Pressure Independent Control Valves



Three functions in one streamlined device

Two-way Pressure Independent Control Valves are uniquely designed with three functions integrated into one single device: control valve, adjustable flow limiter, and automatic pressure regulator. This 3-in-1 device improves accuracy and reliability – regardless of pressure fluctuations. Install them for an excellent solution when trying to achieve hydronic balancing in room, zone and many other HVAC applications.

The combination of control valve and differential pressure regulator in one valve simplifies installation and makes commissioning fast and easy. Count on them to help prolong maintenance and preserve the life of HVAC equipment, enhance room comfort and optimize energy efficiency. Pair them with SSD, SAY, Rack and Pinion, SAX, SAV and SQV Series spring return and non-spring return valve actuators and you have the ideal solution for renovations, expansions, and new construction projects.

Control Valve Features

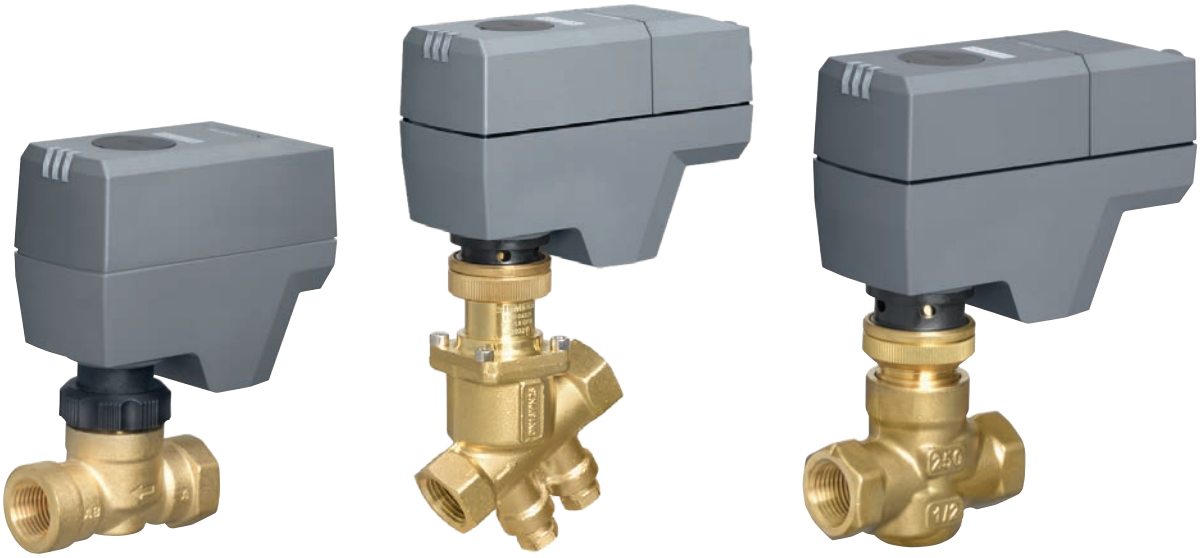
- A comprehensive portfolio of 1/2 to 6-inch PICVs
- Threaded valves are ANSI Class 250
- Flanged valves available in ANSI Class 125 and 250
- Low ANSI Class IV leakage
- Brass trim with stainless-steel stem
- Automatically adjusts to pressure fluctuations in the system, maintaining consistent flow at any given control setting while providing better comfort and lower energy consumption
- No mutual hydronic interaction between branches with different operational situations, preventing over or undersupply
- Fast commissioning with extremely simplified hydronic balancing

Field Adjustable Flow Limiter Features

- Full stroke always maintained regardless of maximum flow setting enabling higher control accuracy
- Easily adjust maximum flow at any time when usage patterns change
- Presetting prevents oversupply to the coil

Siemens offers a 5-year warranty on valves and actuators.

Siemens offers a 5-year warranty on valves and actuators.



More functions.
More applications.
More opportunities.

Designed with you in mind, the new line of SS series modulating room actuators used with pressure independent control valves (PICVs), zone valves, and Powermite globe valve assemblies have enhanced performance features to improve building operations.

The self-calibrating actuators with three LED indicators for position and actuator motion provide status and actuator information for easier troubleshooting and improved productivity. More application opportunities await with actuators that have a low noise level, are pre-configured out of the box, and boast a modern and compact design.

Discover the difference with Siemens innovations for efficient flow control to optimize comfort.

Visit usa.siemens.com/valves to learn more.

SIEMENS

Two-Way PICV

Control Valve, Adjustable Flow Limiter, and Automatic Pressure Regulator
1/2 to 1-1/4": Brass Body and 1-1/2 and 2" Ductile Iron Body
ANSI Class 250
Normally Open



1/2 to 1-1/4" Two-Way NO
Pressure Independent Control Valve



1-1/2 to 2" Two-Way NO
Pressure Independent Control Valve

Description

Siemens Pressure Independent Control Valves integrate three functions into a single device: control valve, adjustable flow limiter, and automatic pressure regulator. The 1/2- to 1-1/4-inch valves have a 5 or 5.5 mm stroke, and a threaded valve bonnet for use with SSD Electronic Valve Actuators. The 1-1/2 and 2-inch valves have a 15 mm stroke and use the Rack and Pinion fail-safe actuators or the SAY fail-in-place Electronic Valve Actuator.

Applications

For use in HVAC applications with the Pressure Independent Control SSD, Rack and Pinion, or SAY Electronic Actuator, to control hot or chilled water or 50% water-glycol solution in closed loop systems.

Features

- Control valve with integrated pressure regulator and adjustable flow limiter
- Direct-coupled, universal bonnet
- ANSI Class 250 valve body
- ANSI Class IV (0.01%) leakage
  @ 200 PSI for 1/2 to 1-1/4 inch valves
  @ 100 PSI for 1-1/2 and 2 inch valves
- Valves have linear flow characteristic, but SSD modulating actuators are switchable with default set to equal percentage flow characteristic
- Brass trim with stainless-steel stem
- 1-1/2 and 2-Inch valves include P/T ports
- SAY actuators can be wired for normally closed operation; 0-10 V actuators require AZX61.1 Function Module, see technical instructions

Siemens offers a 5-year warranty on valves and actuators.

Specifications

Valve Specifications

Body Material
1/2 to 1-1/4-inch ..... Brass
1-1/2 and 2-inch ..... Ductile Iron

Stem ..... Stainless Steel

Line Size ..... 1/2-inch to 2-inch (15 mm to 50 mm)

Action 2-Way

Valve Body Rating ..... ANSI 250

Close-off Pressure/Leakage Rate
1/2 to 1-1/4-inch ..... 200 PSI/ANSI Class IV (0.01%)
1-1/2 and 2-inch ..... 100 PSI/ANSI Class IV (0.01%)

Medium Temperature Range ..... 34° to 248°F (1° to 120°C)

Flow Characteristic .... Linear (switchable with SSD modulating actuators)

Connection ..... NPT threaded

Actuator Specifications

Operating Voltage
SSD131.09U/SSD131.29U ..... 24 Vac
SSD161S.05DU, SSD161S.25DU/SAY/Rack and Pinion ..... 24 Vac/dc

Frequency ..... 60 Hz

Power Consumption (Normal Operation)
SSD131.09U ..... 1 VA
SSD131.29U ..... 3 VA
SSD161S.05DU ..... 3.5 VA
SSD161S.25DU ..... 3.5 VA
SAY61.03U ..... 8 VA
599-03617NO/ 599-03617NC 3.5VA

