Electronic Globe Valves

G2…(S), G3…(D) Series

G2…(S)	**Two-way Screwed** **Bronze or Stainless Trim**
G3…(D)	**Three-way Screwed** **Bronze Trim**

Three-way Valves available in Mixing or Diverting

½" to 2"

Service	**Chilled/hot water,** **60% glycol, steam (G2, G2S)**
C_v Range	**0.4-40** (Two-way) **2.2-41** (Three-way Mixing) **4.4-40** (Three-way Diverting)
Material	**Stainless steel stem,** **Bronze plug or** **Stainless plug**
Control	**On/Off, Floating, 2-10 VDC** **Multi-Function Technology®** **Spring Return or** **Non-Spring Return**

FEATURES

- Self-adjusting stroke
- Visual sliding stroke indicators
  – Position indicators adjusted automatically
- Assembly can be mounted with valve stem horizontal to the pipe
- Self locking valve coupling

BENEFITS

- Utilizes full control signal for maximum resolution
- Speeds installation and system check
- Piping flexibility
- Proper valve-actuator connection is ensured

Electronic Flanged Globe Valves

G6…(S), G7…(S) Series

G6…(S)	**Two-way Flanged Bronze or Stainless Trim**
G6…(S)-250	**Two-way Flanged ANSI 250 Bronze or Stainless Trim**
G7…(S)	**Three-way Flanged Bronze or Stainless Trim**
G7…(S)-250	**Three-way Flanged ANSI 250 Bronze or Stainless Trim**

Three-way Valves available in Mixing or Diverting

2½" to 6"

Service	**Chilled/hot water, 60% glycol, steam (G6, G6S)**
C_v Range	**65-344** (Two-way) **68-340** (Three-way Mixing) **68-248** (Three-way Diverting)
Material	**Stainless steel stem, Bronze plug or Stainless plug**
Control	**On/Off, Floating, 2-10 VDC** **Multi-Function Technology®** **Spring Return or Non-Spring Return**

FEATURES

- Complete flanged product range
- Mixing or diverting options
- Multi-Function Technology®
- ANSI 125/ANSI 250

BENEFITS

- Fits wide range of applications
- Capable of any control signal
- Suitable for piping systems

Pressure Compensated Flanged Globe Valves

G6…C Series

G6…C	**Two-way Pressure Compensated**
G6…CS	**Two-way Pressure Compensated Stainless Steel Trim**
G6...LCS	**Two-way Pressure Compensated Stainless Steel Trim Linear Characteristic**
2½" to 6"	
Service	**Chilled/hot water, 60% glycol, steam**
C_v Range	**65 – 344**
Material	**Stainless steel stem, Bronze plug or Stainless plug**
Control	**On/Off, Floating** **Multi-Function Technology®** **Spring Return or Non-Spring Return**

FEATURES

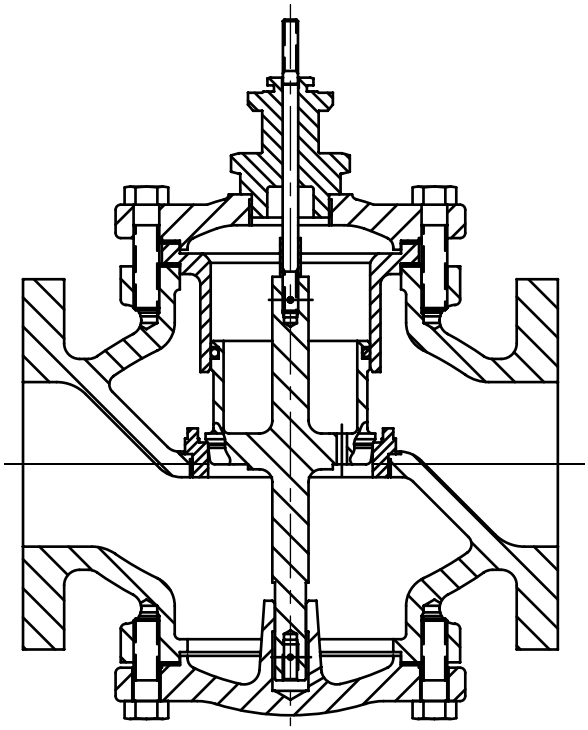
- Balanced Plug Design
- Spring Return Solutions for up to 6" Valves
- Bronze or Stainless Trim

BENEFITS

- Perfect for high close-off requirements
- Fail-safe on larger valves
- Covers wide range of operating temperatures
- Modified equal percent (G6C) (G6CS) or linear characteristic (G6LCS) for steam applications

Belimo G6..C(S) Series Pressure Compensated Flanged Globe Valves

Better than Double Seated Solutions...

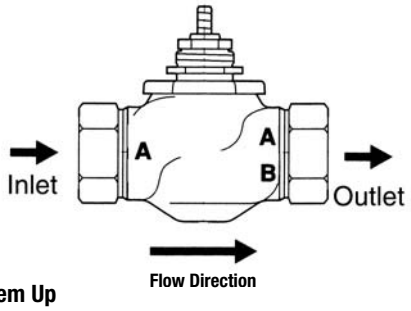


A TIGHTER SEAL

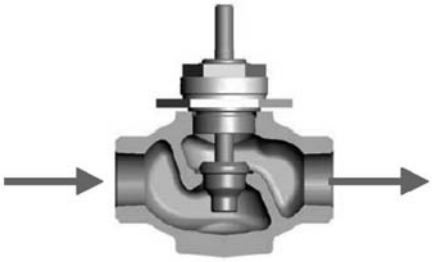
The Belimo Pressure Compensated Flanged Globe Valve utilizes a balance plug design that offers high close-off pressures similar to a double seated valve. However, the Belimo Pressure Compensated Valve does not have the drawbacks of a traditional double seated valve that require the user to accept a high bypass leakage. Belimo Pressure Compensated Flanged Globe Valves are rated with an ANSI Class III bypass leakage rate, which is consistent with standard flanged globe valves in the market today.

FLOW PATTERN

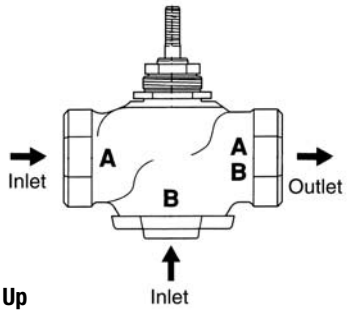
G2 2-way Valve



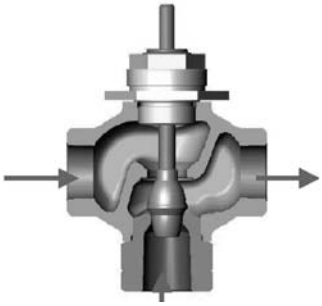
Stem Up
Open A to AB



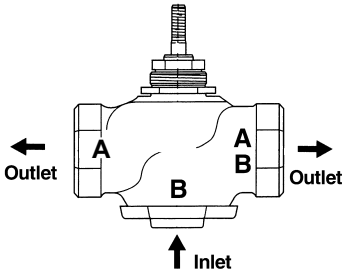
G3 3-way Mixing Valve



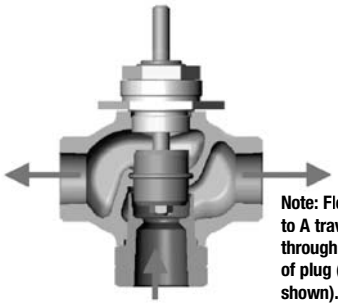
Stem Up
Open B to AB



G3…D 3-way Diverting Valve



Stem Up
Open B to AB



Note: Flow B to A travels through center of plug (as shown).

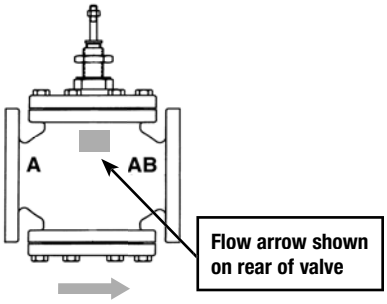
All Valves Shown Stem Down

VALVE ASSEMBLY SET-UP:		SPRING ACTION	2-WAY VALVE	2-WAY VALVE	3-WAY MIXING VALVE	3-WAY MIXING VALVE
			SPECIFY UPON ORDERING	SPECIFY UPON ORDERING	SPECIFY UPON ORDERING	SPECIFY UPON ORDERING
NON-SPRING RETURN	**NV Series** NV(D)24-3 US, NV(D)24-MFT US NVG24-MFT US	**NA**	**NC:** Closed A to AB, will open upon increase in signal/power. Note: To change reverse the switch S3.1.	**NO:** Open A to AB, will close upon increase in signal/power. Note: To change reverse the switch S3.1.	**NC:** Closed A to AB, will open upon increase in signal/power. Note: To change reverse the switch S3.1.	**NO:** Open A to AB, will close upon increase in signal/power. Note: To change reverse the switch S3.1.
SPRING RETURN	**NVF Series** NVFD24-3 US, NVFD24-MFT US NVF24-MFT US	**Spring Up Stem Up**				
	NVF-E Series NVFD24-E US, NVF24-MFT-E US, NVFD24-MFT-E US	**Spring Down Stem Down**				
	LF, NFBUP, AF Series On/Off		**NO/FO** Valve: Open A to AB will drive closed. Spring Action: Will spring open A to AB upon power loss.	**NC/FC** Valve: Closed A to AB will drive open. Spring Action: Will spring closed A to AB upon power loss.	**NO/FO** Valve: Open A to AB will drive closed. Spring Action: Will spring open A to AB upon power loss.	**NC/FC** Valve: Closed A to AB will drive open. Spring Action: Will spring closed A to AB upon power loss.
	LF, NFB(X), AF(X) Series		**NC/FO** Valve: Closed A to AB will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch. Spring Action: Will spring open A to AB upon power loss.	**NO/FC or NC/FC** Valve: Can be open or closed, will drive closed or open A to AB (can be chosen with CW/CCW switch). Spring Action: Closed A to AB upon power loss.	**NC/FO** Valve: Closed A to AB will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch. Spring Action: Will spring open A to AB upon power loss.	**NO/FC or NC/FC** Valve: Can be open or closed, will drive closed or open A to AB (can be chosen with CW/CCW switch). Spring Action: Closed A to AB upon power loss.
				NO/FO Valve: Open A to AB Spring Action: Will spring open A to AB upon power loss. (NO or NC action can be chosen with CW/CCW switch).		**NO/FO** Valve: Open A to AB Spring Action: Will spring open A to AB upon power loss. (NO or NC action can be chosen with CW/CCW switch).
NON-SPRING RETURN	**LM, NM, AM Series**		**NC:** Closed A to AB, will open upon increase in signal/power. Note: To change reverse the CW/CCW switch.	**NO:** Open A to AB, will close upon increase in signal/power. Note: To change reverse the CW/CCW switch.	**NC:** Closed A to AB, will open upon increase in signal/power. Note: To change reverse the CW/CCW switch.	**NO:** Open A to AB, will close upon increase in signal/power. Note: To change reverse the CW/CCW switch.

