select either **Reheat Valve-1** for address **4** or **Reheat Valve-2** for address **5**.

▼ Act Net Address Setting		
Serial Number	Device	Operation Status
01841 - 10400 - 250 - 200	Reheat Valve-1 ▼	
<input type="text"/> - <input type="text"/> - <input type="text"/> - <input type="text"/>	No Change ▼	
<input type="text"/> - <input type="text"/> - <input type="text"/> - <input type="text"/>	No Change ▼	
<input type="text"/> - <input type="text"/> - <input type="text"/> - <input type="text"/>	No Change ▼	

- 5 Click **Accept**.

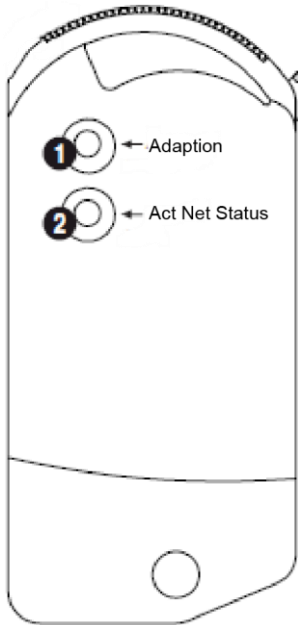
- 6 If the address change is successful, **Success** is displayed under **Operation Status**.

▼ **Act Net Address Setting**

Serial Number	Device	Operation Status
01841 - 10400 - 250 - 200	No Change ▼	Success
□ - □ - □ - □	No Change ▼	
□ - □ - □ - □	No Change ▼	
□ - □ - □ - □	No Change ▼	

- 7 When the controller recognizes that the conflict is resolved, both **Device Status** fields display **Normal Operation**.

LEDs



1 - Push-button and LED display (yellow light)

On	Angle of rotation adaptation active
Press button	Triggers angle of rotation adaptation, followed by standard mode

2 - LED display (green light)

Off	No power supply or no Act Net
Flickering	Act Net communication active

Appendix: Part Numbers

Pressure Dependent and Pressure Independent Valves

Part Number	Fail Mode	Size	Flow Coef. Cv (Pressure Dependent)	Flow Rate GPM (Pressure Independent)	Address
Z2050Q-F+CQ-04-A	Last Position	1/2"	1.4	N/A	4
Z2050Q-F+CQ-05-A	Last Position	1/2"	1.4	N/A	5
Z2050Q-F+CQK-L-05-A	Open	1/2"	1.4	N/A	5
Z2050Q-F+CQK-R-04-A	Closed	1/2"	1.4	N/A	4
Z2050Q-F+CQK-R-05-A	Closed	1/2"	1.4	N/A	5
Z2050Q-J+CQ-04-A	Last Position	1/2"	5.9	N/A	4
Z2050Q-J+CQ-05-A	Last Position	1/2"	5.9	N/A	5
Z2050Q-J+CQK-L-05-A	Open	1/2"	5.9	N/A	5
Z2050Q-J+CQK-R-04-A	Closed	1/2"	5.9	N/A	4
Z2050Q-J+CQK-R-05-A	Closed	1/2"	5.9	N/A	5
Z2050QPT-B+CQ-04-A	Last Position	1/2"	N/A	0.9	4
Z2050QPT-B+CQ-05-A	Last Position	1/2"	N/A	0.9	5
Z2050QPT-B+CQK-L-04-A	Open	1/2"	N/A	0.9	4
Z2050QPT-B+CQK-L-05-A	Open	1/2"	N/A	0.9	5
Z2050QPT-B+CQK-R-04-A	Closed	1/2"	N/A	0.9	4
Z2050QPT-B+CQK-R-05-A	Closed	1/2"	N/A	0.9	5
Z2050QPT-D+ CQK-L-05-A	Open	1/2"	N/A	1.9	5
Z2050QPT-D+CQ-04-A	Last Position	1/2"	N/A	2.0	4
Z2050QPT-D+CQ-05-A	Last Position	1/2"	N/A	2.0	5
Z2050QPT-D+CQK-L-04-A	Open	1/2"	N/A	2.0	4
Z2050QPT-D+CQK-R-04-A	Closed	1/2"	N/A	2.0	4
Z2050QPT-D+CQK-R-05-A	Closed	1/2"	N/A	2.0	5
Z2050QPT-F+CQ-04-A	Last Position	1/2"	N/A	4.3	4
Z2050QPT-F+CQ-05-A	Last Position	1/2"	N/A	4.3	5
Z2050QPT-F+CQK-L-04-A	Open	1/2"	N/A	4.3	4
Z2050QPT-F+CQK-L-05-A	Open	1/2"	N/A	4.3	5

