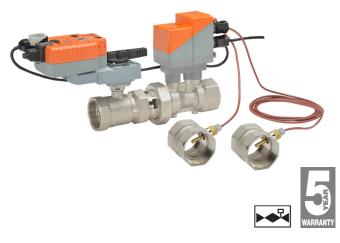
EV125S-285, 1-1/4", Energy Valve Stainless Steel Ball and Stem, Female NPT Ends





Chilled or hot water, up to 60% glycol max (open loop/steam not allowed) Flow Characteristic equal percentage or linear GPM Range 8.6-28.5 Valve Size 1.25 " [32] End Fitting NPT female ends Body forged brass, nickel plated Sensor Housing forged brass, nickel plated Sensor Housing stainless steel Stem stainless steel Stem Packing EPDM (lubricated) Seat Teflon® PTFE Seat O-ring EPDM Characterized Disc TEFZEL® Body pressure Rating 360 psi Media Temperature Range (Water) Differential Pressure Range 14°F to 250°F [-10°C to 120°C] (Water) Differential Pressure Range 200 psi Inlet Length to Meet Specified Measurement Accuracy Ambient Humidity 495% RH non-condensing Flow Measurement Repeatability \$40.5% Sensor Technology ultrasonic with glycol and temperature compensation Temperature Sensors PT1000 insertion sensors w/NPT body According to PT1000 DIN EN60751 Class Tolerance Resolution of Temperature Sensor Rated Impulse Voltage actuator/sensor: 0.8 kV (in accordance with EN60730-1) kV 100:1 Housing NEMA 1, UL Enclosure Type 1 Weight 8.4 lb [3.8 kg] Remote Temperature Sensor Length Leakage 0%	Technical Data	
(open loop/steam not allowed)	Service	chilled or hot water, up to 60% glycol max
GPM Range Valve Size In Fitting NPT female ends Body Forged brass, nickel plated Sensor Housing Ball Stainless steel Stem Stem Stem Stainless steel Stem Steel Stem Stainless steel Stem Stainless steel Steel Stainless stainless steel Stainless		
Valve Size End Fitting Body Forged brass, nickel plated Sensor Housing Ball Stainless steel Stem Stem Packing Seat Seat Teflon® PTFE Seat O-ring Characterized Disc Body Pressure Rating Media Temperature Range (Water) Differential Pressure Range Inlet Length to Meet Specified Measurement Tolerance Flow Measurement Tolerance Flow Measurement Repeatability Sensor Technology Temperature Sensor PT1000 insertion sensors w/NPT body Rangeability Housing NPT female ends forged brass, nickel plated forged brass, nic	Flow Characteristic	equal percentage or linear
End Fitting Body Forged brass, nickel plated Forged brass,	GPM Range	8.6-28.5
Body Sensor Housing Forged brass, nickel plated Forgen brasel Forgen bra	Valve Size	1.25 " [32]
Sensor Housing forged brass, nickel plated Stall stainless steel Stem stainless steel Stem Packing EPDM (Iubricated) Seat Teflon® PTFE Seat O-ring EPDM Characterized Disc TEFZEL® Body Pressure Rating 360 psi Media Temperature Range (Water) Differential Pressure Range 5 to 50 psid or 1 to 50 psid see flow reductions chart in tech doc Close-Off Pressure 200 psi Inlet Length to Meet Specified Measurement Accuracy Ambient Humidity <95% RH non-condensing Flow Measurement Tolerance ±5% Flow Control Tolerance ±5% Flow Measurement Repeatability ±0.5% Sensor Technology ultrasonic with glycol and temperature compensation Temperature Sensors PT1000 insertion sensors w/NPT body According to PT1000 DIN EN60751 Class Tolerance Resolution of Temperature Sensor 0.18°F (0.1°C) Rated Impulse Voltage actuator/sensor: 0.8 kV (in accordance with EN60730-1) kV Rangeability 100:1 Housing NEMA 1, UL Enclosure Type 1 8.4 lb [3.8 kg] Standard: 2 ft. 7.5 in. [0.8m], 9.8 ft. [3m] Leakage 0%	End Fitting	NPT female ends