			3-WAY DIVERTING VALVE
NON-SPRING RETURN	**NV Series** NV(D)24-3 US, NV(D)24-MFT US NVG24-MFT US	**NA**	**NC:** Closed B to AB will open upon increase in signal/power. Note: To change reverse the switch S3.1. **NO:** Open B to AB will close upon increase in signal/power. Note: To change reverse the switch S3.1
SPRING RETURN	**NVF Series** NVFD24-3 US, NVFD24-MFT US, NVF24-MFT US	**Spring Up Stem Up**	
	NVF-E Series NVFD24-E US, NVFD24-MFT-E US NVF24-MFT-E US	**Spring Down Stem Down**	

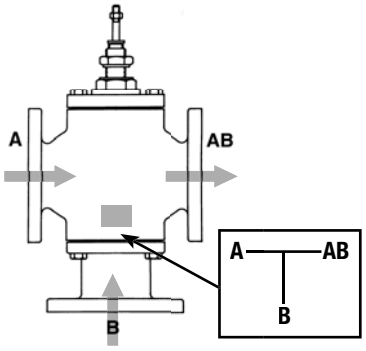
FLOW PATTERN

G6 2-way Valve



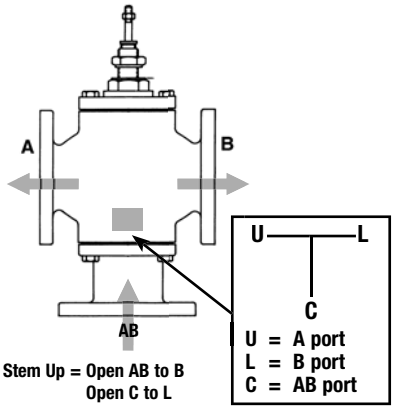
Stem Up = Open A to AB

G7 3-way Mixing Valve



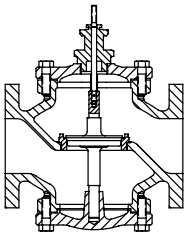
Stem Up = Open B to AB

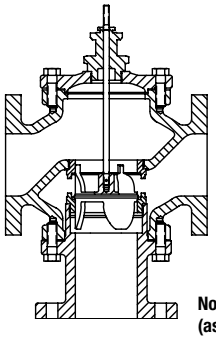
G7…D 3-way Diverting Valve



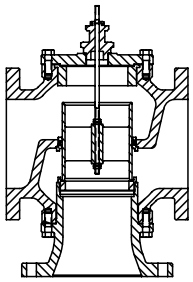
Stem Up = Open AB to B
Open C to L

Flow Pattern is marked on valve.





Note: Flow through ported plug (as shown Open A to AB).



Note: Flow AB to A travels through center of plug (as shown).

All Valves Shown Stem Down

DEFAULT SET-UP:		2-WAY VALVE		3-WAY VALVE	
		SPECIFY UPON ORDERING	SPECIFY UPON ORDERING	SPECIFY UPON ORDERING	SPECIFY UPON ORDERING
NON-SPRING RETURN	**GM Series**	**NC:** Closed A to AB, will open upon increase in signal/power. Note: To change valve to A to AB open, reverse CW/CCW switch.	**NO:** Open A to AB, will close upon increase in signal/power. Note: To change valve to A to AB closed, reverse CW/CCW switch.	**NC:** Closed A to AB, will open upon increase in signal/power. Note: To change valve to A to AB open, reverse CW/CCW switch.	**NO:** Open A to AB, will close upon increase in signal/power. Note: To change valve to A to AB closed, reverse CW/CCW switch.
	NV Series	**NC:** Closed A to AB, will open upon increase in signal/power. Note: To change valve to A to AB open, reverse S3.1 switch in actuator.	**NO:** Open A to AB, will close upon increase in signal/power. Note: To change valve to A to AB closed, reverse S3.1 switch in actuator.	**NC:** Closed A to AB, will open upon increase in signal/power. Note: To change valve to A to AB open, reverse S3.1 switch in actuator.	**NO:** Open A to AB, will close upon increase in signal/power. Note: To change valve to A to AB closed, reverse S3.1 switch in actuator.
	NVG Series	**NC:** Closed A to AB, will open upon increase in signal/power. Note: To change valve to A to AB open, reverse S3.1 switch in actuator.	**NO:** Open A to AB, will close upon increase in signal/power. Note: To change valve to A to AB closed, reverse S3.1 switch in actuator.	**NC:** Closed A to AB, will open upon increase in signal/power. Note: To change valve to A to AB open, reverse S3.1 switch in actuator.	**NO:** Open A to AB, will close upon increase in signal/power. Note: To change valve to A to AB closed, reverse S3.1 switch in actuator.
SPRING RETURN	**GK, AF Series On/Off**	**NO/FO** Valve: Open A to AB will drive closed. Spring Action: Will spring open A to AB upon power loss.	**NC/FC** Valve: Closed A to AB will drive open. Spring Action: Will spring closed A to AB upon power loss.	**NO/FO** Valve: Open A to AB will drive closed. Spring Action: Will spring open A to AB upon power loss.	**NC/FC** Valve: Closed A to AB will drive open. Spring Action: Will spring closed A to AB upon power loss.
	AF MFT Series AF(X) MFT Series	**NC/FO** Valve: Closed A to AB will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch. Spring Action: Will spring open A to AB upon power loss.	**NO/FC or NC/FC** Valve: Can be open or closed, will drive closed or open A to AB (can be chosen with CW/CCW switch). Spring Action: Closed A to AB upon power loss.	**NC/FO** Valve: Closed A to AB will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch. Spring Action: Will spring open A to AB upon power loss.	**NO/FC or NC/FC** Valve: Can be open or closed, will drive closed or open A to AB (can be chosen with CW/CCW switch). Spring Action: Closed A to AB upon power loss.
			NO/FO Valve: Open A to AB Spring Action: Will spring open A to AB upon power loss. (NO or NC action can be chosen with CW/CCW switch).		**NO/FO** Valve: Open A to AB Spring Action: Will spring open A to AB upon power loss. (NO or NC action can be chosen with CW/CCW switch).
	NVF… and NVF…-E	**NC:** Closed A to AB, will open upon increase in signal/power. Note: To change valve to A to AB open, reverse S3.1 switch in actuator. Spring return direction is fixed by model. NVF… Spring Open (stem up), NVF…-E Spring Closed (stem down).		**NO:** Open A to AB, will close upon increase in signal/power. Note: To change valve to A to AB closed, reverse S3.1 switch in actuator. Spring return direction is fixed by model. NVF… Spring Open (stem up), NVF…-E Spring Closed (stem down).	
ELECTRONIC FAIL-SAFE	**GK Series**	**NC/FO** Valve: Closed A to AB will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch. Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0%-100%, in 10% increments.	**NC/FC or NC/FC** Valve: Can be open or closed, will drive closed or open A to AB (can be chosen with CW/CCW switch). Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0%-100%, in 10% increments.	**NC/FO** Valve: Closed A to AB will open upon increase in signal. Note: To change valve to A to AB open, reverse CW/CCW switch. Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0%-100%, in 10% increments.	**NC/FC or NC/FC** Valve: Can be open or closed, will drive closed or open A to AB (can be chosen with CW/CCW switch). Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0%-100%, in 10% increments.
			NO/FO Valve: Open A to AB Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0%-100%, in 10% increments.		**NO/FO** Valve: Open A to AB Fail Position: Will default fail A to AB open, from the factory. Fail position can be set from 0%-100%, in 10% increments.