Part Number	Fail Mode	Size	Flow Coef. Cv (Pressure Dependent)	Flow Rate GPM (Pressure Independent)	Address
Z2050QPT-F+CQK-R-04-A	Closed	1/2"	N/A	4.3	4
Z2050QPT-F+CQK-R-05-A	Closed	1/2"	N/A	4.3	5
Z2075Q-K+CQ-04-A	Last Position	3/4"	9.8	N/A	4
Z2075Q-K+CQ-05-A	Last Position	3/4"	9.8	N/A	5
Z2075Q-K+CQK-L-04-A	Open	3/4"	9.8	N/A	4
Z2075Q-K+CQK-L-05-A	Open	3/4"	9.8	N/A	5
Z2075Q-K+CQK-R-04-A	Closed	3/4"	9.8	N/A	4
Z2075Q-K+CQK-R-05-A	Closed	3/4"	9.8	N/A	5
Z2075QPT-G+CQ-04-A	Last Position	3/4"	N/A	9.0	4
Z2075QPT-G+CQ-05-A	Last Position	3/4"	N/A	9.0	5
Z2075QPT-G+CQK-L-04-A	Open	3/4"	N/A	9.0	4
Z2075QPT-G+CQK-L-05-A	Open	3/4"	N/A	9.0	5
Z2075QPT-G+CQK-R-04-A	Closed	3/4"	N/A	9.0	4
Z2075QPT-G+CQK-R-05-A	Closed	3/4"	N/A	9.0	5
Z3050Q-E+CQ-04-A	Last Position	1/2"	1	N/A	4
Z3050Q-E+CQ-05-A	Last Position	1/2"	1	N/A	5
Z3050Q-E+CQKL-04-A	Open	1/2"	1.0	N/A	4
Z3050Q-E+CQK-L-05-A	Open	1/2"	1.0	N/A	5
Z3050Q-E+CQK-R-04-A	Closed	1/2"	1.0	N/A	4
Z3050Q-E+CQK-R-05-A	Closed	1/2"	1.0	N/A	5
Z3050Q-H+CQ-04-A	Last Position	1/2"	2.7	N/A	4
Z3050Q-H+CQ-05-A	Last Position	1/2"	2.7	N/A	5
Z3050Q-H+CQK-L-04-A	Open	1/2"	2.7	N/A	4
Z3050Q-H+CQK-L-05-A	Open	1/2"	2.7	N/A	5
Z3050Q-H+CQK-R-04-A	Closed	1/2"	2.7	N/A	4
Z3050Q-H+CQK-R-05-A	Closed	1/2"	2.7	N/A	5
Z3075Q-J+CQ-04-A	Last Position	3/4"	4.6	N/A	4
Z3075Q-J+CQ-05-A	Last Position	3/4"	4.6	N/A	5
Z3075Q-J+CQK-L-04-A	Open	3/4"	4.6	N/A	4
Z3075Q-J+CQK-L-05-A	Open	3/4"	4.6	N/A	5
Z3075Q-J+CQK-R-04-A	Closed	3/4"	4.6	N/A	4
Z3075Q-J+CQK-R-05-A	Closed	3/4"	4.6	N/A	5

Accessories

	<p>ZCQ-E</p> <p>PDV or PIV valve stem extension.</p> <p>Designed for chilled water service up to 104 °F [40 °C] media temperature.</p> <p>Available for:</p> <p>PIV – 2-way</p> <p>PDV – 2-way and 3-way</p>
	<p>ZCQB-W</p> <p>Housing cover for CQ (Fail-Safe) actuators (white)</p> <p>Available for:</p> <p>PIV – 2-way</p> <p>PDV – 2-way and 3-way</p>

Part Number	Fail Mode	Address	Description
CQ-04-A	Last Position	4	Accessory - Replacement Actuator
CQ-05-A	Last Position	5	Accessory - Replacement Actuator
CQK-L-04-A	Open	4	Accessory - Replacement Actuator
CQK-L-05-A	Open	5	Accessory - Replacement Actuator
CQK-R-04-A	Closed	4	Accessory - Replacement Actuator
CQK-R-05-A	Closed	5	Accessory - Replacement Actuator
ZCQB-W (Blank)			Accessory - Housing Cover
ZCQ-E (Blank)			Accessory - Valve Stem Extension

Document revision history

Important changes to this document are listed below. Minor changes such as typographical or formatting errors are not listed.

Date	Topic	Change description	Code*
7/21/23	Setting up the i-Vu® Smart Valve in the i-Vu® interface	Added steps for TruVu controllers	C-TS-AP-E-RD
11/11/21	Pressure Dependent Flow Pattern	Updated diagram	AC-TS-RC
	Pressure Dependent Valves	Adding "diverting" and "switching" to flow characteristics	
	Piping Diagrams	Updated Pressure dependent valves diagrams	

* For internal use only