Signal
SSD131.09U, SSD131.29U ..... Floating
SSD161S.05DU, SSD161S.25DU ..... 0 to 10 Vdc
SAY61.03U ..... 0 to 10 Vdc or 4 to 20 mA
599-03617NO/ 599-03617NC ..... 0(2) to 10 Vdc

Run Time (in seconds)

	5/5.5 mm Stroke	15 mm Stroke
SSD131.09U	88 seconds	—
SSD131.29U	88 seconds	—
SSD161S.05DU	27.5 seconds	—
SSD161S.25DU	27.5 seconds	—
SAY61.03U	—	30 seconds
599-03617NO/ NC	—	60 seconds

Force
SSD131..., SSD161S... ..... >67 lbs. (300 N)
SAY ..... >44 lbs. (200 N)

Agency Certification
UL ..... Meets UL 60730
cUL ..... Certified to Canadian Standard C22.2 No. 24.93
Mounting Location ..... NEMA 1 (Interior only)

Flow Range

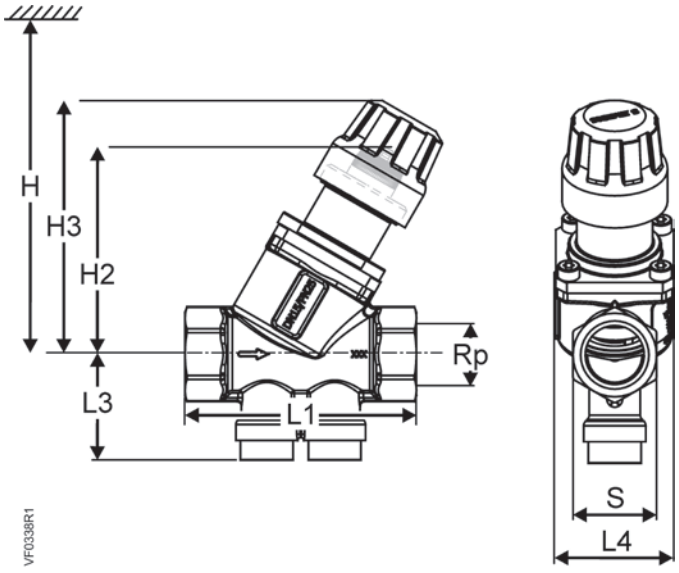
Size in.	Δp max (PSI)	GPM Flow Range	NO Valve Body
1/2	58	0.3 to 1.6	**599-04320**
		1 to 5.8	**599-04321**
3/4		1.3 to 8	**599-04322**
1		2.6 to 16	**599-04323**
1-1/4		3 to 18	**599-04314**
1-1/2		10 to 40	**599-04315**
2		10 to 50	**599-04316**

Product Ordering

Description			Part No.	Actuator Prefix Code
	Electro-Mechanical	Floating, Spring Return	**S55180-A153 (SSD131.29U)**	**332, 342**
		0-10 Vdc, Spring Return	**S55180-A155 (SSD161S.25DU)**	**333, 343**
		Floating, Non-Spring Return	**S55180-A152 (SSD131.09U)**	**320**
		0-10 Vdc, Non-Spring Return	**S55180-A154 (SSD161S.05DU)**	**331, 341**
	Electro-Mechanical	0 to 10 V or 4 to 20 mA, Non-Spring Return	**SAY61.03U**	**335**
	Rack and Pinion	0(2) to 10V, Spring Return	**599-03617NO**	**337NO**
		0(2) to 10V, Spring Return	**599-03617NC**	**337NC**

Dimensions

NO – 1/2 to 2 inch Valves



Dimensions shown in inches (mm)

Valve Size Inches Rp	Dimensions																	
	S		L1		L3		L4		H2		H3		H		Weight lb.	(kg)
1/2	1.1	(27)	3.0	(75)	1.6	(41)	1.5	(38)	2.6	(67.3)	3.2	(82.4)	14.6	(371)	1.1	(0.50)
3/4	1.25	(32)	3.1	(79)	1.6	(41)	1.5	(38)	2.7	(67.5)	3.3	(82.5)	14.7	(374)	1.2	(0.53)
1	1.5	(40)	4.0	(100)	1.7	(44)	1.5	(38)	2.8	(71)	3.3	(82.5)	14.7	(374)	2.5	(1.14)
1-1/4	1.8	(46)	4.1	(104)	2.1	(53)	2.5	(65)	3.4	(86)	4.0	(100)	15.4	(391)	2.8	(1.27)
1-1/2	2.3	(58)	5.4	(138)	2.7	(68)	3.7	(94)	5.9	(149)	–		20	(508)	7.2	(3.28)
2	2.8	(72)	5.4	(138)	2.9	(74)	3.7	(94)	5.9	(149)	–		20	(508)	8.2	(3.71)



Hydronic Flow Optimization turns your design goals into reality

The right devices in a hydronic system can lead to greater energy efficiency and significant savings in first costs and lifecycle costs. Discover total system performance solutions to optimize delta-T through precise control. Make your building operations more efficient and bring balance to your bottom line with the right valves, variable frequency drives, and differential pressure sensors for optimal hydronic system balancing.

Visit usa.siemens.com/hfo to learn more.

Energy Savings
Up to 30%

Maximize Comfort
Hydronic flow optimization leads to higher comfort

SIEMENS

SSD Electronic Valve Actuators

24 Vac/dc, 0 to 10 Vdc Control
24 Vac, Floating Control
Fail-Safe and Fail-in-Place



SSD Series fail-safe and fail-in-place Electronic Valve Actuator

Description

Pressure Independent Control Series SSD Electronic Valve Actuators require a 24 Vac power supply and receive a floating control signal (SSD131...) or a proportional 0 to 10 Vdc signal (SSD161S...) to control a valve. The 0 to 10V SSD161S... actuator also accepts a 24 Vdc power supply.

These actuators are designed to work with 1/2- to 1-1/4-inch Pressure Independent Control Series Valves with a 1/5-inch (5 mm), or 7/32-inch (5.5 mm) stroke and a threaded valve bonnet that fits the actuator.

Features

- Modulating SSD actuators include position feedback and equal percentage flow characteristic capabilities
- LED indicators for position, operating status, and actuator motion on all actuators
- Modulating actuators have DIP switches to select direct or reverse acting, equal percentage or linear flow characteristic, and fail up or fail down (SSD161S.25DU only)
- Floating fail-safe actuator (SSD131.29U) has DIP switch for fail up or fail down
- Nominal force >67 lbs (300 N)
- Floating or 0 to 10 Vdc control
- Fail-safe and fail-in-place variants
- Automatic stroke calibration on the SSD161S...
- Manual override
- UL listed for plenum installation
- Removeable terminal block and 1/2" threaded conduit adapter connections
- Low noise level (<30dB)

Applications

For use in heating and cooling HVAC applications with Pressure Independent Control valves. They can be used in chilled/hot water applications or in water-glycol solutions up to 50% in closed loop systems.

Siemens offers a 5-year warranty on valves and actuators.

Specifications

Operating Voltage
SSD131.09U, SSD131.29U ..... 24 Vac ±20%
SSD161S.05DU, SSD161S.25DU ..... 24 Vac ±15%, 24 Vdc ±20%

Frequency ..... 50/60 Hz

Power Consumption (Normal Operation)
SSD131.09U ..... 1 VA max.
SSD131.29U ..... 3 VA max.
SSD161S.05DU, SSD16S.25DU ..... 3.5 VA max.