			3-WAY DIVERTING VALVE
NON-SPRING RETURN	**NV Series** NV24-3 US NV24-MFT US NVG24-MFT US	**NA**	**NC:** Closed AB to B will open upon increase in signal/power. Note: To change reverse the switch S3.1. **NO:** Open AB to B will close upon increase in signal/power. Note: To change reverse the switch S3.1.
SPRING RETURN	**NVF Series** NVF24-MFT US	**Spring Up Stem Up**	
	NVF-E Series NVF24-MFT-E US	**Spring Down Stem Down**	

G2	14	S	NVD	24	-MFT	
Valve Type G2 = 2-way NPT G3 = 3-way NPT G6 = 2-way Flanged G7 = 3-way Flanged	**Valve Size** 15-50 = 1/2"–2" 65-150 = 2.5"–6" (Flanged)	**Trim Material** Blank = Bronze Trim S = Stainless Trim -250 = ANSI 250 Bronze Trim S-250 = ANSI 250 Stainless Trim C = Bronze Trim Pressure Compensated CS = Stainless Trim Pressure Compensated LCS = Stainless Trim Pressure Compensated D = Diverting Bronze Trim DS = Diverting Stainless Trim	**Actuator Type** Non-Spring Return NVD… NV… NVG… LM… NM… AM… GM… Spring Return NVFD… NVF… LF… NF… AF… Electronic Fail-Safe GK...	**Power Supply** 24 = 24 VAC/DC 120 = 120 VAC	**Control** Blank = On/Off -3-X1 = On/Off, Floating Point -SR = 2-10 VDC -MFT or MFT-X1= Multi-Function Technology -MFT95-X1 = 0-135 Ω	S = Built-in Auxiliary Switch

ORDERING EXAMPLE

1 Choose the valve actuator combination.

G214+NVD24-MFT US

2 Specify preference or configuration.

3 **For MFT orders only - select programming code**

+NO | **+Tagging (if needed)**

4 Does order require tagging?

Set-Up

Non-Spring Models
NO = Normally Open
NC = Normally Closed

Spring Return Models
NO/FO = Normally Open/Fail Open
NO/FC = Normally Open/Fail Closed

NC/FO = Normally Closed/Fail Open
NC/FC = Normally Closed/Fail Closed

Refers to valve ports A to AB.

V-10001 (N01)

V-10001 (N01)	2-10 VDC
V-10002 (N02)	0-10 VDC
V-10028 (N1E)	0-10 VDC
V-10063 (N1K)	0.5-4.5 VDC
V-10064 (N1L)	5.5-10 VDC
V-20002 (N1U)	0.02-5.00 sec. PWM
V-20003 (N1V)	0.10-25.5 sec. PWM
V-30001 (N24)	Floating Point

Tagging:
Valves may be tagged per customer specification.

Example:
AHU-1
FCU-2

5 Complete Ordering Example: G214+NVD24-MFT US+NO+N01

G2…(S) 2-way Globe Valve, Bronze or Stainless Steel Trim

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 reheat coils and bypass loops. This valve is suitable for use in a hydronic system with variable flow.

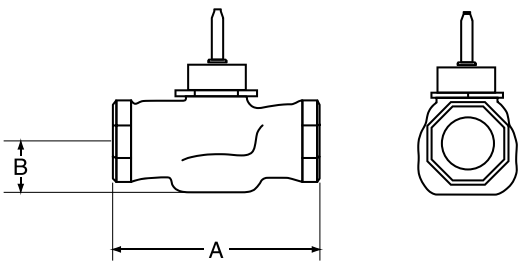
Bronze and stainless steel trim valves can be used for steam applications, depending on actuator and close-off combinations.

Technical Data		
	G2	G2...S
Service	chilled or hot water, 60% glycol, steam	
Flow characteristic	equal percentage	linear
Action	stem up - open A to AB	
Sizes	½" to 2"	
End fitting	NPT female ends	
Materials		
Body	bronze	bronze
Seat	bronze	stainless steel
Stem	stainless steel	stainless steel
Plug	brass	stainless steel
Packing	spring loaded TFE	spring loaded TFE
Disc	composition (EPDM)	Teflon
ANSI class	ANSI 250 (up to 400 psi below 150°F)	
Leakage	ANSI class IV	
Max steam inlet		
NV actuators	15 psi (103 kPa)	50 psi (345 kPa)
Rotary actuators	35 psi (241 kPa)	100 psi (689 kPa)
Media temperature		
Water	20°F to 250°F (-7°C to 120°C)	20°F to 300°F (-7°C to 149°C)
Maximum ΔP*		
Water	35 psi (241 kPa)	35 psi (241 kPa)
Steam (NV Actuator)	15 psi (103 kPa)	35 psi (241 kPa)
Steam (Rotary Actuator)	20 psi (138 kPa)	35 psi (241 kPa)
Rangeability	G2(S) 100:1	
Valve weights	G212(S), G213(S), G214(S), G215(S)	2 lbs
	G219(S), G220(S)	3 lbs
	G224(S), G225(S), G232(S)	5.5 lbs
	G240(S), G250(S)	13 lbs

*(50% or more open)

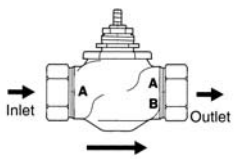
Valve Nominal Size		Type	Suitable Actuators					
			Non-Spring			Spring		
C_v	Inches	DN [mm]	2-way NPT	LM Series	NM Series	NV Series	LF Series	NF Series	AF(X)	NVF Series
0.4	½	15	G212(S)							
1.3	½	15	G213(S)							
2.2	½	15	G214(S)							
4.4	½	15	G215(S)							
5.5	¾	20	G219(S)							
7.5	¾	20	G220(S)							
10	1	25	G224(S)							
14	1	25	G225(S)							
20	1¼	32	G232(S)							
28	1½	40	G240(S)							
40	2	50	G250(S)							

Dimensions

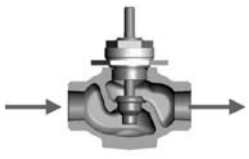


Valve Nominal Size			Dimensions (Inches [mm])	
Valve Body	Inches	DN [mm]	A	B
G212(S)-G215(S)	½"	15	3.06" [78]	1.06" [27]
G219(S)-G220(S)	¾"	20	3.62" [92]	1.06" [27]
G224(S)-G225(S)	1"	25	4.62" [117]	1.12" [29]
G232(S)	1¼	32	4.62" [117]	1.37" [35]
G240(S)	1½	40	5.37" [137]	1.50" [38]
G250(S)	2	50	6.12" [156]	1.56" [40]

G2...(S) 2-way Flow Patterns



Flow Direction



Stem Up - Open A to AB

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. For the NV Series, allow 6" for cover removal and 12" for complete actuator removal. 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.

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 reheat coils and bypass loops. This valve is suitable for use in a hydronic system with constant or variable flow.

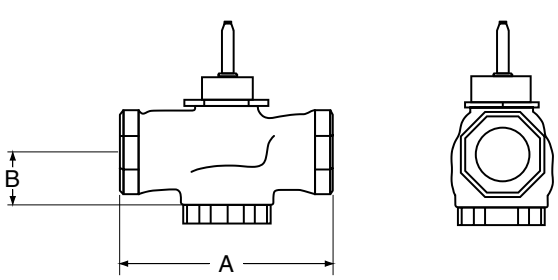
3-way valves are available with mixing or diverting flow patterns.

Technical Data		
	G3	G3...D
Service	chilled or hot water, 60% glycol	
Flow characteristic	linear	
Action	stem up - open B to AB	stem up - open B to AB
Sizes	½" to 2"	
End fitting	NPT female ends	
Materials		
Body	bronze	
Seat	bronze	
Stem	stainless steel	
Plug	brass	
Packing	spring loaded TFE	
Disc	none	
ANSI class	ANSI 250 (up to 400 psi below 150°F)	
Leakage	ANSI III	
Media temperature water	20°F to 250°F (-7°C to 120°C)	
Maximum ΔP* water	35 psi (241 kPa)	
Rangeability	500:1	
Valve weights	G314, G315(D)	2 lbs
	G320	3 lbs
	G320D	2.5 lbs
	G325, G332(D)	2.5 lbs
	G325D	5 lbs
	G340(D), G350(D)	14 lbs

*(50% or more open)

	Valve Nominal Size		Type	Suitable Actuators							
C_v	Inches	DN [mm]	3-way NPT	Non-Spring				Spring			
2.2	½	15	G314	LM Series			NV Series	LF Series			NVF Series
4.4	½	15	G315(D)								
7.5	¾	20	G320(D)								
14	1	25	G325(D)		NM			NF			
20	1¼	32	G332(D)								
28	1½	40	G340(D)			AF(X) Series					
41	2	50	G350		AM Series						
40	2	50	G350(D)								

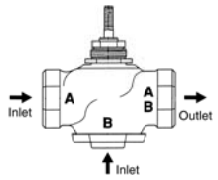
Dimensions



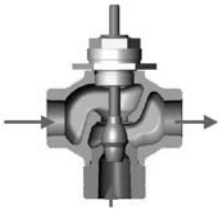
	Valve Nominal Size		Dimensions (Inches [mm])	
Valve Body	Inches	DN [mm]	A	B
G314	½"	15	3.06" [78]	1.37" [35]
G315(D)	½"	15	3.06" [78]	1.37" [35]
G320(D)	¾"	20	3.62" [92]	1.68" [43]
G325(D)	1"	25	4.62" [117]	1.56" [40]
G332(D)	1¼"	32	4.62" [117]	1.62" [41]
G340(D)	1½	40	5.37" [137]	1.62" [41]
G350(D)	2	50	6.12" [156]	1.87" [48]

G3...(D) 3-way Flow Patterns

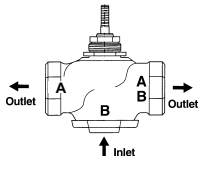
G3 3-way Mixing Valve



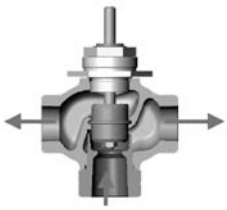
Stem Up- Open B to AB



G3…D 3-way Diverting Valve



Stem Up- Open B to AB



Note: Flow B to A travels through center of plug (as shown).

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. For the NV Series, allow 6" for cover removal and 12" for complete actuator removal. 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.

G6…(S) 2-way Flanged Globe Valve, Bronze or Stainless Steel Trim

Application

This valve is typically used in Large Air Handling Units on heating or cooling coils. This valve is suitable for use in a hydronic system with variable flow.

Bronze or stainless steel trim valves can be used for steam applications, depending on actuator and close-off combination.