Stem Stem Stainless steel Stem Packing EPDM (lubricated) Seat Teflon® PTFE Seat O-ring EPDM Characterized Disc EPDM Characterized Disc TEFZEL® Body Pressure Rating 360 psi Media Temperature Range (Water) Differential Pressure Range 5 to 50 psid or 1 to 50 psid see flow reductions chart in tech doc 200 psi Inlet Length to Meet Specified 5X nominal pipe size (NPS) Measurement Accuracy 4295% RH non-condensing 42%* Flow Measurement Tolerance 45% Flow Measurement Repeatability 40.5% Sensor Technology ultrasonic with glycol and temperature compensation Temperature Sensors PT1000 insertion sensors w/NPT body Temperature Measurement Tolerance 40.18°F (0.1°C) Rated Impulse Voltage 20.18°F (0.1°C) Rated Impulse Voltage 34.4 lb [3.8 kg] Remote Temperature Sensor Length Leakage 0%	Body	forged brass, nickel plated
Stem Stem stainless steel Stem Packing EPDM (lubricated) Seat Teflon® PTFE Seat O-ring EPDM Characterized Disc TEFZEL® Body Pressure Rating 360 psi Media Temperature Range (Water) Differential Pressure Range 5 to 50 psid or 1 to 50 psid see flow reductions chart in tech doc Close-Off Pressure 200 psi Inlet Length to Meet Specified 5X nominal pipe size (NPS) Measurement Accuracy Ambient Humidity <95% RH non-condensing Flow Measurement Tolerance ±2%* Flow Control Tolerance ±5% Flow Measurement Repeatability ±0.5% Sensor Technology ultrasonic with glycol and temperature compensation Temperature Sensors PT1000 insertion sensors w/NPT body Temperature Measurement Tolerance According to PT1000 DIN EN60751 Class Tolerance Resolution of Temperature Sensor 0.18°F (0.1°C) Rated Impulse Voltage actuator/sensor: 0.8 kV (in accordance with EN60730-1) kV Rangeability 100:1 Housing NEMA 1, UL Enclosure Type 1 Weight 8.4 lb [3.8 kg] Remote Temperature Sensor Length Leakage 0%	Sensor Housing	forged brass, nickel plated
Stem Packing Seat Seat Seat Seat Seat Seat Seat Seat	Ball	stainless steel
Teflon® PTFE Seat O-ring Characterized Disc Body Pressure Rating Media Temperature Range (Water) Differential Pressure Range Close-Off Pressure Inlet Length to Meet Specified Measurement Accuracy Ambient Humidity Flow Measurement Tolerance Flow Control Tolerance Flow Measurement Repeatability Sensor Technology Temperature Sensors Temperature Measurement Tolerance Resolution of Temperature Sensor Rangeability Housing Neamore Sensor Length Neamore Neam	Stem	stainless steel
Seat O-ring EPDM Characterized Disc TEFZEL® Body Pressure Rating 360 psi Media Temperature Range (Water) Differential Pressure Range 5 to 50 psid or 1 to 50 psid see flow reductions chart in tech doc Close-Off Pressure 200 psi Inlet Length to Meet Specified 5X nominal pipe size (NPS) Measurement Accuracy Ambient Humidity <95% RH non-condensing Flow Measurement Tolerance ±2%* Flow Control Tolerance ±5% Flow Measurement Repeatability ±0.5% Sensor Technology ultrasonic with glycol and temperature compensation Temperature Sensors PT1000 insertion sensors w/NPT body Temperature Measurement 70.18°F (0.1°C) Rated Impulse Voltage actuator/sensor: 0.8 kV (in accordance with EN60730-1) kV Rangeability 100:1 Housing NEMA 1, UL Enclosure Type 1 Weight 8.4 lb [3.8 kg] Remote Temperature Sensor Length Leakage 0%	Stem Packing	EPDM (lubricated)