Control Signal
SSD131.09U, SSD131.29U ..... Floating
SSD161S.05DU, SSD161S.25DU ..... 0 to 10 Vdc

Run Time ..... **5 /5.5 mm Stroke**
SSD131.09U, SSD131.29U ..... 88 Seconds
SSD161S.05DU, SSD161S.25DU ..... 27.5 Seconds

Spring Return ..... **30 seconds**

Nominal Stroke ..... 5.5 mm

Nominal Force ..... >67 lbs. (300N)

Agency Approvals
UL ..... UL 60730
cUL ..... Certified to Canadian Standard C22.2 No. 24-93

Ambient Temperature
Operation ..... 34° to 122°F (1° to 50°C)
Transport/Storage ..... -13° to 158°F (-25° to 70°C)

Humidity (Non-condensing)
Operation ..... 5 to 95% rh
Transport ..... <95% rh
Storage ..... 5% to 95% rh

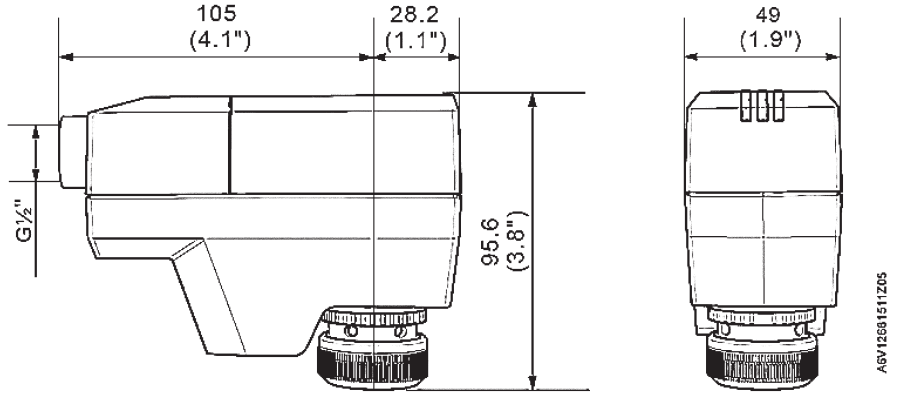
Product Ordering

Description	Orderable Part No.	Model No.	Actuator Prefix Code
Fail-Safe			
Floating	**S55180-A153**	**SSD131.29U**	332, 342
0 to 10 Vdc	**S55180-A155**	**SSD161S.25DU**	333, 343
Fail-in-Place			
Floating	**S55180-A152**	**SSD131.09U**	320
0 to 10 Vdc	**S55180-A154**	**SSD161S.05DU**	331, 341

Dimensions

SSD Series Actuators

mm (inch)



Dimensions shown in inches (mm)

Rack & Pinion Actuators

0-10V modulating
Pressure Independent Control



Rack & Pinion Actuator

Description

The Pressure Independent Control Series Rack & Pinion Actuator couples a GPC Actuator to a 1-1/2- or 2-inch Pressure Independent Control Series two-way valve using a linkage. The linkage transforms the actuator rotary movement into the linear motion required to position the valve.

Applications

The Pressure Independent Control Series valves are used to control water and glycol solutions to 50 percent in small to large air handling units and central plant applications.

Features

- Bi-directional fail-safe spring return
- Orderable as direct (Normally Open) or reverse (Normally Closed) acting
- Brushless DC motor technology with stall protection
- Pre-cabled
- Plenum-rated
- 60-second run time
- Integrated 1/2-inch NPT conduit connection
- Modulating control signal selectable 0 to 10V or 2 to 10V
- Modulating actuator has 0(2) to 10 Vdc feedback

Siemens offers a 5-year warranty on valves and actuators.

Specifications

Operating Voltage ..... 24 Vac ±20%, 24 Vdc ±20%

Frequency ..... 50/60 Hz

Power Consumption
599-03617 assembly
(with GPC161.1P actuator) ..... 3.5 VA running, 2.8 VA holding

Equipment rating ..... 24 Vac/Vdc

Control Signal
Control Input (Y)
Voltage input ..... 0 (2) to 10 Vdc (max. 35 Vdc)
Input resistance ..... 100K ohms
Position output feedback signal ..... 0 (2) to 10 Vdc, ±1 mA maximum

Run Time for 90°
Operating with motor ..... 60 seconds
On power loss with spring return ..... 15 seconds, typical

Ambient conditions
Ambient temperature
Operation ..... 25ºF to 130ºF (-32ºC to 55ºC)
Storage and transport ..... -40ºF to 158ºF (-40ºC to 70ºC)
Ambient humidity (non-condensing) ..... 95% rh

Mounting
Nominal angle of rotation 90º
Maximum angular rotation 95º
Enclosure ..... NEMA 1

Linkage
Frame ..... Aluminum alloy frame
Construction ..... Steel rack, pinion and stem shaft pre-lubricated, bronze bushings

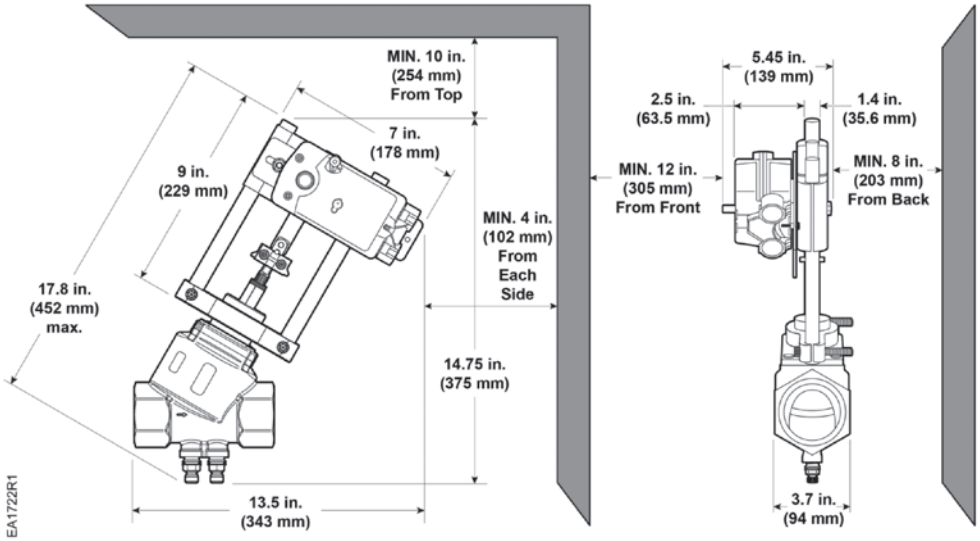
Agency Approvals ..... UL-listed per UL 60730
cUL to CSA 60730

Physical characteristics
Actuator enclosure IP54
Pre-connected cable ..... 18 AWG, 3 ft (0.9 m)
Dimensions ..... See next page
Weight ..... 1.32 lb (0.60 kg)

Product Ordering

	Description	Part No.
	Assembly consisting of: Electronic Actuator, linkage, and 1-1/2- inch or 2-inch Pressure Independent Control Series two-way valve body. Product Number 337NO/NC-xxxx-xx includes: GPC161.1P Electronic Actuator for 0 to 10 Vdc modulating control with a 24 Vac or 24 Vdc supply voltage. The xxxx of the product number specifies a particular Pressure Independent Control Series valve body.	**337NO-xxxx-xx** **337NC-xxxx-xx**
	Assembly consisting of: GPC161.1P Electronic Actuator and linkage. The assembly is ready for field installation on a 1-1/2- or 2-inch Pressure Independent Control Series valve.	**599-03617NO** **599-03617NC**
	Linkage only. For replacement or mounting of an alternate GPC electronic actuator on the linkage and installation of that linkage/actuator assembly on a 1-1/2-inch or 2-inch Pressure Independent Control Valve Series valve.	**599-03615**

Pressure Independent Control Series Rack & Pinion Actuator



Dimensions shown in inches (mm)

Siemens offers a 5-year warranty
on valves and actuators.