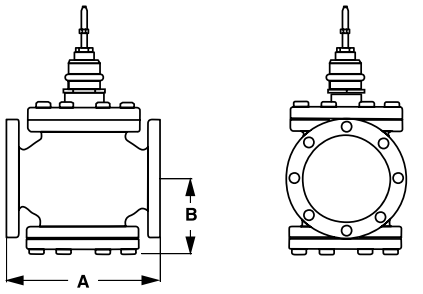
	Valve Nominal Size	Type	Suitable Actuators				
C_v	Inches	2-way Flanged	Non-Spring		Spring		Electronic Fail-Safe
65	2½	G665(S)	NVG	GM	AF	AFX	GK
90	3	G680(S)					
170	4	G6100(S)					

Technical Data

	G6…	G6…S
Service	chilled or hot water, 60% glycol, steam	chilled or hot water, 60% glycol, steam
Flow characteristic	modified equal percentage	
Action	stem up - open A to AB	
Sizes	2½" to 3"	
End fitting	125 lb. flanged	
Materials		
Body	iron	iron
Seat	bronze	stainless steel
Stem	stainless steel	stainless steel
Plug	bronze	stainless steel
Packing	NLP (no lip packing)	TFE V-ring
ANSI class	ANSI 125	
Leakage	Class III	
Max inlet		
Steam	35 psi (241kPa)	50 psi (345kPa)- NV 100 psi (680kPa)- Rotary
Water	150 psi (1034kPa) @ 250°F	150 psi (1034kPa) @ 250°F
Media temperature		
Water	32°F to 350°F (0°C to 176°C)	32°F to 350°F (0°C to 176°C)
Steam	32°F to 280°F (0°C to 138°C)	32°F to 298°F - NV (0°C to 148°C) 32°F to 338°F - Rotary (0°C to 170°C)
Maximum ΔP*		
Water	25 psi (172kPa)	50 psi (345kPa)
Steam	15 psi (103kPa)	50 psi (345kPa)
Rangeability	50:1	
Valve weights	G665(S) 55 lbs G680(S) 72 lbs G6100(S) 119 lbs	

*(50% or more open)

Dimensions



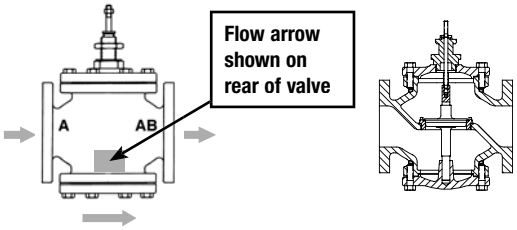
D166-2WF

Valve Body	Valve Nominal Size Inches	DN [mm]	Dimensions (Inches [mm]) A	B
G665(S)	2½"	[65]	9" [229]	4.75" [120]
G680(S)	3"	[80]	10" [254]	5.37" [137]
G6100(S)	4"	[100]	13" [330]	6.37" [162]

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. For the NV Series, allow 6" for cover removal and 12" for complete actuator removal. The G6/G7 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 valve stem vertical above the valve or up to 45 degrees in relation to the horizontal 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.

G6…(S) 2-way Flow Patterns



Flow Pattern is marked on valve. **Stem Up - Open A to AB**

Application

This valve is typically used in Large Air Handling Units on heating or cooling coils. This valve is suitable for use in a hydronic system with variable flow.

Valves are designed for ANSI 250 piping systems. Bronze or stainless steel trim valves can be used for higher pressure steam applications, depending on actuator and close-off combination.

	Valve Nominal Size	Type	Suitable Actuators				
C_v	Inches	2-way Flanged	Non-Spring		Spring		Electronic Fail-Safe
65	2½	G665(S)-250	NVG	GM	AF	AFX	GK
90	3	G680(S)-250					
170	4	G6100(S)-250					

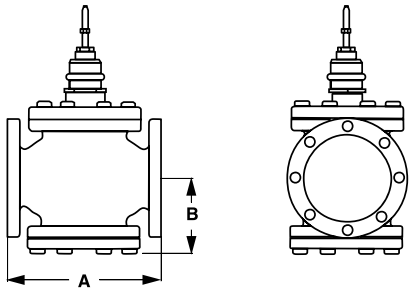
Technical Data

	G6...-250	G6...S-250
Service	chilled or hot water, 60% glycol, steam	chilled or hot water, 60% glycol, steam
Flow characteristic	modified equal percentage	
Action	stem up - open A to AB	
Sizes	2½" to 3"	
End fitting	250 lb. flanged	
Materials		
Body	iron	iron
Seat	bronze	stainless steel
Stem	stainless steel	stainless steel
Plug	bronze	stainless steel
Packing	NLP (no lip packing)	TFE V-ring
ANSI class	ANSI 250	
Leakage	Class III	
Max inlet		
Steam	35 psi (241kPa)	50 psi (345kPa)- NV 100 psi (680kPa)- Rotary
Water	250 psi (1724kPa) @ 350°F	250 psi (1724kPa) @ 350°F
Media temperature		
Water	32°F to 350°F (0°C to 176°C)	32°F to 350°F (0°C to 176°C)
Steam	32°F to 280°F (0°C to 138°C)	32°F to 298°F - NV (0°C to 148°C) 32°F to 338°F - Rotary (0°C to 170°C)
Maximum ΔP*		
Water	25 psi (172kPa)	50 psi (340kPa)
Steam	15 psi (103kPa)	50 psi (340kPa)
Rangeability	50:1	
Valve weights	G665(S)-250	64 lbs
	G680(S)-250	77 lbs
	G6100(S)-250	131 lbs

*(50% or more open)

Dimensions

D166-2WF

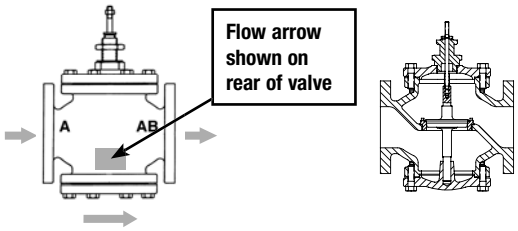


	Valve Nominal Size		Dimensions (Inches [mm])	
Valve Body	Inches	DN [mm]	A	B
G665(S)-250	2½"	[65]	9.63" [245]	4.75" [120]
G680(S)-250	3"	[80]	10.75" [273]	5.37" [137]
G6100(S)-250	4"	[100]	13.62" [346]	6.37" [162]

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. For the NV Series, allow 6" for cover removal and 12" for complete actuator removal. The G6/G7 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 valve stem vertical above the valve or up to 45 degrees in relation to the horizontal 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.

G6...(S)-250 2-way Flow Patterns



Flow Pattern is marked on valve.

Stem Up - Open A to AB

G6…C(S)(LCS) 2-way Pressure Compensated Flanged Globe Valve

Application

This valve is typically used in Large Air Handling Units on heating or cooling coils. This valve is suitable for use in a hydronic system with variable flow.

Bronze or stainless steel trim valves can be used for steam applications, depending on actuator and close-off combination.

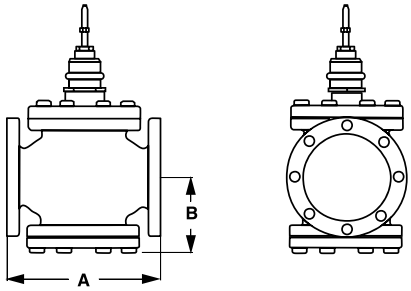
	Valve Nominal Size	Type	Suitable Actuators		
C_v	Inches	2-way Flanged	Non-Spring	Spring	Electronic Fail-Safe
65	2½	G665C(S)	NV	AF(X) Series	
90	3	G680C(S)			
170	4	G6100C(S)	GM Series		GK Series
263	5	G6125C(S)			
344	6	G6150C(S)			
65	2½	G665LCS	NV		
90	3	G680LCS			
170	4	G6100LCS	GM Series		GK Series
263	5	G6125LCS			
344	6	G6150LCS			

Technical Data

	G6...C	G6...CS	G6...LCS
Service	chilled or hot water, 60% glycol, steam	chilled or hot water, 60% glycol, steam	chilled or hot water, 60% glycol, steam
Flow characteristic	modified equal percentage		linear
Action	stem up - open A to AB		
Sizes	2½" to 6"		
End fitting	125 lb. flanged		
Materials			
Body	iron	iron	iron
Seat	bronze	stainless steel	stainless steel
Stem	stainless steel	stainless steel	stainless steel
Plug	bronze	stainless steel	stainless steel
Packing	NLP (no lip packing)	TFE V-ring	TFE V-ring
ANSI class	ANSI 125		
Leakage	Class III		
Max inlet			
Steam	35 psi (241kPa)	50 psi (340kPa)- NV 100 psi (680kPa)- Rotary	50 psi (340kPa)- NV 100 psi (680kPa)- Rotary
Water	150 psi (1034kPa) @ 250°F	150 psi (1034kPa) @ 250°F	150 psi (1034kPa) @ 250°F
Media temperature			
Water	32°F to 350°F (0°C to 176°C)	32°F to 350°F (0°C to 176°C)	
Steam	32°F to 280°F (0°C to 138°C)	32°F to 298°F - NV (0°C to 148°C) 32°F to 338°F - Rotary (0°C to 170°C)	
Maximum ΔP*			
Water	25 psi (172kPa)	50 psi (340kPa)	50 psi (340kPa)
Steam	15 psi (103kPa)	50 psi (340kPa)	50 psi (340kPa)
Rangeability	G665C 85:1 G680C 91:1	G6100C 98:1 G6125C 100:1	G6150C 98:1
Valve weights	G665C(S)(LCS) G680C(S)(LCS) G6100C(S)(LCS) G6125C(S)(LCS) G6150C(S)(LCS)	57 lbs 75 lbs 127 lbs 149 lbs 197 lbs	

*(50% or more open)

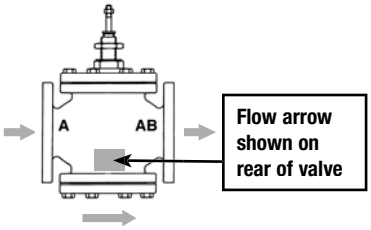
Dimensions



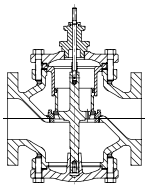
D166-2MF

	Valve Nominal Size		Dimensions (Inches [mm])	
Valve Body	Inches	DN [mm]	A	B
G665C(S)	2½"	[65]	9" [229]	4.75" [120]
G680C(S)	3"	[80]	10" [254]	5.37" [137]
G6100C(S)	4"	[100]	13" [330]	6.87" [175]
G6125C(S)	5"	[125]	15.75" [400]	7.87" [200]
G6150C(S)	6"	[150]	17.75" [451]	8.50" [216]
G665LCS	2½"	[65]	9" [229]	4.75" [120]
G680LCS	3"	[80]	10" [254]	5.37" [137]
G6100LCS	4"	[100]	13" [330]	6.87" [175]
G6125LCS	5"	[125]	15.75" [400]	7.87" [200]
G6150LCS	6"	[150]	17.75" [451]	8.50" [216]

G6...C(S)(LCS) 2-way Flow Patterns



Flow Pattern is marked on valve.