Characterized Disc Body Pressure Rating Media Temperature Range (Water) Differential Pressure Range Close-Off Pressure Inlet Length to Meet Specified Measurement Accuracy Ambient Humidity Flow Measurement Tolerance Flow Measurement Repeatability Sensor Technology Temperature Sensors Temperature Measurement Tolerance Resolution of Temperature Sensor Rangeability Housing Neasure Temperature Sensor Length Weight Remote Temperature Sensor Length Remote Temperature Sensor Length Leakage TEFZEL® 360 psi 360 psi 14°F to 250°F [-10°C to 120°C] 5 to 50 psid or 1 to 50 psid see flow reductions chart in tech doc 200 psi 5 x nominal pipe size (NPS) 5 x nominal pipe size (NPS) 5 x nominal pipe size (NPS) 4 x y 25% RH non-condensing 5 to 50 psid or 1 to 50 psid see flow reductions chart in tech doc 200 psi 5 x nominal pipe size (NPS) 4 x y 25% RH non-condensing 5 to 50 psid or 1 to 50 psid see flow reductions chart in tech doc 200 psi 5 x nominal pipe size (NPS) 4 x nominal pipe size (NPS) 6 x n	Seat	Teflon® PTFE
Characterized Disc Body Pressure Rating Media Temperature Range (Water) Differential Pressure Range Close-Off Pressure Inlet Length to Meet Specified Measurement Accuracy Ambient Humidity Flow Measurement Tolerance Flow Measurement Repeatability Sensor Technology Temperature Sensors Temperature Measurement Tolerance Resolution of Temperature Sensor Rangeability Housing Neasure Temperature Sensor Length Weight Remote Temperature Sensor Length Remote Temperature Sensor Length Leakage TEFZEL® 360 psi 360 psi 14°F to 250°F [-10°C to 120°C] 5 to 50 psid or 1 to 50 psid see flow reductions chart in tech doc 200 psi 5 x nominal pipe size (NPS) 5 x nominal pipe size (NPS) 5 x nominal pipe size (NPS) 4 x y 25% RH non-condensing 5 to 50 psid or 1 to 50 psid see flow reductions chart in tech doc 200 psi 5 x nominal pipe size (NPS) 4 x y 25% RH non-condensing 5 to 50 psid or 1 to 50 psid see flow reductions chart in tech doc 200 psi 5 x nominal pipe size (NPS) 4 x nominal pipe size (NPS) 6 x n	Seat O-ring	EPDM
Media Temperature Range (Water) Differential Pressure Range Close-Off Pressure Inlet Length to Meet Specified Measurement Accuracy Ambient Humidity Flow Measurement Tolerance Flow Measurement Repeatability Sensor Technology Temperature Sensors Temperature Measurement Tolerance Resolution of Temperature Sensor Rangeability Housing Meight Remote Temperature Sensor Length Megia Temperature Sensor Length Mary Sensor Measurement Measureme	Characterized Disc	TEFZEL®
(Water) Differential Pressure Range S to 50 psid or 1 to 50 psid see flow reductions chart in tech doc Close-Off Pressure Inlet Length to Meet Specified Measurement Accuracy Ambient Humidity Slow Measurement Tolerance Flow Control Tolerance Flow Measurement Repeatability Sensor Technology Ultrasonic with glycol and temperature compensation Temperature Sensors Temperature Measurement Tolerance Resolution of Temperature Sensor Rated Impulse Voltage Rangeability Housing NEMA 1, UL Enclosure Type 1 Weight Remote Temperature Sensor Standard: 2 ft. 7.5 in. [0.8m], 9.8 ft. [3m] Leakage 0%	Body Pressure Rating	360 psi
