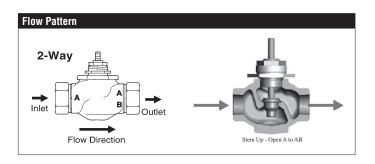
G250S, 2-Way, Globe Valve, Stainless Steel Trim







Technical data	
Technical data Service	abilled or bot water up to 600/ sheet
Service	chilled or hot water, up to 60% glycol, steam
Flow Characteristic	linear
Controllable Flow Range	stem up - open A to AB
Size [mm]	2" [50]
End Fitting	NPT female ends
Body	hronze
Stem	316 stainless steel
	0.0000000000000000000000000000000000000
Stem Packing	spring loaded Teflon V-ring
Seat	316 stainless steel
Plug	316 stainless steel
Disc	Teflon
Body Pressure Rating [psi]	ANSI 250
ANSI Class	ANSI 250 (up to 400 psi below 150°F)
Max Inlet Pressure (Steam)	100 psi (690 kPa)
Media Temperature Range (Water)	20°F to 280°F [-7°C to 138°C]
Media Temperature Range (Steam)	32°F to 338°F [0°C to 170°C]
Maximum differential pressure (steam)	35 psi
Max Differential Pressure (Water)	35 psi (241 kPa)
Leakage	ANSI Class IV
Rangeabilty	75:1
Cv	40
Weight	13 lbs [5.9 kg]
Servicing	Repack/Rebuild kits available

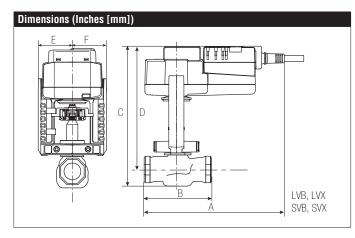


Application

This valve is typically used in Air handling units on heating or cooling coils, and fan coil unit heating or cooling coils. Some other common applications include Unit Ventilators, VAV box re-heat coils and bypass loops. This valve is suitable for use in hydronic system with variable flow. Bronze and stainless steel trim valves can be used for steam applications, depending on actuator and close-off combinations.

Suitable Actuators

	Non-Spring	Spring	Electronic Fail-Safe
G250S	SVB(X)	AFB(X)	SVKB(X)



Α	В	С	D	Е	F
9.3" [236]	6.14" [156]	10.35"	8.78" [223]	1.95	" [49]
		[263]			

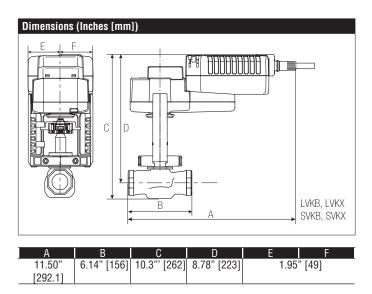
Piping

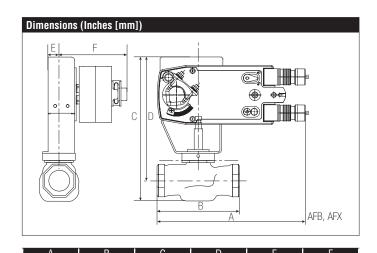
The valves should be mounted in a weather-protected area in a location that is within the ambient limits of the actuator. Allow sufficient room for valve with actuator and for service. The G2(S) and G3(D) preferred mounting position of the valve is with the valve stem vertical above the valve body, for maximum life. However, the assemblies can be mounted with the valve stem vertical or horizontal in relation to the pipe. The actuators should never be mounted underneath the valve, as condensation can build up and result in a failure of the actuators. Do not reverse flow direction.

11" [279]

6.14" [156]

G250S, 2-Way, Globe Valve, Stainless Steel Trim





10.75"

[273]

9.24" [235]

5" [127]

1.5" [38]