An easier delta-T solution featuring one device with three integrated functions

Siemens PICVs have the unique advantage of always maintaining their full stroke, regardless of the maximum adjustable flow setting, to provide better control. This significantly reduces or eliminates hunting for the right actuator setting, resulting in better control and increased comfort. With Siemens PICVs, there are less components, less installation effort, and fewer leak points, which lead to fewer callbacks.

Visit usa.siemens.com/valves to learn more.

SIEMENS

SAY Series Electronic Valve Actuator

24 V, 0 to 10 Vdc Control
Non-Spring Return



SAY Series Electronic Valve Actuator

Description

Pressure Independent Control Series SAY Non-Spring Return (NSR) Electronic Valve Actuators require a 0 to 10 Vdc or a 4 to 20 mA control signal to proportionally control a valve (SAY61.03U).

SAY actuators are designed to work with 1-1/2- or 2-inch normally open (NO) Siemens Pressure Independent Control Valves with a 5/8-inch (15 mm) stroke.

Features

- 24 Vac/dc operating voltage
- Proportional control
- Direct-coupled installation requires no special tools or adjustments
- Manual override
- Overload and stall protection
- Visual stroke indication
- Non-spring return (fail-in-place)
- 45 lb (200N) nominal force
- Automatic stroke calibration
- LED status
- Electronic stroke indication
- Maintenance-free
- Optional functions with auxiliary switches, function module, and stem heater
- Can be wired for normally closed operations; proportional actuators require AZX61.1 function module. See Installation or Technical Instructions.

Applications

Typical applications include control of hot or chilled water or water-glycol solutions up to 50% in closed loop systems. They are ideal for installations requiring quick response and excellent resolution.

Siemens offers a 5-year warranty on valves and actuators.

Specifications

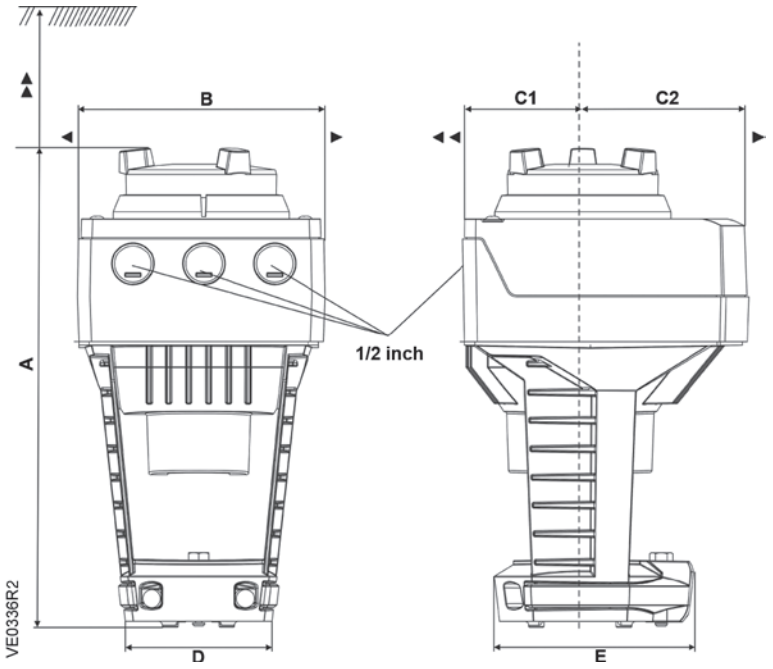
Operating Voltage ..... 24 Vac ±20%, 24 Vdc +20%/-15%
Frequency ..... 45 to 65 Hz
Power Consumption ..... 8 VA
Control Signals (SAY61.03U)
Control Input (Y)
Voltage..... 0 to 10 Vdc
Current..... 4 to 20 mA
Control Input (Z)
Resistance.....0 to 1000 Ohm
Position Feedback Output (U)..... 0 to 10 Vdc
Function
Nominal Stroke .....5/8" (15 mm)
Run Time .....30 sec.
Nominal Force .....45 lb. (200 N)

Agency Approvals .....UL 873
CSA C22.2 No. 24-93
Operating and Storage Temperature
Operating Temperature ..... 23° to 131°F (-5° to 55°C)
Storage Temperature ..... 5° to 131°F (-15° to 55°C)
Transport Temperature ..... -13° to 158°F (-25° to 70°C)
Ambient Humidity ..... 5 to 95% RH, Non-condensing
Media Temperature ..... Up to 266°F (130°C)
Conduit Opening ..... 1/2" NPSM
Mounting Location ..... NEMA 2 (IP54) weather protected

Product Ordering

Description	Part No.	Actuator Prefix Code
0 to 10 Vdc or 4 to 20 mA, Non-Spring Return	**SAY61.03U**	335

Dimensions



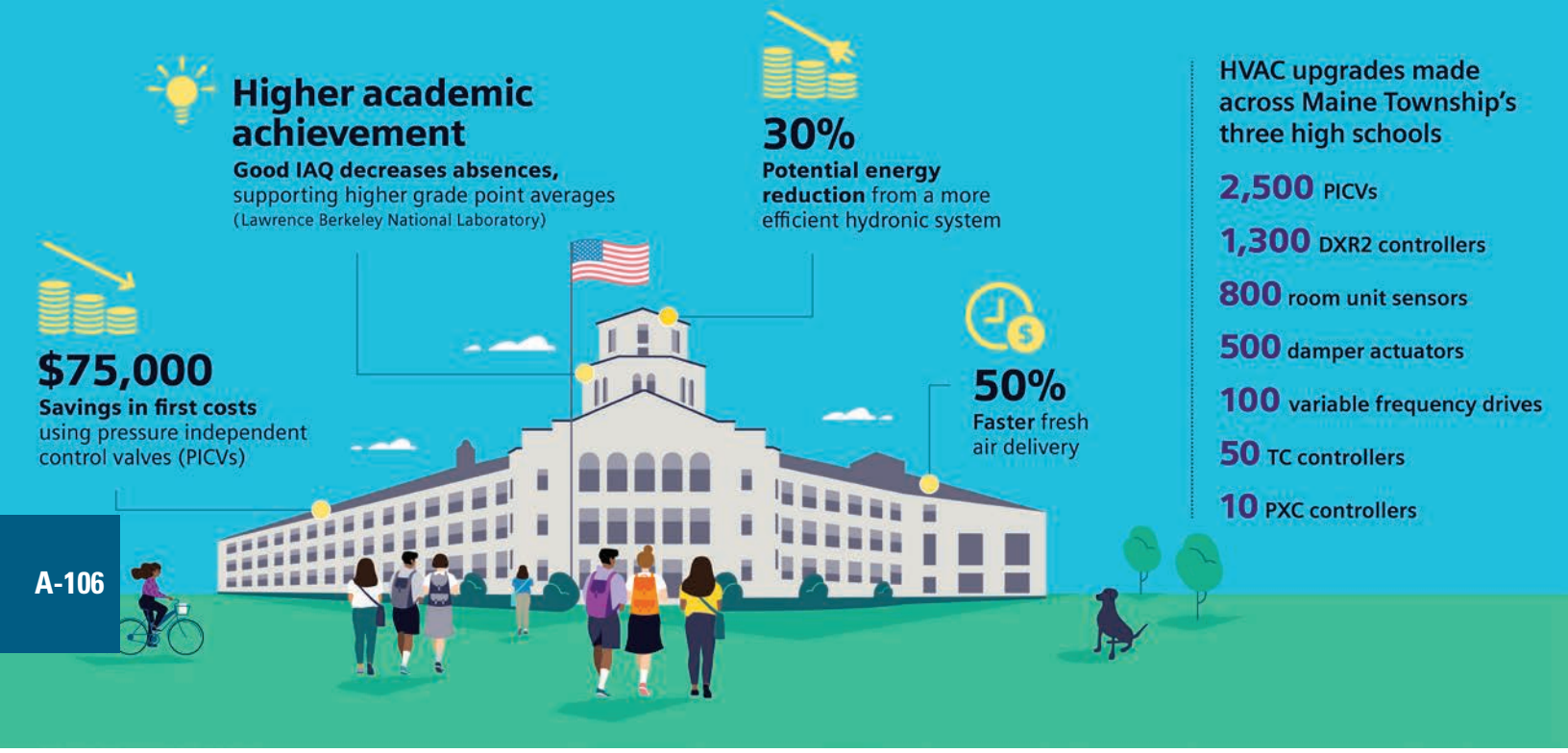
Dimensions shown in inches (mm)