Differential Pressure Range Close-Off Pressure Inlet Length to Meet Specified Measurement Accuracy Ambient Humidity Flow Measurement Tolerance Flow Measurement Repeatability Sensor Technology Temperature Sensors Temperature Measurement Tolerance Resolution of Temperature Sensor Rated Impulse Voltage Rangeability Housing Measurement Sensor Remote Temperature Sensor Remote Temperature Sensor Remote Temperature Sensor Standard: 2 ft. 7.5 in. [0.8m], 9.8 ft. [3m] Standard: 2 ft. 7.5 in. [0.8m], 9.8 ft. [3m] Standard: 2 ft. 7.5 in. [0.8m], 9.8 ft. [3m]	Media Temperature Range (Water)	14°F to 250°F [-10°C to 120°C]
Close-Off Pressure 200 psi Inlet Length to Meet Specified 5X nominal pipe size (NPS) Measurement Accuracy Ambient Humidity <95% RH non-condensing Flow Measurement Tolerance ±2%* Flow Control Tolerance ±5% Flow Measurement Repeatability ±0.5% Sensor Technology ultrasonic with glycol and temperature compensation Temperature Sensors PT1000 insertion sensors w/NPT body Temperature Measurement According to PT1000 DIN EN60751 Class Tolerance Resolution of Temperature Sensor 0.18°F (0.1°C) Rated Impulse Voltage actuator/sensor: 0.8 kV (in accordance with EN60730-1) kV Rangeability 100:1 Housing NEMA 1, UL Enclosure Type 1 Weight 8.4 lb [3.8 kg] Remote Temperature Sensor Length Leakage 0%	Differential Pressure Range	
Inlet Length to Meet Specified Measurement Accuracy Ambient Humidity Flow Measurement Tolerance Flow Control Tolerance Flow Measurement Repeatability Sensor Technology Temperature Sensors Flow Private Measurement Flow Graph According to Private Measurement Flow Measurement Repeatability Flow Measurement Repeatabilit	Close-Off Pressure	
Measurement Accuracy Ambient Humidity Flow Measurement Tolerance Flow Control Tolerance Flow Measurement Repeatability Sensor Technology Ultrasonic with glycol and temperature compensation Temperature Sensors FT1000 insertion sensors w/NPT body Temperature Measurement Tolerance Resolution of Temperature Sensor Rated Impulse Voltage Rangeability Housing NEMA 1, UL Enclosure Type 1 Weight Remote Temperature Sensor Standard: 2 ft. 7.5 in. [0.8m], 9.8 ft. [3m] Length Leakage 0%	Inlet Length to Meet Specified	
Flow Measurement Tolerance ±2%* Flow Control Tolerance ±5% Flow Measurement Repeatability ±0.5% Sensor Technology ultrasonic with glycol and temperature compensation Temperature Sensors PT1000 insertion sensors w/NPT body Temperature Measurement According to PT1000 DIN EN60751 Class Tolerance Resolution of Temperature Sensor 0.18°F (0.1°C) Rated Impulse Voltage actuator/sensor: 0.8 kV (in accordance with EN60730-1) kV Rangeability 100:1 Housing NEMA 1, UL Enclosure Type 1 Weight 8.4 lb [3.8 kg] Remote Temperature Sensor Standard: 2 ft. 7.5 in. [0.8m], 9.8 ft. [3m] Length Leakage 0%	Measurement Accuracy	
Flow Control Tolerance ±5% Sensor Technology ultrasonic with glycol and temperature compensation Temperature Sensors PT1000 insertion sensors w/NPT body Temperature Measurement According to PT1000 DIN EN60751 Class Tolerance Resolution of Temperature Sensor 0.18°F (0.1°C) Rated Impulse Voltage actuator/sensor: 0.8 kV (in accordance with EN60730-1) kV Rangeability 100:1 Housing NEMA 1, UL Enclosure Type 1 Weight 8.4 lb [3.8 kg] Remote Temperature Sensor Standard: 2 ft. 7.5 in. [0.8m], 9.8 ft. [3m] Length Leakage 0%	Ambient Humidity	<95% RH non-condensing