Stem Up - Open A to AB

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. For the NV Series, allow 6" for cover removal and 12" for complete actuator removal. The G6/G7 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 valve stem vertical above the valve or up to 45 degrees in relation to the horizontal 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.

G6…C(S)-250 2-way ANSI 250 Pressure Compensated Flanged Globe Valve

Application

This valve is typically used in Large Air Handling Units on heating or cooling coils. This valve is suitable for use in a hydronic system with variable flow.

Valves are designed for ANSI 250 piping systems. Bronze or stainless steel trim valves can be used for higher pressure steam applications, depending on actuator and close-off combination.

	Valve Nominal Size	Type	Suitable Actuators		
C_v	Inches	2-way Flanged	Non-Spring	Spring	Electronic Fail-Safe
65	2½	G665C(S)-250	NV	AF(X) Series	
90	3	G680C(S)-250			
170	4	G6100C(S)-250	GM Series		GK Series
263	5	G6125C(S)-250			
344	6	G6150C(S)-250			

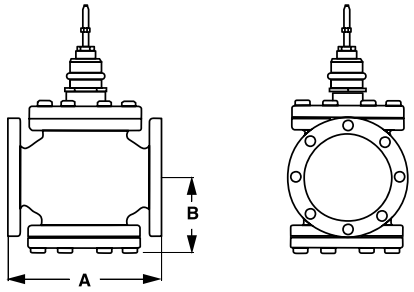
Technical Data

	G6...C-250	G6...CS-250
Service	chilled or hot water, 60% glycol, steam	chilled or hot water, 60% glycol, steam
Flow characteristic	modified equal percentage	
Action	stem up - open A to AB	
Sizes	2½" to 6"	
End fitting	250 lb. flanged	
Materials		
Body	iron	iron
Seat	bronze	stainless steel
Stem	stainless steel	stainless steel
Plug	bronze	stainless steel
Packing	NLP (no lip packing)	TFE V-ring
ANSI class	ANSI 250	
Leakage	Class III	
Max inlet		
Steam	35 psi (241kPa)	50 psi (345kPa)- NV 100 psi (680kPa)-Rotary
Water	250 psi (1724kPa) @ 350°F	250 psi (1724kPa) @ 350°F
Media temperature		
Water	32°F to 350°F (0°C to 176°C)	32°F to 350°F (0°C to 176°C)
Steam	32°F to 280°F (0°C to 138°C)	32°F to 298°F -NV (0°C to 170°C) 32°F to 338°F -Rotary (0°C to 170°C)
Maximum ΔP*		
Water	25 psi (172kPa)	50 psi (340kPa)
Steam	15 psi (103kPa)	50 psi (340kPa)
Rangeability	G665C(S)-250 85:1 G680C(S)-250 91:1	G6100C(S)-250 98:1 G6125C(S)-250 100:1 G6150C(S)-250 98:1
Valve weights	G665C(S)-250 G680C(S)-250 G6100C(S)-250 G6125C(S)-250 G6150C(S)-250	66 lbs 80 lbs 139 lbs 181 lbs 256 lbs

*(50% or more open)

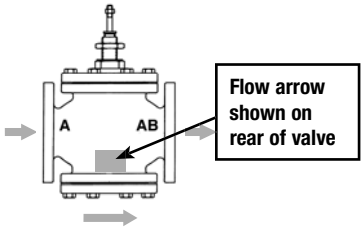
Dimensions

D166-2WF

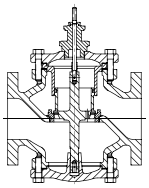


Valve Body	Valve Nominal Size Inches	DN [mm]	Dimensions (Inches [mm]) A	B
G665C(S)-250	2½"	[65]	9.62" [244]	4.75" [120]
G680C(S)-250	3"	[80]	10.75" [273]	5.37" [137]
G6100C(S)-250	4"	[100]	13.62" [346]	6.87" [175]
G6125C(S)-250	5"	[125]	16.62" [422]	7.87" [200]
G6150C(S)-250	6"	[150]	18.62" [473]	8.50" [216]

G6...C(S)-250 2-way Flow Patterns



Flow Pattern is marked on valve.



Stem Up - Open A to AB

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. For the NV Series, allow 6" for cover removal and 12" for complete actuator removal. The G6/G7 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 valve stem vertical above the valve or up to 45 degrees in relation to the horizontal 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.

G7…(S) 3-way Mixing Flanged Globe Valve, Bronze or Stainless Steel Trim

Application

This valve is typically used in Large Air Handling Units on heating or cooling coils. This valve is suitable for use in a hydronic system with variable flow.

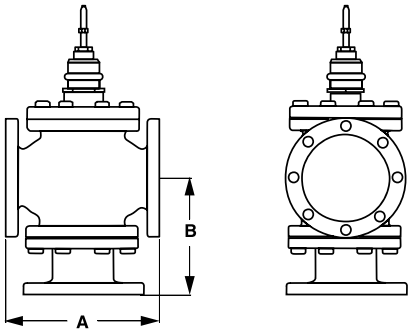
	Valve Nominal Size	Type	Suitable Actuators				
C_v	Inches	3-way Flanged	Non-Spring		Spring		Electronic Fail-Safe
68	2½	G765(S)	NVG	GM Series	AF	AFX Series	GK Series
91	3	G780(S)					
190	4	G7100(S)					
280	5	G7125(S)					
340	6	G7150(S)					

Technical Data

	G7	G7...S
Service	chilled or hot water, 60% glycol	chilled or hot water, 60% glycol
Flow characteristic	linear	
Action	stem up - open B to AB	
Sizes	2½" to 6"	
End fitting	125 lb. flanged	
Materials		
Body	iron	iron
Seat	bronze	stainless steel
Stem	stainless steel	stainless steel
Plug	bronze	stainless steel
Packing	NLP (no lip packing)	TFE V-ring
ANSI class	ANSI 125	
Leakage	Class III	
Max inlet		
Water	150 psi (1034kPa) @ 250°F	150 psi (1034kPa) @ 250°F
Media temperature		
Water	32°F to 350°F (0°C to 176°C)	32°F to 350°F (0°C to 176°C)
Maximum ΔP*		
Water	25 psi (172kPa)	50 psi (340kPa)
Rangeability	50:1	
Valve weights	G765(S)	64 lbs
	G780(S)	83 lbs
	G7100(S)	139 lbs
	G7125(S)	157 lbs
	G7150(S)	202 lbs

*(50% or more open)

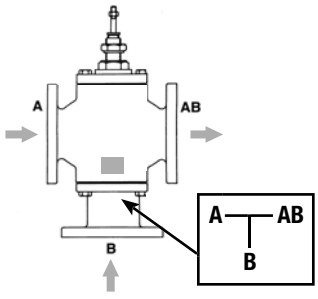
Dimensions

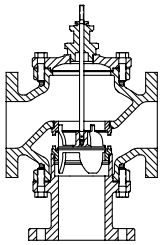


D169-G73W

	Valve Nominal Size		Dimensions (Inches [mm])	
Valve Body	Inches	DN [mm]	A	B
G765(S)	2½"	[65]	9.00" [229]	7.12" [181]
G780(S)	3"	[80]	10.00" [254]	8.00" [203]
G7100(S)	4"	[100]	13.00" [330]	9.87" [251]
G7125(S)	5"	[125]	15.75" [400]	9.25" [235]
G7150(S)	6"	[150]	17.75" [451]	9.87" [251]

G7...(S) 3-way Flow Patterns





Flow Pattern is marked on valve. **Stem Up = Open B to AB**

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. For the NV Series, allow 6" for cover removal and 12" for complete actuator removal. The G6/G7 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 valve stem vertical above the valve or up to 45 degrees in relation to the horizontal 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.

G7…(S) 3-way Mixing ANSI 250 Flanged Globe Valve, Bronze or Stainless Steel Trim

Application

This valve is typically used in Large Air Handling Units on heating or cooling coils. This valve is suitable for use in a hydronic system with variable flow.

Valves are designed for ANSI 250 piping systems.