	Dimensions									
	A	B	C	C1	C2	D	E	►	►►	Weight lb. (kg)
SAY	9.53 (242)	4.88 (124)	5.91 (150)	2.68 (68)	3.23 (82)	3.15 (80)	3.94 (100)	3.94 (100)	7.87 (200)	4.1 (1.85)
With ASK39.1	10.51 (267)	6.06 (154)	11.81 (300)	7.87 (200)	3.94 (100)	—	—	—	—	4.6 (2.08)

Table Notes:

Service envelope Minimum access space recommended

► 4 inch (100 mm) ►► 8 inch (200 mm)



Achieve the perfect balance between IAQ and energy efficiency

Maine Township School District 207 faced a challenge to modernize HVAC systems and controls in three large high schools that were built decades apart — without interrupting teacher and student schedules.

To coordinate this massive overhaul, the district turned to Siemens experts and successfully improved indoor air quality while reducing energy costs.

Visit usa.siemens.com/mainetownship to learn more.

"We're bringing in a lot of outside air into these schools. Our hope is that we've reduced energy across the district and increased the indoor air quality tremendously."

— Bob St. Mary
Senior Engineer at Elara Energy Services, Inc.

SIEMENS

Two-Way Flanged PICV

Control Valve, Adjustable Flow Limiter, and Automatic Pressure Regulator
2-1/2 to 6"
ANSI Class 125 or 250



Flanged PICV Valve

Description

Pressure Independent Control Valves automatically adjust to differential pressure changes, providing constant flow in HVAC systems. This reduces “hunting” for the right setting, and results in better control and increased comfort. Overall system performance can be optimized with PICV, requiring less pumping energy and contributing to more efficient loading of boilers and chillers.

Siemens Pressure Independent Control Valves integrate three functions into a single device: control valve, adjustable flow limiter, and automatic pressure regulator. The 2-1/2 and 3 inch valves have a 3/4-inch (20 mm) stroke and use the SAX non-spring return electronic valve actuators and the SQV spring return electronic valve actuators. The 4 to 6 inch valves have a 1-1/2-inch (40 mm) stroke and use the SAV non-spring return electronic valve actuators and the SQV spring return electronic valve actuators.

Applications

Typical applications include control of hot or chilled water or water-glycol solutions up to 50% in closed loop systems.

Features

- 3-in-1 device includes a control valve, field adjustable flow limiter, and automatic pressure regulator
- Full stroke regardless of maximum flow setting
- Maximum flow preset is easily field adjustable
- Available in both ANSI 125 and ANSI 250 pressure classes
- Can be equipped with SAX, SAV, or SQV electromotoric actuators
- Both SQV actuators (normally open and normally closed) can be wired for floating, 0-10V or 4-20 mA control signals

Siemens offers a 5-year warranty on valves and actuators.

Specifications

Valve Specifications

Body Material ..... Cast Iron
Plug ..... Brass
Seat ..... Stainless Steel
Stem ..... Stainless Steel
Line size ..... 2-1/2-inch (65 mm), 3-inch (80 mm), 4-inch (100 mm), 5-inch (125 mm), 6-inch (150 mm)
Action 2-way
Valve Body Rating ..... ANSI 125 and 250
Close-off ..... 100 PSI (700 kPa)
Leakage Rate ..... < ANSI Class IV (0.01%)
Medium Temperature Range ..... 34° to 250°F (1° to 120°C)
Flow Characteristic ..... Linear
Connection ..... ANSI Flanged

Actuator Specifications

Operating Voltage
SAV ..... 24 Vac ± 20%
24 Vdc +20%/-15%, Class 2
SAX, SQV ..... 24 Vac/dc

Frequency
SAV ..... 45 to 65 Hz
SAX, SQV ..... 50/60 Hz

Power Consumption (Normal Operation)
SAV61.00U ..... Stem retracts/extends 9.5 VA/4.5 W
Holding State 3.75 VA/1.7 5W
SAX 8 VA/3.75W
SQV 20 VA/7.5W

Control Signal
SAV61.00U ..... Positioning signal "Y" (0 to 10 Vdc)
Current draw < 0.1 mA
Input impedance > 100K Ω
(4 to 20 mA) Current draw DC 4 to 20 mA + 1%
Input impedance < 500 Ω
SAX61.03U ..... 0 to 10 Vdc
SQV ..... Selectable (Floating, 0 to 10 Vdc, 4 to 20 mA)

Run time
SAV ..... 120 seconds
SAX ..... 30 seconds
SQV ..... 40 to 120 seconds (adjustable)

Force
SAV ..... 360 lb (1600 N)
SAX ..... 180 lb (800 N)
SQV ..... 250 lb (1100 N)

Agency Certification
UL ..... Meets UL 873
cUL ..... Certified to Canadian Standard C22.2 No. 24.93

Valve Product Ordering

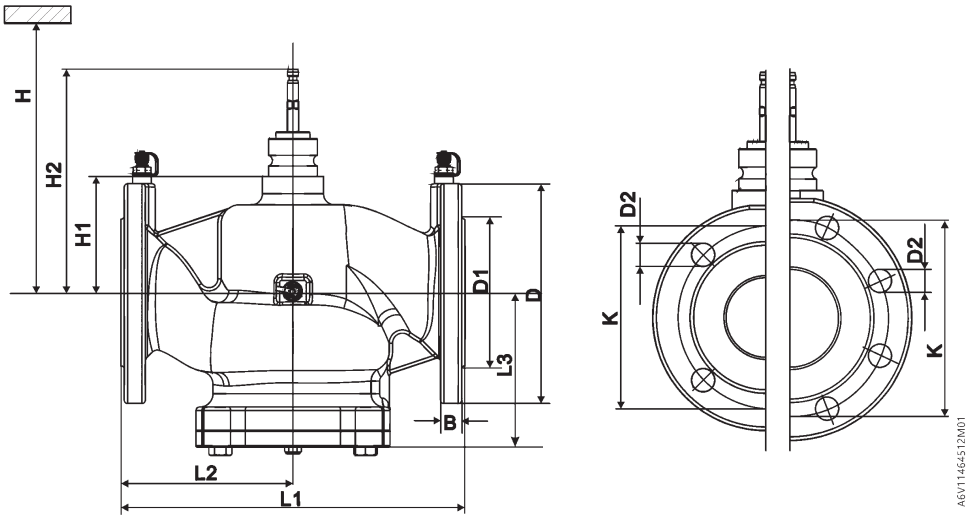
Line Size Inch (mm)	Maximum GPM Flow Range	Valve Body Part No. ANSI 125	Valve Body Part No. ANSI 250
2-1/2 (65)	21 to 132	**599-07330**	**599-07335**
3 (80)	32 to 195	**599-07331**	**599-07336**
4 (100)	43 to 370	**599-07332**	**599-07337**
5 (125)	78 to 525	**599-07333**	**599-07338**
6 (150)	106 to 740	**599-07334**	**599-07339**