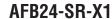
AFB24-SR-X1

Modulating, Spring Return, 24 V, for 2 to 10 VDC or 4 to 20 mA Control Signal





Power Supply 24 VAC±20%, 50/60Hz, 24 VDC+20%/-10% Power Consumption Running 5.5 W Power Consumption Holding 3 W Transformer Sizing 8.5 VA (class 2 power source) Shaft Diameter 1/2" to 1.05" round, centers on 1/2" and 3/4" with insert, 1.05" without insert Electrical Connection 3 ft, 18 GA appliance cable, 1/2" conduit connector Overload Protection electronic throughout 0° to 95° rotation Operating Range Y 2 to 10 VDC, 4 to 20 mA (w/ 500 Ω, 1/2 W resistor) ZG-R01 Feedback Output U 2 to 10 VDC, 0.5 mA max Angle of Rotation 95° (adjustable with mechanical end stop, 35° to 95°) Torque 180 in-lbs [20 Nm] minimum Direction of Rotation (Motor) reversible with built-in switch Direction of Rotation (Fail-Safe) reversible with CW/CCW mounting Position Indication visual indicator, 0° to 95° (0° is full spring return position) Manual Override 5 mm hex crank (3/16" Allen), supplied Running Time (Motor) 95 seconds Running Time (Motor) 95 seconds Running Time (Fail-Safe) <20 seconds @ -4°F to 122°F [-20°C to 50°C] Humidity max. 95% RH non-condensing Ambient Temperature Range	Technical Data	
Power Consumption Running 5.5 W Power Consumption Holding 3 W Transformer Sizing 8.5 VA (class 2 power source) Shaft Diameter 1/2" to 1.05" round, centers on 1/2" and 3/4" with insert, 1.05" without insert Electrical Connection 3 ft, 18 GA appliance cable, 1/2" conduit connector Overload Protection electronic throughout 0° to 95° rotation Operating Range Y 2 to 10 VDC, 4 to 20 mA (w/ 500 Ω, 1/2 W resistor) ZG-R01 Feedback Output U 2 to 10 VDC, 0.5 mA max Angle of Rotation 95° (adjustable with mechanical end stop, 35° to 95°) Torque 180 in-lbs [20 Nm] minimum Direction of Rotation (Motor) reversible with built-in switch Direction of Rotation (Fail-Safe) reversible with CW/CCW mounting Position Indication visual indicator, 0° to 95° (0° is full spring return position) Manual Override 5 mm hex crank (3/16" Allen), supplied Running Time (Motor) 95 seconds Running Time (Fail-Safe) <20 seconds @ -4°F to 122°F [-20°C to 50°C]		24 VAC±20%, 50/60Hz, 24 VDC+20%/-10%
Transformer Sizing Shaft Diameter 1/2" to 1.05" round, centers on 1/2" and 3/4" with insert, 1.05" without insert Electrical Connection 3 ft, 18 GA appliance cable, 1/2" conduit connector Overload Protection Operating Range Y 2 to 10 VDC, 4 to 20 mA (w/ 500 Ω, 1/2 W resistor) ZG-R01 Feedback Output U 2 to 10 VDC, 0.5 mA max Angle of Rotation 95° (adjustable with mechanical end stop, 35° to 95°) Torque 180 in-lbs [20 Nm] minimum Direction of Rotation (Motor) Direction of Rotation (Fail-Safe) Position Indication Manual Override Running Time (Motor) Running Time (Fail-Safe) Feedback Output U 2 to 10 VDC, 0.5 mA max Angle of Rotation 95° (adjustable with mechanical end stop, 35° to 95°) Torque 180 in-lbs [20 Nm] minimum Poirection of Rotation (Fail-Safe) reversible with CW/CCW mounting visual indicator, 0° to 95° (0° is full spring return position) Manual Override S mm hex crank (3/16" Allen), supplied Running Time (Motor) 95 seconds Running Time (Fail-Safe) <20 seconds @ -4°F to 122°F [-20°C to 50°C] Humidity max. 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 Material Agency Listings† cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC Noise Level (Motor) Add B (A) Noise Level (Fail-Safe) <62 dB (A) Servicing maintenance free Quality Standard ISO 9001		5.5 W
