Intelligent Valve Family

The Intelligent Valve enables automatic dynamic balancing of the hydraulic system. With dynamic balancing, pressure fluctuations are automatically compensated for, thereby avoiding temperature fluctuations in the building and increasing the comfort for the building users. Manual balancing valves and complicated hydronic calculations are not needed.

Intelligent Valve is suitable for all systems and projects. Besides dynamic hydronic balancing, they provide a high level of transparency regarding the energy flows in the system and the energy consumption of single consumers. In addition, they offer local functions for energy optimization beyond volume flow and output limitation.

Combines four main functions

- Exact, continuous volume flow measurement with an ultrasonic flow sensor
- Precise temperature measurement using paired PT1000 temperature sensors
- Precise volume control using a control valve with a high-resolution actuator
- Dynamic hydronic balancing, power and energy calculation, and network integration via the Intelligent Valve controller

Applications

- Air handling units
- Central plant
- Distribution

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

Make energy efficiency a snap with the self-optimizing Intelligent Valve

When planning HVAC systems, it's all about operational efficiency, and that's why Siemens developed the dynamic Intelligent Valve. From planning to ongoing operation, the Intelligent Valve is much more than a conventional control valve or even a mechanical pressure independent control valve. It optimizes consumption, increases energy efficiency, and reduces operating costs. With its built-in intelligence, it is the ultimate solution offering guaranteed benefits throughout the full building lifecycle.

Visit usa.siemens.com/intelligent-valve to learn more.

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SIEMENS

Two-Way Flanged Intelligent Valve

2-1/2 to 5"
ANSI Class 125
0/2 to 10V modulating fail-in-place

Flanged Intelligent Valve

Description

The Intelligent Valve is a 2-port dynamic balancing valve with volume flow, temperature and power measurement for heating and cooling systems. The valve can be integrated as analog control (DC 0/2...10 V or 4...20 mA) or digital (BACnet IP) into the temperature control loop. All process data (volume flow, power, primary flow and return temperature, etc.) can still be read out digitally via BACnet IP even if integrated with analog control. It also has local limitation and optimization functions that support energy-efficient system operation.

Features

- 2.5 to 5-inch with ANSI 125 flanged connections
- Flexible installation
- Power supply AC/DC 24 V
- BACnet IP network connectivity (BTL certified)
- For use in heating and cooling systems as a control valve and for dynamic hydraulic balancing
- Maximum adjustable volumetric flow 38…500 GPM
- Wi-Fi interface to ABT Go and Climatix mobile apps
- Easy integration into Siemens BMS using ABT Site

The Intelligent Valve has three control applications:

- Dynamic control valve
- Differential pressure controller
- Secondary flow temperature controller

Volume flow limitation and energy acquisition are available at any time in all three control functions.

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

Specifications

Valve Specifications

Body Material ..... Cast Iron
Plug ..... Stainless Steel
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)
Action 2-way
Valve Body Rating ..... ANSI 125
Close-off ..... 200 PSI
Leakage Rate ..... < ANSI Class IV (0.01%)
Medium Temperature Range ..... 34° to 248°F (1° to 120°C)
Flow Characteristic ..... Linear or equal percentage
Connection ..... ANSI Flanged

Actuator Specifications

Operating Voltage
SAX61.03/HR, SAV61.00/HR ..... 24 Vac ±20%, 24 Vdc +20%/-15%
Frequency
SAX61.03/HR, SAV61.00/HR ..... 50/60 Hz

Power Consumption (Normal Operation)
SAV61.00/HR ..... Stem retracts/extends 10 VA/4.5 W
SAX61.03/HR 8 VA/3.75W
Control Signal
SAX61.03/HR, SAV61.00/HR ..... 0/2 to 10 Vdc, 4 to 20 mA
Run time
SAV61.00/HR ..... 120 seconds
SAX61.03/HR ..... 30 seconds
Force
SAV61.00/HR ..... 360 lb (1600 N)
SAX61.03/HR ..... 180 lb (800 N)
Agency Certification
UL ..... Meets UL 60730
cUL ..... Certified to Canadian Standard C22.2 No. 24.93