Actuator Product Ordering

	Description		Part No.	Actuator Prefix Code
	Electro-Mechanical	Floating, 0-10V or 4 to 20mA, Spring Return, Normally Open	**SQV91P30U**	238
		Floating, 0-10V or 4 to 20mA, Spring Return, Normally Closed	**SQV91P40U**	239
	Electro-Mechanical	Proportional Non-Spring Return	**SAX61.03U**	371
	Electro-Mechanical	Proportional, Non-Spring Return	**SAV61.00U**	378

Dimensions

599-0733X Series Valves



Product Number	Valve Size in. (mm)	Dimensions													Weight lb. (kg)
												H			
		B	Ø D	Ø D1	Ø D2	L1	L2	L3	Ø K	H1	H2	SAX	SAV	SQV	
599-07330	2.5 (65)	0.69 (17.5)	7.01 (178)	N/A	0.75 (19)	10.87 (276)	5.43 (138)	5.1 (129.5)	5.5 (140)	4.09 (104)	7.89 (200.5)	21.5 (546)	—	23.35 (593)	42 (19)
599-07335		0.94 (24)	7.48 (190)	4.96 (126)	0.88 (22.4)	11.5 (292)	5.75 (146)	5.1 (129.5)	5.88 (149.4)	4.09 (104)	7.89 (200.5)	21.5 (546)	—	23.35 (593)	62 (28.1)
599-07331	3 (80)	0.75 (19)	7.5 (191)	N/A	0.75 (19)	11.75 (298)	5.87 (149)	5.77 (146.5)	6 (152)	4.09 (104)	7.89 (200.5)	21.5 (546)	—	23.35 (593)	59 (26.8)
599-07336		1.06 (27)	8.25 (210)	5.74 (145.8)	0.88 (22.4)	12.5 (318)	6.26 (159)	5.77 (146.5)	6.62 (168)	4.09 (104)	7.89 (200.5)	21.5 (546)	—	23.35 (593)	80 (36.3)
599-07332	4 (100)	0.98 (25)	9.00 (228.6)	N/A	0.75 (19)	13.86 (352)	6.93 (176)	7.26 (184.5)	7.5 (190.5)	6.65 (169)	11.24 (285.5)	—	24.96 (634)	25.91 (658)	82 (37.2)
599-07337		1.04 (26.5)	10 (254)	6.94 (176.3)	0.88 (22.4)	14.40 (365.8)	7.2 (183)	7.26 (184.5)	7.88 (200.2)	6.65 (169)	11.24 (285.5)	—	24.96 (634)	25.91 (658)	146 (66.2)
599-07333	5 (125)	0.98 (25)	10 (254)	–	0.88 (22.4)	15.75 (400)	7.87 (200)	7.99 (203)	8.50 (216)	8.01 (203.5)	12.70 (322.5)	—	31.14 (791)	32.09 (815)	182 (66.2)
599-07338	5 (250)	1.44 (36.6)	10.98 (279)	8.31 (211.1)	0.88 (22.4)	16.62 (422.2)	8.31 (211.1)	7.99 (203)	9.25 (235)	8.01 (203.5)	12.70 (322.5)	—	32.01 (813)	32.95 (837)	229 (104)
599-07334	6 (125)	1.05 (26.70)	10.98 (279)	–	0.88 (22.4)	17.76 (451)	8.88 (225.5)	9.17 (233)	9.50 (241.3)	7.76 (197)	12.56 (319)	—	31.14 (791)	32.09 (815)	254 (115)
599-07339	6 (250)	1.50 (38.1)	12.52 (318)	9.69 (246)	0.88 (22.4)	18.62 (473)	9.31 (236.5)	9.17 (233)	10.63 (270)	7.76 (197)	12.56 (319)	—	32.01 (813)	32.95 (837)	322 (146)

Table Notes:

øD1 = Raised area of flange

H = Total actuator height plus minimum distance to the wall or the ceiling for mounting, connection, operation, maintenance, etc.

H1 = Dimension from the pipe center to install the actuator (upper edge)

H 2 = Valve in the «Open» position means that the valve stem is fully extended

Siemens offers a 5-year warranty on valves and actuators.



A complete line of globe valves for any HVAC application

Siemens offers a large selection of globe valves to suit any heating or cooling application using water or low-pressure steam. This complete portfolio allows you to meet your design needs and helps ensure that heating and cooling systems are operating at optimum levels. Siemens globe valves have the highest close-off in the industry. For wider selection, reliable shut off and precision control, choose Siemens globe valves.

Visit usa.siemens.com/valves to learn more.

Complete Product Portfolio
Largest selection of globe valves in the industry

Quality
Siemens standards

75+ Years
Innovating control valves

100%
Factory tested

Up to 5 Million
Repositions for longer life

Up to 100 Thousand
Full strokes

SIEMENS

SQV Valve Actuator

24 Vac/dc, Floating or Proportional Control
Floating, 0-10 V or 4-20 mA
Spring Return



SQV Series Electro-Motoric Valve Actuators

Description

Pressure Independent Control Series SQV Electro-Motoric Valve Actuators require a 24 V ac or dc power supply and receive a floating, 0-10 V or 4-20 mA signal to control a valve. The SQV Actuators are available as either fail open or fail closed when used with the Siemens Flanged Pressure Independent Control Valves.

These actuators are designed to work the 2-1/2 to 6-inch Pressure Independent Control Series Valves with a 3/4-inch (20 mm) or 1-1/2-inch (40 mm) stroke and the standard Siemens Flowrite bonnet connection.

Applications

Electromotoric actuators to operate Siemens Pressure Independent Control Valves with 3/4-inch (20 mm) or 1-1/2-inch (40 mm) stroke as control valves for large air handling units and distribution of hot and chilled water.

Features

- Operating voltage: AC/DC 24V
- Control signals: 3-position, DC 0 to 10V, DC 4 to 20 mA
- Fail-safe function
- Position feedback
- Manual adjuster
- Position and status indication (LED)
- Selectable positioning times from 40 to 240 seconds
- Selection of acting direction and flow characteristic
- Direct mounting on Pressure Independent Control Valves
- UL Listed

Siemens offers a 5-year warranty on valves and actuators.