Shaft Diameter 1/2" to 1.05" round, centers on 1/2" and 3/4" with insert, 1.05" without insert Electrical Connection 3 ft, 18 GA appliance cable, 1/2" conduit connector Overload Protection electronic throughout 0° to 95° rotation Operating Range Y 2 to 10 VDC, 4 to 20 mA (w/ 500 Ω, 1/2 W resistor) ZG-R01 Feedback Output U 2 to 10 VDC, 0.5 mA max Angle of Rotation 95° (adjustable with mechanical end stop, 35° to 95°) Torque 180 in-lbs [20 Nm] minimum Direction of Rotation (Motor) reversible with built-in switch Direction of Rotation (Fail-Safe) reversible with CW/CCW mounting Position Indication visual indicator, 0° to 95° (0° is full spring return position) Manual Override 5 mm hex crank (3/16" Allen), supplied Running Time (Motor) 95 seconds Running Time (Fail-Safe) <20 seconds @ -4°F to 122°F [-20°C to 50°C] Humidity max. 95% RH non-condensing Ambient Temperature Range -40°F to 176°F [-40°C to 80°C] Housing NEMA 2, IP54, UL enclosure type 2 Housing Material zinc coated metal and plastic casing Agency Listings† cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC Value Coaled Coaled Coaled Coaled Coaled Coaled Coaled Coaled Coaled Coaled Coaled Coaled Coaled Coaled Coaled Coaled Coale		3 W
with insert, 1.05" without insert Electrical Connection 3 ft, 18 GA appliance cable, 1/2" conduit connector Overload Protection electronic throughout 0° to 95° rotation Operating Range Y 2 to 10 VDC, 4 to 20 mA (w/ 500 Ω, 1/2 W resistor) ZG-R01 Feedback Output U 2 to 10 VDC, 0.5 mA max Angle of Rotation 95° (adjustable with mechanical end stop, 35° to 95°) Torque 180 in-lbs [20 Nm] minimum Direction of Rotation (Motor) reversible with built-in switch Direction of Rotation (Fail-Safe) reversible with CW/CCW mounting Position Indication visual indicator, 0° to 95° (0° is full spring return position) Manual Override 5 mm hex crank (3/16" Allen), supplied Running Time (Motor) 95 seconds Running Time (Fail-Safe) <20 seconds @ -4°F to 122°F [-20°C to 50°C]	Transformer Sizing	8.5 VA (class 2 power source)
connector Overload Protection electronic throughout 0° to 95° rotation Operating Range Y 2 to 10 VDC, 4 to 20 mA (w/ 500 Ω, 1/2 W resistor) ZG-R01 Feedback Output U 2 to 10 VDC, 0.5 mA max Angle of Rotation 95° (adjustable with mechanical end stop, 35° to 95°) Torque 180 in-lbs [20 Nm] minimum Direction of Rotation (Motor) reversible with built-in switch Direction of Rotation (Fail-Safe) reversible with CW/CCW mounting Position Indication visual indicator, 0° to 95° (0° is full spring return position) Manual Override 5 mm hex crank (3/16" Allen), supplied Running Time (Motor) 95 seconds Running Time (Fail-Safe) <20 seconds @ -4°F to 122°F [-20°C to 50°C]	Shaft Diameter	
Operating Range Y 2 to 10 VDC, 4 to 20 mA (w/ 500 Ω, 1/2 W resistor) ZG-R01 Feedback Output U 2 to 10 VDC, 0.5 mA max Angle of Rotation 95° (adjustable with mechanical end stop, 35° to 95°) Torque 180 in-lbs [20 Nm] minimum Direction of Rotation (Motor) reversible with built-in switch Direction of Rotation (Fail-Safe) reversible with CW/CCW mounting Position Indication visual indicator, 0° to 95° (0° is full spring return position) Manual Override 5 mm hex crank (3/16" Allen), supplied Running Time (Motor) 95 seconds Running Time (Fail-Safe) 95 seconds *20 seconds @ -4°F to 122°F [-20°C to 50°C] Humidity max. 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 NEMA 2, IP54, UL enclosure type 2 Housing Material zinc coated metal and plastic casing Agency Listings† cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC Noise Level (Motor) <40 dB (A)	Electrical Connection	
resistor) ZG-R01 Feedback Output U 2 to 10 VDC, 0.5 mA max Angle of Rotation 95° (adjustable with mechanical end stop, 35° to 95°) Torque 180 in-lbs [20 Nm] minimum Direction of Rotation (Motor) reversible with built-in switch Direction of Rotation (Fail-Safe) reversible with CW/CCW mounting Position Indication visual indicator, 0° to 95° (0° is full spring return position) Manual Override 5 mm hex crank (3/16" Allen), supplied Running Time (Motor) 95 seconds Running Time (Fail-Safe) <20 seconds @ -4°F to 122°F [-20°C to 50°C], <60 sec @ -22°F [-30°C] Humidity max. 95% RH non-condensing Ambient Temperature Range -40°F to 176°F [-40°C to 80°C] Housing NEMA 2, IP54, UL enclosure type 2 Housing Material zinc coated metal and plastic casing Agency Listings† cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC Noise Level (Motor) <40 dB (A) Noise Level (Fail-Safe) <62 dB (A) Servicing maintenance free Quality Standard ISO 9001	Overload Protection	_