Intelligent Valve Product Ordering

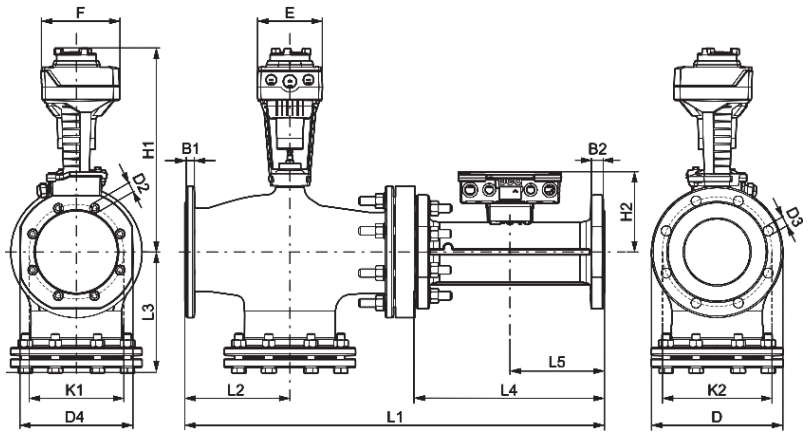
Line Size Inch (mm)	Maximum GPM Flow Range	Normally Open ANSI 125	Normally Closed ANSI 125
2-1/2 (65)	38 to 125	**EVF4U21U0250**	**EVF4U20U0250**
3 (80)	56 to 185	**EVF4U21U0300**	**EVF4U20U0300**
4 (100)	95 to 315	**EVF4U21U0400**	**EVF4U20U0400**
5 (125)	150 to 500	**EVF4U21U0500**	**EVF4U20U0500**

Actuator Product Ordering

Description			Part No.
	Electro-Mechanical	Proportional Non-Spring Return	**S55150-A142 (SAX61.03/HR)**
	Electro-Mechanical	Proportional, Non-Spring Return	**S55150-A146 (SAV61.00/HR)**

Dimensions

Localized Intelligent Valve



Product Number	Dimensions Table 1														Weight lb. (kg)
	B1	B2	D	D3	E	F	H1	H2	K2	L1	L2	L3	L4	L5	
EVF4U20U0250	0.69 (17.5)	0.75 (19)	7 (178)	8 x 5/8-11	4.88 (124)	5.9 (150)	15.25 (387)	5.35 (136)	5.5 (140)	25.2 (640)	5.5 (140)	5 (125)	11.8 (300)	5.9 (150)	127.8 (58)
EVF4U20U0300	0.75 (19)		7.5 (190.5)	8 x 5/8-11			15.8 (402)	5.63 (143)	6 (152.5)	26.1 (663)	5.88 (149)	5.63 (142)			154.2 (70)
EVF4U20U0400	0.94 (24)	0.91 (23)	9 (229)	16 x 5/8-11			17.7 (450)	6.1 (154)	7.5 (190.5)	30.55 (776)	7 (178)	6.63 (168)	14.2 (360)	7.1 (180)	248.5 (112.7)
EVF4U20U0500	0.94 (24)		10 (254)	8 x 3/4-10			18.15 (461)		8.5 (216)	32.44 (824)	7.88 (200)	7.5 (185)			305.6 (138.6)
EVF4U21U0250	0.69 (17.5)	0.75 (19)	7 (178)	8 x 5/8-11			15.63 (397)	5.35 (136)	5.5 (140)	25.2 (640)	5.5 (140)	4.88 (123)	11.8 (300)	5.9 (150)	129.8 (58.9)
EVF4U21U0300	0.75 (19)		7.5 (190.5)	8 x 5/8-11			16.44 (417.5)	5.63 (143)	6 (152.5)	26.1 (663)	5.88 (149)	5.3 (135)			155.2 (70.4)
EVF4U21U0400	0.94 (24)	0.91 (23)	9 (229)	16 x 5/8-11			17.65 (448)	6.1 (154)	7.5 (190.5)	30.55 (776)	7 (178)	6.3 (160)	14.2 (360)	7.1 (180)	249.5 (113.2)
EVF4U21U0500	0.94 (24)		10 (254)	8 x 3/4-10			18.6 (472)		8.5 (216)	32.44 (824)	7.88 (200)	7 (177)			306.6 (139.1)

SAX61.03/HR and SAV61.00/HR Valve Actuators

24 Vac/dc, Proportional Control,
Non-Spring Return

Description

Designed for use with Siemens 2-1/2 to 5-inch flanged Intelligent Valves. These SAX and SAV Electronic Actuators are powered by the Intelligent Valve controller and 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.