Specifications

Operating Voltage ..... 24 Vac ±20%
24 Vdc ±15%, Class 2

Frequency ..... 50 to 60 Hz

Fusing of Supply Lines ..... Maximum 10 Amp slow

Power Consumption ..... 20 VA/7.5 W

Operating Data
- Positioning time open/close ..... 40 seconds (default for 3/4 in. (20 mm) stroke)
  Positioning time depends on the DIP switch setting
- Positioning force ..... ≥ 247 lb (1100 N)
- Nominal stroke ..... 3/4-inch (20 mm) to 1-1/2-inch (40 mm)
- Admissible temperature of medium in the valve ..... 34° to 248°F (1° to 120°C)

Signal Inputs
- Terminals G1, G2 ..... 3-position
  - Voltage ..... 24 Vac ±20%
    24 Vdc ±15%
- Terminal Yu
  - Voltage ..... 0 to 10 Vdc
  - Input impedance ..... ≥ 100K Ω
- Terminal Yi
  - Power ..... DC 4 to 20 mA
  - Input impedance ..... 50 Ω

Fail-safe Function
- Terminal G
  - SQV91P30U ..... Loss of operating voltage
    Actuator stem retracted, pressure independent valve fully open (100%)
  - SQV91P40U ..... Loss of operating voltage
    Actuator stem extended, pressure independent valve fully closed (0%)
- Spring return time ..... 15 sec for 3/4-inch (20 mm) stroke
  30 sec for 1-1/2-inch (40 mm) stroke

Position Feedback
- Position feedback U ..... DC 0 to 10V + 1%
- Load impedance ..... >2.5K Ω resistive
- Load ..... Maximum 4 mA

Electrical Connections
- Wire cross-sectional areas ..... 14 to 30 AWG
- Cable entries (1/2" conduit adapter included) ..... 2 openings M20 x 1
  1 opening M16 x 1.5

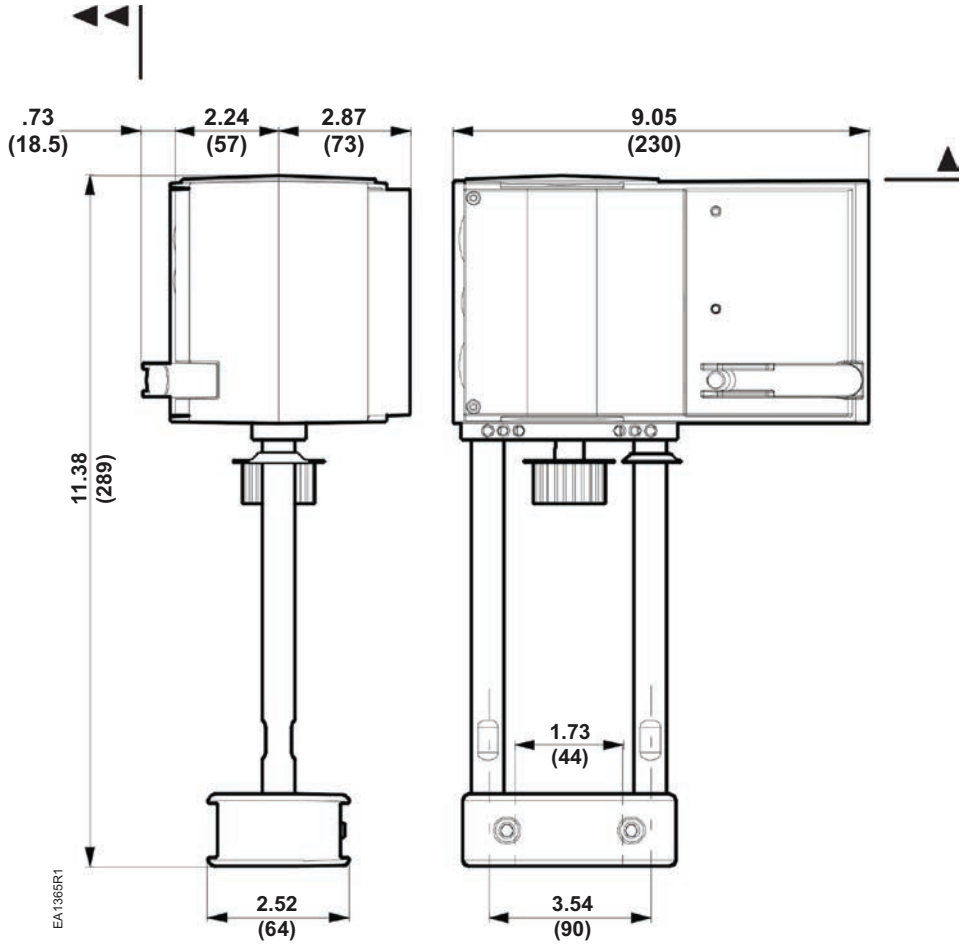
Degree of Protection
- Housing from vertical to horizontal ..... NEMA 4 (IP 66)
- Insulating class, AC/DC 24V III

Environmental Conditions
- Operation
  - Temperature ..... 32° to 122°F (0° to 50°C)
  - Humidity (non-condensing) ..... <95% rh
- Transport
  - Temperature ..... -22° to 158°F (-30° to 70°C)
  - Humidity ..... <95% rh
- Storage
  - Temperature ..... -22° to 149°F (-30° to 65°C)
  - Humidity ..... 5 to 95% rh

Product Ordering

Description	Part No.	Actuator Prefix Code
Floating, 0 to 10V or 4 to 20mA, Normally Open	**SQV91P30U**	238
Floating, 0 to 10V or 4 to 20mA, Normally Closed	**SQV91P40U**	239

Dimensions



Dimensions shown in inches (mm)

*** Height of actuator after fitting on valve**

▲ 4 inches (100 mm) Minimum clearance from wall or ceiling

◄◄ 8 inches (200 mm) for mounting, connection, operation, service, and so on

SAX Valve Actuator

24 Vac, Proportional Control,
0 to 10Vdc or 4 to 20 mA
Non-Spring Return



SAX Electronic Valve Actuator

Description

Designed for use with Siemens 2-1/2 and 3-inch flanged Pressure Independent Control Valves with a 3/4-inch (20 mm) stroke. The SAX Electronic Actuator requires either a 24 Vac or 24 Vdc supply, and receives a 0 to 10 Vdc or 4 to 20 mA control signal to proportionally control the valve.

Features

- 24 Vac/Vdc operating voltage
- Proportional or floating (3P) control
- Direct-coupled installation requires no special tools or adjustments
- Manual override
- Overload and stall protection
- Visual stroke indication
- Non-spring return (fail-in-place)
- 180 lb (800N) nominal force
- Automatic stroke calibration
- LED status
- Electronic stroke indication
- Maintenance-free
- Optional functions with auxiliary switches, function module, and stem heater
- Can be wired for normally closed operations; proportional actuators require AZX61.1 function module. See Installation or Technical Instructions.

Applications

Typical applications include control of hot or chilled water or water-glycol solutions up to 50% in closed loop systems. They are ideal for installations requiring quick response and excellent resolution.

Siemens offers a 5-year warranty on valves and actuators.

Specifications

Operating Voltage ..... 24 Vac ±20%, 24 Vdc +20%/-15%

Frequency ..... 45 to 65 Hz

Power Consumption ..... 8 VA

Control Signals

Control Input (Y)

Voltage..... 0 to 10 Vdc

Current..... 4 to 20 mA

Control Input (Z)

Resistance..... 0 to 1000 Ohm

Position Feedback Output (U)..... 0 to 10 Vdc

Function

Nominal Stroke ..... 3/4" (20 mm)

Run Time ..... 30 sec.