Flow Measurement Repeatability Sensor Technology Ultrasonic with glycol and temperature compensation Temperature Sensors PT1000 insertion sensors w/NPT body Temperature Measurement Tolerance Resolution of Temperature Sensor Rated Impulse Voltage Rangeability Rangeability Housing NEMA 1, UL Enclosure Type 1 Weight 8.4 lb [3.8 kg] Remote Temperature Sensor Length Leakage 0%	Flow Measurement Tolerance	±2%*
Sensor Technology ultrasonic with glycol and temperature compensation Temperature Sensors Temperature Measurement Tolerance Resolution of Temperature Sensor Rated Impulse Voltage Rangeability Housing NEMA 1, UL Enclosure Type 1 Weight 8.4 lb [3.8 kg] Remote Temperature Sensor Length Leakage ultrasonic with glycol and temperature compensation PT1000 insertion sensors w/NPT body According to PT1000 DIN EN60751 Class 0.18°F (0.1°C) actuator/sensor: 0.8 kV (in accordance with EN60730-1) kV 100:1 NEMA 1, UL Enclosure Type 1 Standard: 2 ft. 7.5 in. [0.8m], 9.8 ft. [3m]	Flow Control Tolerance	±5%
compensation Temperature Sensors PT1000 insertion sensors w/NPT body Temperature Measurement Tolerance Resolution of Temperature Sensor 0.18°F (0.1°C) Rated Impulse Voltage actuator/sensor: 0.8 kV (in accordance with EN60730-1) kV Rangeability 100:1 Housing NEMA 1, UL Enclosure Type 1 Weight 8.4 lb [3.8 kg] Remote Temperature Sensor Length Leakage 0%	Flow Measurement Repeatability	±0.5%
Temperature Measurement Tolerance Resolution of Temperature Sensor Rated Impulse Voltage Rangeability Rangeability Residuation Residuation of Temperature Sensor Rated Impulse Voltage Residuation of Temperature Sensor Rated Impulse Voltage Residuation of Temperature Sensor of Class of Cla	Sensor Technology	compensation
Tolerance Resolution of Temperature Sensor	Temperature Sensors	PT1000 insertion sensors w/NPT body
Rated Impulse Voltage actuator/sensor: 0.8 kV (in accordance with EN60730-1) kV Rangeability 100:1 Housing NEMA 1, UL Enclosure Type 1 Weight 8.4 lb [3.8 kg] Remote Temperature Sensor Standard: 2 ft. 7.5 in. [0.8m], 9.8 ft. [3m] Length 0%	Temperature Measurement Tolerance	According to PT1000 DIN EN60751 ClassB
with EN60730-1) kV Rangeability 100:1 Housing NEMA 1, UL Enclosure Type 1 Weight 8.4 lb [3.8 kg] Remote Temperature Sensor Standard: 2 ft. 7.5 in. [0.8m], 9.8 ft. [3m] Length 0%	Resolution of Temperature Sensor	
Rangeability 100:1 Housing NEMA 1, UL Enclosure Type 1 Weight 8.4 lb [3.8 kg] Remote Temperature Sensor Standard: 2 ft. 7.5 in. [0.8m], 9.8 ft. [3m] Length 0%	Rated Impulse Voltage	
Weight 8.4 lb [3.8 kg] Remote Temperature Sensor Standard: 2 ft. 7.5 in. [0.8m], 9.8 ft. [3m] Length 0%	Rangeability	
Remote Temperature Sensor Standard: 2 ft. 7.5 in. [0.8m], 9.8 ft. [3m] Length 0%	Housing	NEMA 1, UL Enclosure Type 1
Leakage 0%	Weight	8.4 lb [3.8 kg]
275	Remote Temperature Sensor Length	Standard: 2 ft. 7.5 in. [0.8m], 9.8 ft. [3m]
Glycol Measurement Accuracy ±5%	Leakage	0,0
	Glycol Measurement Accuracy	±5%