Angle of Rotation 95° (adjustable with mechanical end stop, 35° to 95°) Torque 180 in-lbs [20 Nm] minimum Direction of Rotation (Motor) Position Indication Manual Override Running Time (Motor) Running Time (Fail-Safe) Humidity Ambient Temperature Range Housing NEMA 2, IP54, UL enclosure type 2 Housing Material Agency Listings† CULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC Noise Level (Motor) 180 in-lbs [20 Nm] minimum reversible with CW/CCW mounting reversible with CW/CCW mounting reversible with claycom minimum reversible with built-in switch position reversible with built-in switch position reversible with cw/CCW mounting reversible with cw/CCW mounting reversible with cw/CCW mounting reversible with cw/CCW mounting reversible with cw/CCW reversible with cw/CE reversible with cw/CC reversible with cw/CCW reversible with cw/CC reversible wite cw/co reversible with cw/cc reversible wite cw/co reversible wite reve		
Torque 180 in-lbs [20 Nm] minimum Direction of Rotation (Motor) reversible with built-in switch Direction of Rotation (Fail-Safe) reversible with CW/CCW mounting Position Indication visual indicator, 0° to 95° (0° is full spring return position) Manual Override 5 mm hex crank (3/16" Allen), supplied Running Time (Motor) 95 seconds Running Time (Fail-Safe) <20 seconds @ -4°F to 122°F [-20°C to 50°C], <60 sec @ -22°F [-30°C] Humidity max. 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 NEMA 2, IP54, UL enclosure type 2 Housing Material zinc coated metal and plastic casing Agency Listings† cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC Noise Level (Motor) <40 dB (A) Noise Level (Fail-Safe) <62 dB (A) Servicing maintenance free Quality Standard ISO 9001	Feedback Output U	
Direction of Rotation (Motor) Direction of Rotation (Fail-Safe) Position Indication Manual Override Running Time (Motor) Running Time (Fail-Safe) Humidity Ambient Temperature Range Housing NEMA 2, IP54, UL enclosure type 2 Housing Material Agency Listings† CULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC Noise Level (Motor) Position (Fail-Safe) visual indicator, 0° to 95° (0° is full spring return position) visual indicator, 0° to 95° (0° is full spring return position) visual indicator, 0° to 95° (0° is full spring return position) visual indicator, 0° to 95° (0° is full spring return position) visual indicator, 0° to 95° (0° is full spring return position) security position 95 seconds 20 seconds @ -4°F to 122°F [-20°C to 50°C] 860 sec @ -22°F [-30°C] 87 RH non-condensing -40°F to 176°F [-40°C to 80°C] NEMA 2, IP54, UL enclosure type 2 Housing Material Agency Listings† CULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC Noise Level (Motor) V40 dB (A) Noise Level (Fail-Safe) Servicing maintenance free Quality Standard	_	35° to 95°)
Direction of Rotation (Fail-Safe) reversible with CW/CCW mounting Position Indication visual indicator, 0° to 95° (0° is full spring return position) Manual Override 5 mm hex crank (3/16" Allen), supplied Running Time (Motor) 95 seconds Running Time (Fail-Safe) <20 seconds @ -4°F to 122°F [-20°C to 50°C], < 60 sec @ -22°F [-30°C] Humidity max. 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 NEMA 2, IP54, UL enclosure type 2 Housing Material zinc coated metal and plastic casing Agency Listings† cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC Noise Level (Motor) <40 dB (A) Noise Level (Fail-Safe) <62 dB (A) Servicing maintenance free Quality Standard ISO 9001	Torque	180 in-lbs [20 Nm] minimum
Position Indication visual indicator, 0° to 95° (0° is full spring return position) Manual Override 5 mm hex crank (3/16" Allen), supplied Running Time (Motor) 95 seconds Running Time (Fail-Safe) <20 seconds @ -4°F to 122°F [-20°C to 50°C], <60 sec @ -22°F [-30°C] Humidity max. 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 NEMA 2, IP54, UL enclosure type 2 Housing Material zinc coated metal and plastic casing Agency Listings† cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC Noise Level (Motor) <40 dB (A) Noise Level (Fail-Safe) <62 dB (A) Servicing maintenance free Quality Standard ISO 9001	Direction of Rotation (Motor)	reversible with built-in switch