Nominal Force ..... 180 lb. (800 N)

Agency Approvals ..... UL 873
CSA C22.2 No. 24-93

Operating and Storage Temperature

Operating Temperature ..... 23° to 131°F (-5° to 55°C)

Storage Temperature ..... 5° to 131°F (-15° to 55°C)

Transport Temperature ..... -13° to 158°F (-25° to 70°C)

Ambient Humidity ..... 5 to 95% RH, Non-condensing

Media Temperature ..... Up to 266°F (130°C)

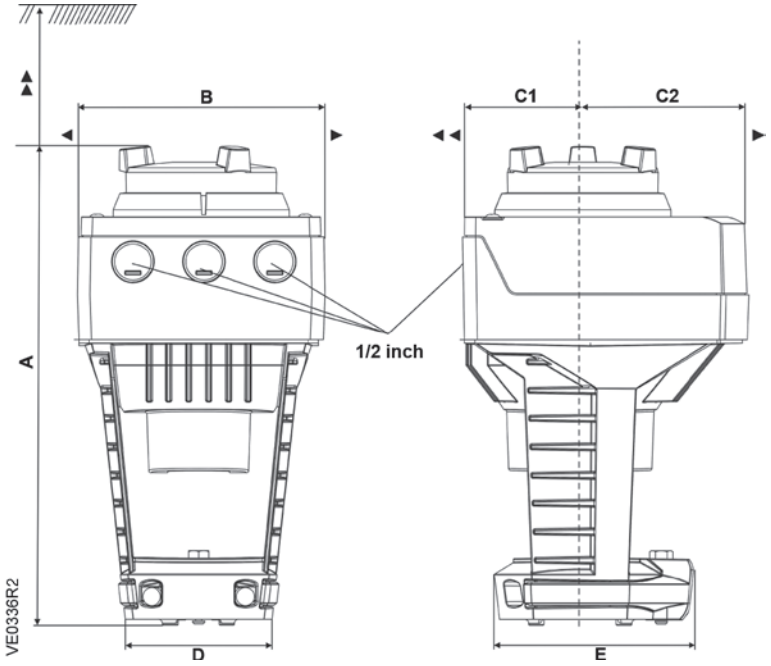
Conduit Opening ..... 1/2" NPSM

Mounting Location ..... NEMA 2 (IP54) weather protected

Product Ordering

Description	Part No.	Actuator Prefix Code
Proportional, Non-Spring Return	**SAX61.03U**	**371**

Dimensions



Dimensions shown in inches (mm)

	Dimensions									
	A	B	C	C1	C2	D	E	►	►►	Weight lb. (kg)
SAX	9.53 (242)	4.88 (124)	5.91 (150)	2.68 (68)	3.23 (82)	3.15 (80)	3.94 (100)	3.94 (100)	7.87 (200)	4.1 (1.85)
With ASK39.1	10.51 (267)	6.06 (154)	11.81 (300)	7.87 (200)	3.94 (100)	–	–	–	–	4.6 (2.08)

Table Notes:
Service envelope Minimum access space recommended
► 4 inch (100 mm) ►► 8 inch (200 mm)

SAV Valve Actuator

24 Vac/dc Proportional Control,
0 to 10Vdc or 4 to 20 mA
Non-Spring Return



SAV Electronic Valve Actuator

Description

The SAV Non-spring Return (NSR) Electronic Valve Actuator requires a 24 Vac/dc supply. To proportionally control a valve, the actuator requires a 0 to 10 Vdc or a 4 to 20 mA control signal. SAV actuators are designed to work with Siemens 4 to 6-inch Flanged Pressure Independent Control Valves with a 1-1/2-inch (40 mm) stroke.

Applications

Typical applications include control of hot or chilled water or water-glycol solutions up to 50% in closed loop systems. They are ideal for installations requiring quick response and excellent resolution.

Features

- 24 Vac/dc operating voltage
- Proportional control
- Direct-coupled installation requires no special tools or adjustments
- Manual override
- Overload and stall protection
- Visual stroke indication
- Non-spring return (fail-in-place)
- 360 lb (1600N) nominal force
- Automatic stroke calibration
- LED status
- Electronic stroke indication
- Maintenance-free
- Optional functions with auxiliary switches, function module, and stem heater
- Can be wired for normally closed operations; proportional actuators require AZX61.1 function module. See Installation or Technical Instructions.

Siemens offers a 5-year warranty on valves and actuators.

Specifications

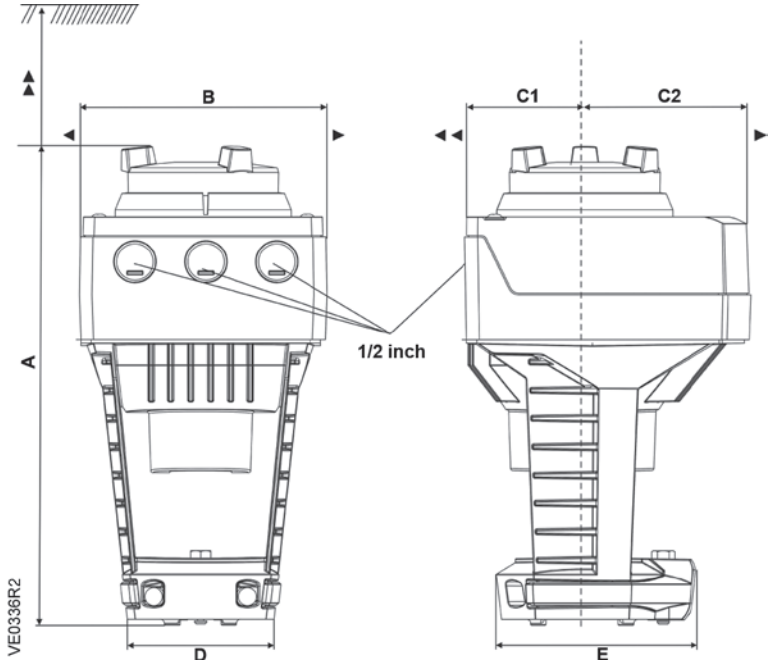
Operating Voltage ..... 24 Vac ±20%, 24 Vdc +20%/-15%
Frequency ..... 45 to 65 Hz
Power Consumption ..... 8 VA
Power Consumption ..... 5 VA
Control Signals
Control Input (Y)
Voltage..... 0 to 10 Vdc
Current..... 4 to 20 mA
Control Input (Z)
Resistance.....0 to 1000 Ohm
Position Feedback Output (U)..... 0 to 10 Vdc
Function
Nominal Stroke ..... 1-1/2-inch (40 mm)
Run Time .....30 sec.
Nominal Force .....360 lb. (1600 N)

Agency Approvals .....UL 873
CSA C22.2 No. 24-93
Operating and Storage Temperature
Operating Temperature ..... 23° to 131°F (-5° to 55°C)
Storage Temperature ..... 5° to 131°F (-15° to 55°C)
Transport Temperature ..... -13° to 158°F (-25° to 70°C)
Ambient Humidity ..... 5 to 95% RH, Non-condensing
Media Temperature ..... Up to 266°F (130°C)
Conduit Opening ..... 1/2" NPSM
Mounting Location ..... NEMA 2 (IP54) weather protected

Product Ordering

Description	Part No.	Actuator Prefix Code
Proportional, Non-Spring Return	**SAV61.00U**	**378**

Dimensions



Dimensions shown in inches (mm)

	Dimensions									
	A	B	C	C1	C2	D	E	►	►►	Weight lb. (kg)
SAV	10.43 (265)	4.88 (124)	5.91 (150)	2.68 (68)	3.23 (82)	3.15 (80)	3.94 (100)	3.94 (100)	7.87 (200)	4.23 (1.92)
With ASK39.1	11.42 (290)	6.06 (154)	11.81 (300)	7.87 (200)	3.94 (100)	—	—	—	—	4.74 (2.15)

Table Notes:

Service envelope Minimum access space recommended

► 4 inch (100 mm) ►► 8 inch (200 mm)



A-120

Building Technologies Blog Center: Your resource for HVAC insights

Don't miss the latest blogs where you'll learn more about exciting HVAC technologies and products. Our subject-matter experts share their forward-thinking perspectives on issues and innovations that will not only transform your business, but also increase productivity. Articles ranging from HVAC solutions on energy efficiency to indoor air quality and more will keep you informed about the latest news and trends. Read what our experts have to say today!

Visit usa.siemens.com/bt-blog to learn more.

SIEMENS