Applications

Typical applications include control of hot or chilled water in closed loop systems. They are ideal for installations requiring quick response and excellent resolution.

Features

- 24 Vac/dc operating voltage
- Direct-coupled installation requires no special tools or adjustments
- Manual override
- Overload and stall protection
- Visual stroke indication
- Non-spring return (fail-in-place)
- Automatic stroke calibration
- LED status
- Electronic stroke indication
- Maintenance-free

Specifications

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

Frequency ..... 50/60 Hz

Power Consumption ..... SAX.....8 VA
SAV.....10 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 .....SAX.....3/4" (20 mm)
  SAV.....1-1/2" (40mm)
- Run Time .....SAX.....30 sec.
  SAV.....120 sec.
- Nominal Force .....SAX.....180 lb. (800 N)
  SAV.....360 lb. (1600N)

Agency Approvals ..... UL 60730
CSA C22.2 No. 24-93

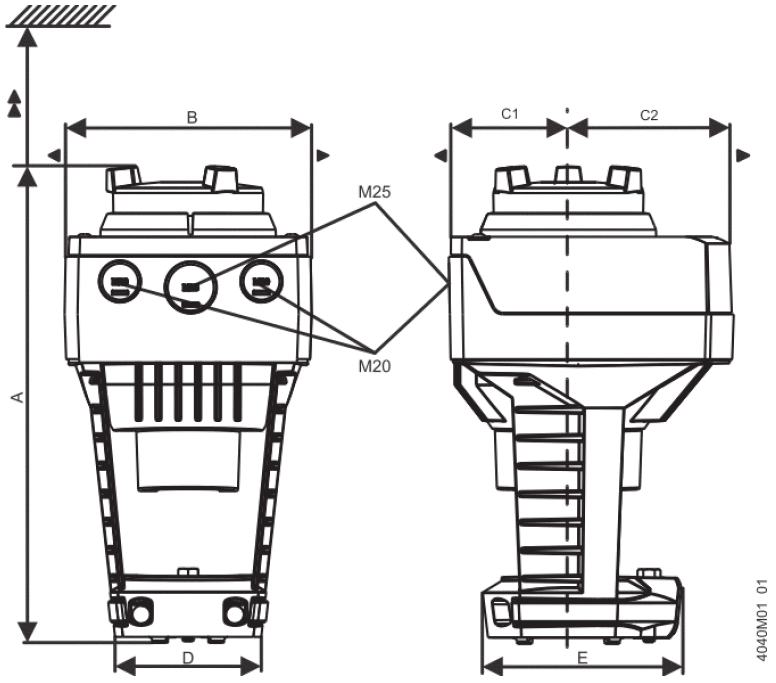
Operating and Storage Temperature
- Operating Temperature ..... 23° to 131°F (-5° to 55°C)
- Storage Temperature ..... 5° to 131°F (-15° to 55°C)
- Transport Temperature ..... -13° to 158°F (-25° to 70°C)
- Ambient Humidity ..... 5 to 95% RH, Non-condensing
- Media Temperature ..... 34 to 248°F (1 to 120°C)

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

Product Ordering

Description	Part No.	Use with Intelligent Valve Size In (mm)
Proportional, Non-Spring Return	**S55150-A142 (SAX61.03/HR)**	2.5 (65), 3 (80)
Proportional, Non-Spring Return	**S55150-A146 (SAV61.00/HR)**	4 (100), 5 (125) for SAV

Dimensions



Dimensions shown in inches (mm)

	Dimensions									
	A	B	C	C1	C2	D	E	►	►►	Weight lb. (kg)
SAX61.03/HR	9.5 (242)	4.9 (124)	5.9 (150)	2.7 (68)	3.2 (82)	3.15 (80)	3.94 (100)	3.94 (100)	7.9 (200)	4.3 (1.95)
SAV61.00/HR	10.4 (265)									4.6 (2.1)

Table Notes:
► 4 inch (100 mm) ►► 8 inch (200 mm)