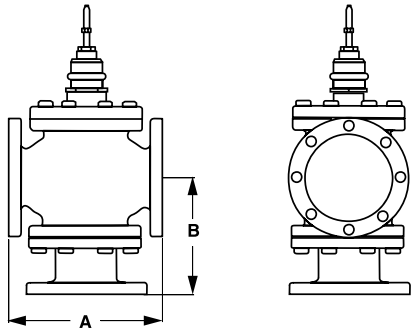
Valve Nominal Size	Type	Suitable Actuators				
C_v	Inches	3-way Flanged	Non-Spring		Spring		Electronic Fail-Safe
68	2½	G765(S)-250	NVG	GM Series	AF	AFX Series	GK Series
91	3	G780(S)-250					
190	4	G7100(S)-250					
280	5	G7125(S)-250					
340	6	G7150(S)-250					

Technical Data

	G7...-250	G7...S-250
Service	chilled or hot water, 60% glycol	chilled or hot water, 60% glycol
Flow characteristic	linear	
Action	stem up - open A to AB	
Sizes	2½" to 6"	
End fitting	250 lb. flanged	
Materials		
Body	iron	iron
Seat	bronze	stainless steel
Stem	stainless steel	stainless steel
Plug	bronze	stainless steel
Packing	NLP (no lip packing)	TFE V-ring
ANSI class	ANSI 250	
Leakage	Class III	
Max inlet		
Water	250 psi (1724kPa) @ 350°F	250 psi (1724kPa) @ 350°F
Media temperature		
Water	32°F to 350°F (0°C to 176°C)	32°F to 350°F (0°C to 176°C)
Maximum ΔP*		
Water	25 psi (172kPa)	50 psi (340kPa)
Rangeability	50:1	
Valve weights	G765(S)-250	73 lbs
	G780(S)-250	94 lbs
	G7100(S)-250	157 lbs
	G7125(S)-250	211 lbs
	G7150(S)-250	283 lbs

*(50% or more open)

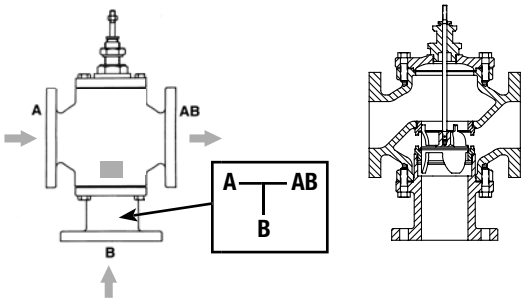
Dimensions



D169-G73W

Valve Body	Valve Nominal Size Inches	DN [mm]	Dimensions (Inches [mm]) A	B
G765(S)-250	2½"	[65]	9.63" [245]	7.38" [188]
G780(S)-250	3"	[80]	10.75" [273]	8.38" [213]
G7100(S)-250	4"	[100]	13.63" [346]	10.25" [260]
G7125(S)-250	5"	[125]	16.63" [422]	10.38" [264]
G7150(S)-250	6"	[150]	18.63" [473]	11.00" [279]

G7...(S)-250 3-way Flow Patterns



Flow Pattern is marked on valve. **Stem Up = Open B to AB**

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. For the NV Series, allow 6" for cover removal and 12" for complete actuator removal. The G6/G7 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 valve stem vertical above the valve or up to 45 degrees in relation to the horizontal 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.

G7…D(S) 3-way Diverting Flanged Globe Valve, Bronze or Stainless Steel Trim

Application

This valve is typically used in Large Air Handling Units on heating or cooling coils. This valve is suitable for use in a hydronic system with variable flow.

These valves are to be used in Diverting applications only.

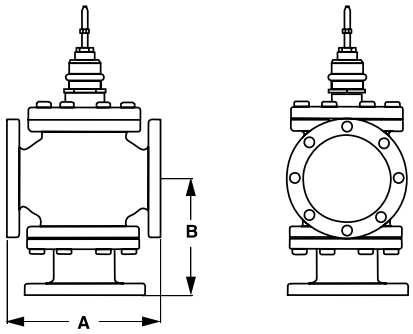
C_v	Valve Nominal Size Inches	Type 3-way Flanged	Suitable Actuators Non-Spring		Spring	Electronic Fail-Safe
68	2½	G765D(S)	NVG	GM Series	AF(X) Series	GK Series
85	3	G780D(S)				
154	4	G7100D(S)				
195	5	G7125D(S)				
248	6	G7150D(S)				

Technical Data

	G7...D	G7...DS
Service	chilled or hot water, 60% glycol	chilled or hot water, 60% glycol
Flow characteristic	linear	
Action	stem up - open AB to B	
Sizes	2½" to 6"	
End fitting	125 lb. flanged	
Materials		
Body	iron	iron
Seat	bronze	stainless steel
Stem	stainless steel	stainless steel
Plug	bronze	stainless steel
Packing	NLP (no lip packing)	TFE V-ring
ANSI class	ANSI 125	
Leakage	ANSI Class III	
Max inlet Water	150 psi (1034kPa) @ 250°F	
Media temperature Water	32°F to 350°F (0°C to 176°C)	
Maximum ΔP* Water	25 psi (172kPa)	50 psi (340kPa)
Rangeability	50:1	
Valve weights	G765D(S)	59 lbs
	G780D(S)	78 lbs
	G7100D(S)	140 lbs
	G7125D(S)	154 lbs
	G7150D(S)	203 lbs

*(50% or more open)

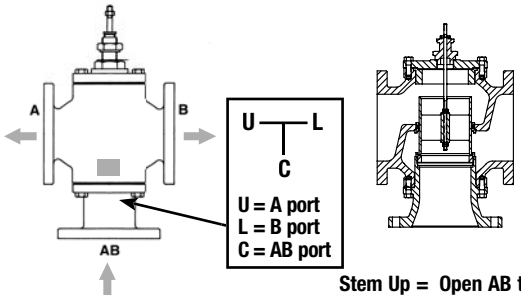
Dimensions



D169-G73W

Valve Body	Valve Nominal Size Inches	DN [mm]	Dimensions (Inches [mm]) A	B
G765D(S)	2½"	[65]	9.00" [229]	7.12" [181]
G780D(S)	3"	[80]	10.00" [254]	8.00" [203]
G7100D(S)	4"	[100]	13.00" [330]	9.87" [251]
G7125D(S)	5"	[125]	12.00" [305]	10.50" [267]
G7150D(S)	6"	[150]	14.13" [359]	11.13" [283]

G7...D(S) 3-way Flow Patterns



Flow Pattern is marked on valve.

Stem Up = Open AB to B
Open C to L

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. For the NV Series, allow 6" for cover removal and 12" for complete actuator removal. The G6/G7 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 valve stem vertical above the valve or up to 45 degrees in relation to the horizontal 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.

Application

This valve is typically used in Large Air Handling Units on heating or cooling coils. This valve is suitable for use in a hydronic system with variable flow.

Valves are designed for ANSI 250 piping systems.
These valves are to be used in Diverting applications only.

	Valve Nominal Size	Type	Suitable Actuators			
C_v	Inches	3-way Flanged	Non-Spring		Spring	Electronic Fail-Safe
68	2½	G765DS-250	NVG	GM Series	AF(X) Series	GK Series
85	3	G780DS-250				
154	4	G7100DS-250				
195	5	G7125DS-250				
248	6	G7150DS-250				

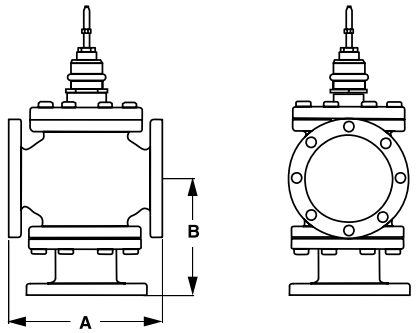
Technical Data

	G7...DS-250	
Service	chilled or hot water, 60% glycol	
Flow characteristic	linear	
Action	stem up - open AB to B	
Sizes	2½" to 6"	
End fitting	250 lb. flanged	
Materials		
Body	iron	
Seat	stainless steel	
Stem	stainless steel	
Plug	stainless steel	
Packing	TFE V-ring	
ANSI class	ANSI 250	
Leakage	ANSI Class III	
Max inlet		
Water	250 psi (1724kPa) @ 350°F	
Media temperature		
Water	32°F to 350°F (0°C to 176°C)	
Maximum ΔP*		
Water	50 psi (340kPa)	
Rangeability	50:1	
Valve weights	G765DS-250	73 lbs
	G780DS-250	94 lbs
	G7100DS-250	166 lbs
	G7125DS-250	215 lbs
	G7150DS-250	284 lbs

*(50% or more open)

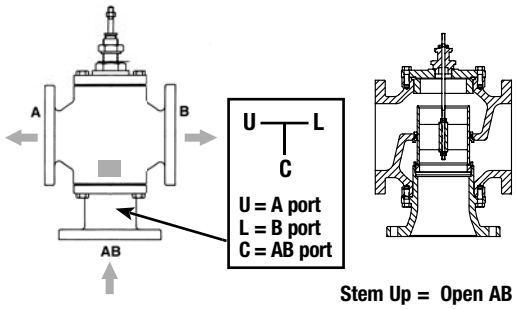
Dimensions

D169-G73W



	Valve Nominal Size		Dimensions (Inches [mm])	
Valve Body	Inches	DN [mm]	A	B
G765DS-250	2½"	[65]	9.63" [245]	7.38" [188]
G780DS-250	3"	[80]	10.75" [273]	8.38" [213]
G7100DS-250	4"	[100]	13.63" [346]	10.25" [260]
G7125DS-250	5"	[125]	12.88" [327]	11.00" [279]
G7150DS-250	6"	[150]	14.50" [368]	11.50" [292]

G7...DS-250 3-way Flow Patterns



Flow Pattern is marked on valve.

Stem Up = Open AB to B
Open C to L

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. For the NV Series, allow 6" for cover removal and 12" for complete actuator removal. The G6/G7 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 valve stem vertical above the valve or up to 45 degrees in relation to the horizontal 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.