return position) Manual Override 5 mm hex crank (3/16" Allen), supplied Running Time (Motor) 95 seconds Running Time (Fail-Safe) <20 seconds @ -4°F to 122°F [-20°C to 50°C], <60 sec @ -22°F [-30°C] Humidity max. 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 NEMA 2, IP54, UL enclosure type 2 Housing Material zinc coated metal and plastic casing Agency Listings† cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC Noise Level (Motor) <40 dB (A) Noise Level (Fail-Safe) <62 dB (A) Servicing maintenance free Quality Standard ISO 9001	Direction of Rotation (Fail-Safe)	reversible with CW/CCW mounting
Running Time (Motor) Running Time (Fail-Safe) So°C], < 60 sec @ -22°F [-30°C] Humidity Ambient Temperature Range Storage Temperature Range Housing Agency Listings† CULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC Noise Level (Motor) New Agency Listings Running Time (Motor) Sove Seconds -40°F to 176°F [-30°C to 50°C] -22°F to 122°F [-30°C to 50°C] -40°F to 176°F [-40°C to 80°C] NEMA 2, IP54, UL enclosure type 2 LULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC Noise Level (Motor) Noise Level (Fail-Safe) Servicing Quality Standard ISO 9001	Position Indication	
Running Time (Fail-Safe)	Manual Override	5 mm hex crank (3/16" Allen), supplied
So°C], < 60 sec @ -22°F [-30°C]	Running Time (Motor)	95 seconds
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 NEMA 2, IP54, UL enclosure type 2 Housing Material zinc coated metal and plastic casing Agency Listings† cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC Noise Level (Motor) <40 dB (A) Noise Level (Fail-Safe) <62 dB (A) Servicing maintenance free Quality Standard ISO 9001	Running Time (Fail-Safe)	
Storage Temperature Range -40°F to 176°F [-40°C to 80°C] Housing NEMA 2, IP54, UL enclosure type 2 Housing Material zinc coated metal and plastic casing Agency Listings† CULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC Noise Level (Motor) <40 dB (A) Noise Level (Fail-Safe) <62 dB (A) Servicing maintenance free Quality Standard ISO 9001	Humidity	max. 95% RH non-condensing
Housing NEMA 2, IP54, UL enclosure type 2 Housing Material zinc coated metal and plastic casing Agency Listings† cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC Noise Level (Motor) <40 dB (A) Noise Level (Fail-Safe) <62 dB (A) Servicing maintenance free Quality Standard ISO 9001	Ambient Temperature Range	,
Housing Material zinc coated metal and plastic casing Agency Listings† cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC Noise Level (Motor) <40 dB (A) Noise Level (Fail-Safe) <62 dB (A) Servicing maintenance free Quality Standard ISO 9001	Storage Temperature Range	
Agency Listings† CULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC Noise Level (Motor) <40 dB (A) Noise Level (Fail-Safe) <62 dB (A) Servicing maintenance free Quality Standard ISO 9001		
E60730-1:02, CE acc. to 2004/108/EC Noise Level (Motor) <40 dB (A) Noise Level (Fail-Safe) <62 dB (A) Servicing maintenance free Quality Standard ISO 9001	Housing Material	·
Noise Level (Fail-Safe) <62 dB (A) Servicing maintenance free Quality Standard ISO 9001	Agency Listings†	*
Servicing maintenance free Quality Standard ISO 9001	Noise Level (Motor)	<40 dB (A)
Quality Standard ISO 9001	Noise Level (Fail-Safe)	<62 dB (A)
	Servicing	maintenance free
Weight 4.6 lbs [2.1 kg]	Quality Standard	ISO 9001
	Weight	4.6 lbs [2.1 kg]





Modulating, Spring Return, 24 V, for 2 to 10 VDC or 4 to 20 mA Control Signal

Wiring Diagrams



X INSTALLATION NOTES



Actuators with appliance cables are numbered.



Provide overload protection and disconnect as required.



Actuators may also be powered by 24 VDC.



Only connect common to negative (-) leg of control circuits.



A 500 Ω resistor (ZG-R01) converts the 4 to 20 mA control signal to 2 to 10 VDC.



Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.



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.