^{*}All flow tolerances are at 68°F (20°C) & water.

Application

Water-side control of heating and cooling systems for AHUs and water coils. Equal Percentage/ Linear: heating and cooling applications.

Operation

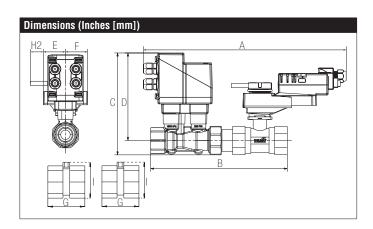
The Energy Valve is an energy metering pressure independent control valve that measures, documents and optimizes water coil performance.

Product Features

The Energy Valve measures energy using its built-in electronic flow sensor and supply and return temperature sensors. Controls power with its Power Control logic providing linear heat transfer regardless of temperature and pressure variations. Manages Low Delta T Syndrome with its built in Delta T Manager. Measures glycol with advanced algorithms in its built in flow sensor. An IoT device utilizing cloud-based technology to optimize performance.

Suitable Actuators

Outlable Addatols					
	Non-Spring	Electronic Fail-Safe			
FV125S-285	NRB(X)	AKRB(X)			



Α	В	C	D	E	F	G	H2	
16.45"	10"	7.54"	6.61"	1.73	" [44]	2.77"	0.75"	3.39"
[418]	[254]	[192]	[168]			[70.5]	[20]	[86]

AKRX24-EV-G

Modulating, Electronic Fail-Safe, 24 V, Shared Logic Technology®











Technical Data	
Power Supply	24 VAC, ±20%, 50/60 Hz, 24 VDC, ±10%
Power Consumption Running	14 W (0.5" to 2"), 16 W (2.5" to 6")
Transformer Sizing	23 VA (0.5" to 2"), 26 VA (2.5" to 6") (class
	2 power source)
Electrical Connection	18 GA plenum rated cable and RJ45 socket (ethernet)
Overload Protection	electronic thoughout 0° to 90° rotation
Operating Range Y	2 to 10 VDC (default) VDC variable
Input Impedance	100 kΩ (0.1 mA), 500 Ω
Feedback Output U	default DC 210 V, VDC variable
Angle of Rotation	90°
Direction of Rotation (Motor)	reversible with web view
Direction of Rotation (Fail-Safe)	reversible with switch
Position Indication	integrated into handle
Manual Override	external push button
Running Time (Motor)	90 sec
Running Time (Fail-Safe)	<35 sec
Ambient Humidity	<95% RH non-condensing
Ambient Temperature Range	-22°F to 122°F [-30°C to 50°C]
Storage Temperature Range	-40°F to 176°F [-40°C to 80°C]
Housing	IP40, NEMA 1, UL Enclosure Type 1
Housing Material	UL94-5VA
Agency Listings†	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC and 2006/95/EC
Noise Level (Motor)	max. 45 dB (A)
Servicing	maintenance free
Quality Standard	ISO 9001
Weight	3.3 lb [1.5 kg]
Communication	BACnet IP, BACnet MS/TP, listed by BTL, Modbus RTU, Modbus IP, web server, Belimo MP-Bus
Degree of Protection IEC/EN	IP40

The Energy Valve is based on Belimo patent and patent pending technology, US-Patent 6,039,304: Ball valve with modified characteristics, US-Patent Pending: 2011/0153089: HVAC actuator comprising a network interface, data store and a processor, US-Patent Pending: 2009/009115: Control of sensor less and brushless DC-Motor.
The Energy Valve incorporates additional technology - Powered by Optimum Energy TM.





Modulating, Electronic Fail-Safe, 24 V, Shared Logic Technology®

Wiring Diagrams



X INSTALLATION NOTES



Actuators with appliance cables are numbered.



Actuators may be connected in parallel. Power consumption and input impedance must be observed.



Actuators may also be powered by 24 VDC.



Actuators with plenum cable do not have numbers; use color codes instead.



Meets cULus requirements without the need of an electrical ground connection.

WARNING! LIVE ELECTRICAL COMPONENTS!

During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