BELIMO

Globe Valve Product Range
G2... G3.., 2-way and 3-way, NPT

	Valve Nominal Size		Type		Suitable Actuators					
					Non-Spring Return			Spring Return		
C_V	Inches	DN [mm]	2-way NPT	3-way NPT						
0.4	½	15	G212	–	LM Series		NV Series	LF Series		NVF Series
1.3	½	15	G213	–						
2.2	½	15	G214	–						
4.4	½	15	G215	–						
0.4	½	15	G212S	–						
1.3	½	15	G213S	–						
2.2	½	15	G214S	G314						
4.4	½	15	G215S	G315						
4.4	½	15	–	G315D						
5.5	¾	20	G219	–						
7.5	¾	20	G220	–						
5.5	¾	20	G219S	–						
7.5	¾	20	G220S	G320						
7.5	¾	20	–	G320D						
10	1	25	G224	–		NM Series		NF Series		
14	1	25	G225	–						
10	1	25	G224S	–						
14	1	25	G225S	G325						
14	1	25	–	G325D						
20	1¼	32	G232	–						
20	1¼	32	G232S	G332						
20	1¼	32	–	G332D						
28	1½	40	G240	–		AM Series			AF(X) Series	
28	1½	40	G240S	G340						
28	1½	40	–	G340D						
40	2	50	G250	–						
40	2	50	G250S	–						
41	2	50	–	G350						
40	2	50	–	G350D						

Applications
- Water-side control of air handling unit in ventilation and air-conditioning systems
- Water/Steam control in heating systems

Mode of Operation
The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, by a proportional VDC/4…20 mA, 3-point control system. The actuator will then move the plug of the valve to the position dictated by the control signal thus change the flow.

Product Features
Equal-percentage characteristic flow for G2, and linear characteristic for G2S and G3(D).

Actuator Specifications

Control type	On/Off, Floating Point, 2-10 VDC Multi-Function Technology (MFT)
Manual override	all models except LF
Electrical connection	3 ft [1m] cable with ½" conduit fitting

Valve Specifications

Service	chilled or hot water, 60% glycol, steam (G2, G2S only)
Flow characteristic	G2- equal percentage G2S, G3(D)- linear
Sizes	½" - 2"
Type of end fitting	½" - 2" NPT female ends
Materials	
Body	bronze
Stem	stainless steel
Seat	bronze stainless steel: G2..S
Plug	brass stainless steel: G2..S
Packing bronze trimmed	spring loaded TFE
Disc	composition G2 Teflon® G2...S None G3, G3D
Pressure rating G2, G3..., ½"- 2"	250 psi
Media temp range	Refer to valve specification pages in this section
Maximum inlet pressure	
Steam	15 psi (103 kPa) G2 with NV 35 psi (241 kPa) G2 with rotary actuators 50 psi (345 kPa) G2...S with NV 100 psi (690 kPa) G2...S with rotary actuators
Maximum differential pressure (ΔP)	
Water	35 psi (241 kPa)
Steam	15 psi (103 kPa) G2 with NV 20 psi (138 kPa) G2 with rotary actuators 35 psi (241 kPa) G2...S

Globe Valve Product Range
G6... 2-way, Flanged Connection

C_V	Valve Nominal Size Inches	Type 2-way Flanged	Suitable Actuators: Non-Spring Return		Spring Return		Electronic Fail-Safe
65	2½	G665	NVG Series	GM Series	AF	AFX	GK Series
90	3	G680					
170	4	G6100					
65	2½	G665S	NVG Series		AF	AFX	
90	3	G680S					
170	4	G6100S					
65	2½	G665-250	NVG Series		AF	AFX	
90	3	G680-250					
170	4	G6100-250					
65	2½	G665S-250	NVG Series		AF	AFX	
90	3	G680S-250					
170	4	G6100S-250					
65	2½	G665C		NV Series	NVF Series	AF Series	AFX Series
65	2½	G665C-250					
90	3	G680C					
90	3	G680C-250					
65	2½	G665CS					
65	2½	G665CS-250					
65	2½	G665LCS					
90	3	G680CS					
90	3	G680CS-250					
90	3	G680LCS					
170	4	G6100C		GM Series			GK Series
170	4	G6100C-250					
170	4	G6100CS					
170	4	G6100CS-250					
170	4	G6100LCS					
263	5	G6125C					
263	5	G6125C-250					
263	5	G6125CS					
263	5	G6125CS-250					
263	5	G6125LCS					
344	6	G6150C					
344	6	G6150C-250					
344	6	G6150CS					
344	6	G6150CS-250					
344	6	G6150LCS					

The G...(C) (CS) (LCS) Series valve is a pressure compensated valve that allows high close-off ratings while utilizing standard actuation.

Applications
- Water-side control of air handling unit in ventilation and air-conditioning systems
- Water/Steam control in heating systems

Mode of Operation
The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, a proportional VDC/4…20 mA, or 3-point control system. The actuator will then move the plug of the valve to the position dictated by the control signal thus change the flow.

Product Features
Modified equal-percentage characteristic for G6. Linear characteristic for G6...LCS

Actuator Specifications

Control type	On/Off, Floating Point, 2-10 VDC Multi-Function Technology (MFT)
Manual override	all models
Electrical connection	3 ft [1m] cable with ½" conduit fitting

Valve Specifications

Service	chilled or hot water, 60% glycol, steam
Flow characteristic	
G6	A-port modified equal percentage
G6LCS	linear
Sizes	2½" - 6"
Type of end fitting	flanged
Materials	
Body	cast iron
Stem	stainless steel
Seats	bronze: G6 stainless steel: G6..S
Packing	bronze trimmed: NLP stainless trimmed: TFE V-ring
Pressure rating	
G6, 125# ANSI flange	125 psi
G6, 250# ANSI flange	250 psi
Media temp range	
Refer to valve specification pages in this section	
Maximum inlet pressure	
Water	150 psi (1034 kPa) G6, G6S 250 psi (1724 kPa) G6...250, G6S...250
Steam	35 psi (241 kPa) G6, G6...250 50 psi (345 kPa) G6S,G6S...250 (NV) 100 psi (690 kPa) G6S, G6S...250 (Rotary)
Maximum differential pressure (ΔP)	
Water	25 psi (172 kPa) G6, G6...250 50 psi (345 kPa) G6S, G6S...250
Steam	15 psi (103 kPa) G6, G6...250 50 psi (345 kPa) G6S, G6S...250

BELIMO

Globe Valve Product Range
G7..., 3-way, Flanged Connection

	Valve Nominal Size	Type	Suitable Actuators				
C_V	Inches	3-Way Flange	Non-Spring Return		Spring Return		Electronic Fail-Safe
68	2½	G765	NVG Series	GM Series	AF Series	AFX Series	GK Series
91	3	G780					
68	2½	G765S					
91	3	G780S					
68	2½	G765-250					
91	3	G780-250					
68	2½	G765S-250					
91	3	G780S-250					
190	4	G7100					
280	5	G7125					
340	6	G7150					
190	4	G7100S				AFX	GK
280	5	G7125S					
340	6	G7150S					
190	4	G7100-250				AFX	GK
280	5	G7125-250					
340	6	G7150-250					
154	4	G7100S-250				AFX	GK
195	5	G7125S-250					
248	6	G7150S-250					
68	2½	G765D	NVG Series		AF Series	AFX Series	GK Series
85	3	G780D					
154	4	G7100D					
195	5	G7125D					
248	6	G7150D					
68	2½	G765DS	NVG Series				
85	3	G780DS					
154	4	G7100DS					
195	5	G7125DS					
248	6	G7150DS					
68	2½	G765DS-250	NVG Series				
85	3	G780DS-250					
154	4	G7100DS-250					
195	5	G7125DS-250					
248	6	G7150DS-250					

Applications
- Water-side control of air handling apparatus in ventilation and air-conditioning systems
- Water/Steam control in heating systems

Mode of Operation
The control valve is operated by an electronic actuator that responds to a standard voltage for on/off control, a proportional VDC/4…20 mA, or 3-point control system. The actuator will then move the plug of the valve to the position dictated by the control signal thus change the flow.

Product Features
Linear characteristic

Actuator Specifications

Control type	On/Off, Floating Point, 2-10 VDC Multi-Function Technology (MFT)
Manual override	all models
Electrical connection	3 ft [1m] cable with ½" conduit fitting

Valve Specifications

Service	chilled or hot water, 60% glycol
Flow characteristic	linear
Sizes	2½" - 6"
Type of end fitting	flanged
Materials	
Body	cast iron
Stem	stainless steel
Seats	bronze stainless steel: G7...S
Packing	bronze trimmed: NLP stainless trimmed: TFE V-ring
Pressure rating	
G7, 125# ANSI flange	125 psi
G7, 250# ANSI flange	250 psi
Media temp range	Refer to valve specification pages in this section
Maximum inlet pressure	
Water	150 psi (1034 kPa) G7, G7S 250 psi (1724 kPa) G7...250, G7S...250
Maximum differential pressure (ΔP)	
Water	25 psi (172 kPa) G7, G7...250 50 psi (345 kPa) G7S,G7S...250

5 YEAR WARRANTY

CE LISTED 94 D5 TEMP.IND. & REG.EQUIP. c UL us

BRUSHLESS DC motor

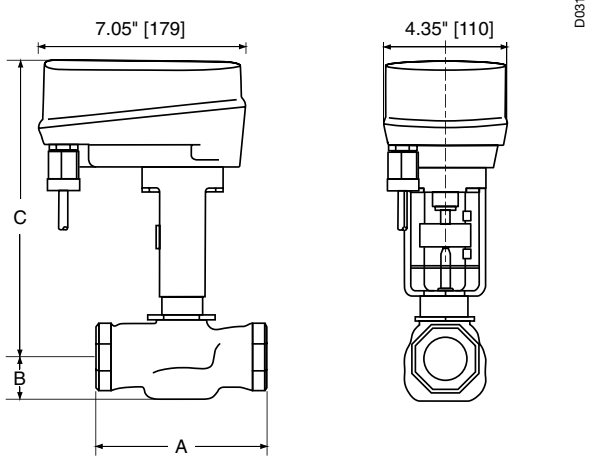
Models

NV24-3 US
NVD24-3 US

Technical Data	
Power supply	24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Nominal voltage range	19.2...28.8 VAC, 21.6...28.8 VDC
Power consumption	3 W
Transformer sizing	5 VA (Class 2 power source)
Electrical connection	3 ft [1m] 18 GA plenum rated cable ½" conduit connector
Overload protection	electronic throughout stroke
Control	on/off, floating point
Maximum stroke	¾" [20mm]
Force NV24-3 US NVD24-3 US	 225 lbf [1000 N] 90 lbf [400 N]
Position indication	stroke indicator on bracket
Manual override	3/16" hex, 5mm hex or phillips screwdriver
Running time	20mm/150 seconds, independent of load
Humidity	5 to 95% RH non-condensing
Ambient temperature	32°F to 122°F [0°C to 50°C]
Storage temperature	20°F to 176°F [-7°C to 80°C]
Housing	NEMA 2/IP54 with cable entry down
Housing material	UL94-5V (flammability rating)
Agency listings†	cULus to UL 60730-1A/UL60730-2-14 and CAN/CSA E60730-1/CSA C22.2 No. 24-93 CE acc. to 2004/108/EC & 2006/95/EC, tested to 1EC/EN 60730-1 and 1EC/EN 60370-2-14
Noise level	<52 dB(A)
Quality standard	ISO 9001

Dimensions with G2... Series 2-Way Valve
Assembly using UNV-001 Bracket

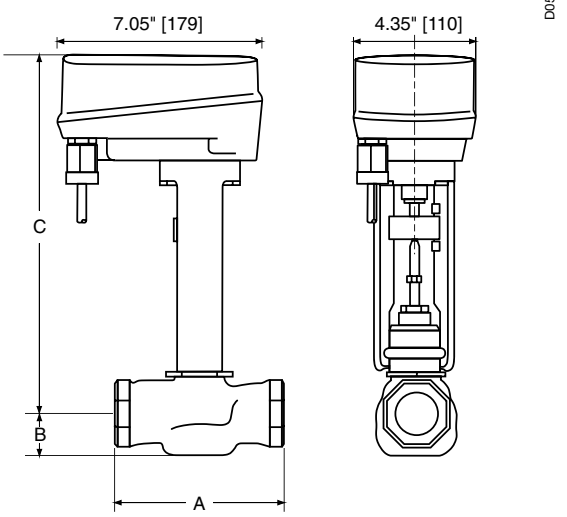
D031



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2	1/2"	15	3.00" [76]	1.06" [27]	9.75" [248]
G2	3/4"	20	3.62" [92]	1.06" [27]	9.75" [248]
G2	1"	25	4.62" [117]	1.12" [29]	10.43" [265]
G2	1-1/4"	32	4.62" [117]	1.37" [35]	10.43" [265]
G2	1-1/2"	40	5.37" [137]	1.50" [38]	10.50" [267]
G2	2"	50	6.12" [156]	1.56" [40]	10.81" [275]

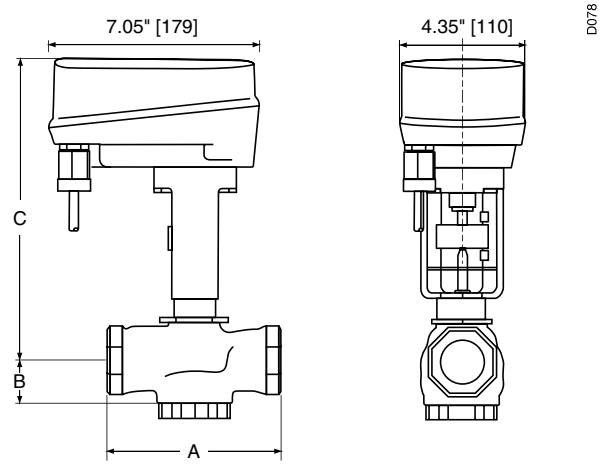
Dimensions with G2...S Series 2-Way Valve
Assembly using UNV-035 Bracket (Bracket is 1.563" longer than UNV-001)

D056



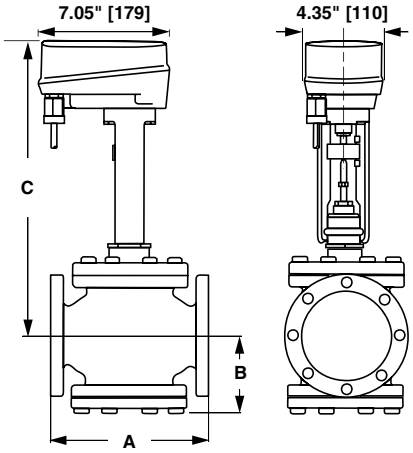
	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2S	1/2"	15	3.00" [76]	1.06" [27]	11.31" [287]
G2S	3/4"	20	3.62" [92]	1.06" [27]	11.31" [287]
G2S	1"	25	4.62" [117]	1.12" [29]	12.00" [305]
G2S	1-1/4"	32	4.62" [117]	1.37" [35]	12.00" [305]
G2S	1-1/2"	40	5.37" [137]	1.50" [38]	12.06" [306]
G2S	2"	50	6.12" [156]	1.56" [40]	12.37" [314]

Dimensions with G3...(D) Series 3-Way Valve



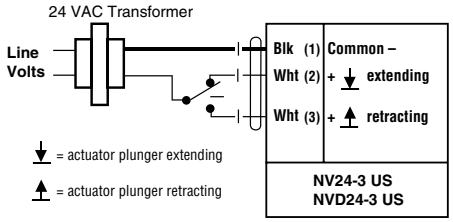
	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	1/2"	15	3.00" [76]	1.37" [35]	9.75" [248]
G3(D)	1/2"	15	3.00" [76]	1.37" [35]	9.75" [248]
G3(D)	3/4"	20	3.62" [92]	1.68" [43]	9.75" [248]
G3(D)	1"	25	4.62" [117]	1.56" [40]	9.81" [249]
G3(D)	1-1/4"	32	4.62" [117]	1.62" [41]	10.06" [256]
G3(D)	1-1/2"	40	5.37" [137]	1.62" [41]	9.18" [234]
G3(D)	2"	50	6.12" [156]	1.87" [48]	9.25" [235]

Dimensions with G6...C ANSI 125 Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G6C ANSI 125	2-1/2"	65	9.00" [229]	4.75" [120]	15.00" [381]
G6C ANSI 125	3"	80	10.00" [254]	5.37" [137]	15.43" [392]

Wiring Diagrams



On/Off or Floating Point Control

5 YEAR WARRANTY

CE LISTED 94 DS TEMP.IND. & REG.EQUIP. c UL us

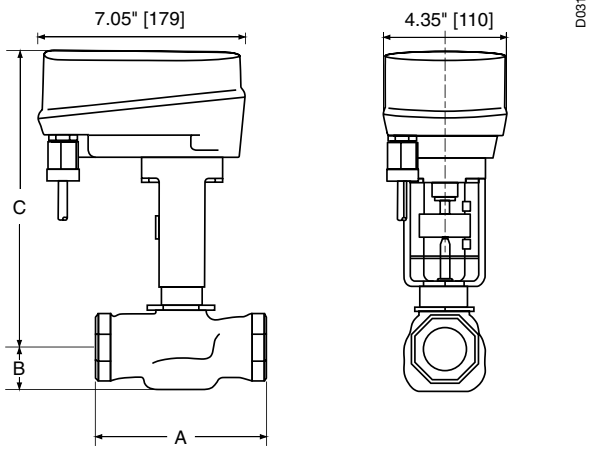
BRUSHLESS DC motor

Models

NVD24-MFT US
NV24-MFT US
NVG24-MFT US

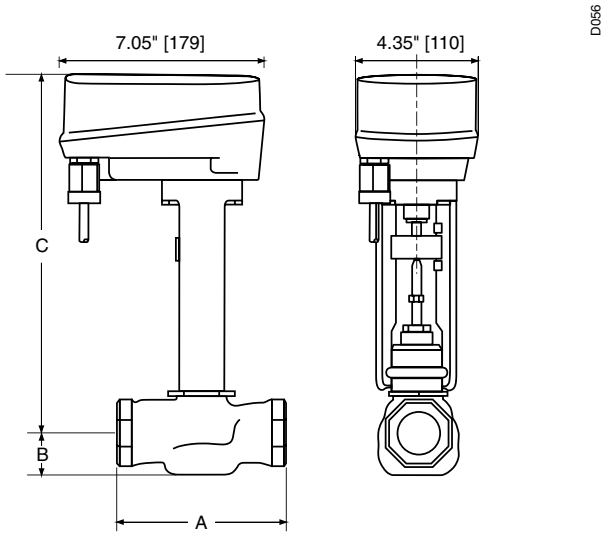
Technical Data	
Power supply	24 VAC ± 20% 50/60 Hz, 24 VDC ± 10%
Nominal voltage range	19.2...28.8 VAC, 21.6...28.8 VDC
Power consumption	
NVD24-MFT US	3 W
NV24-MFT US	3 W
NVG24-MFT US	4 W
Transformer sizing	5 VA (Class 2 power source)
Electrical connection	3 ft, 18 GA plenum rated cable ½" conduit connector
Overload protection	electronic throughout stroke
Control	Multi-Function Technology
Control signal Y	2 to 10 VDC (V-10001 default), PWM available
Operating range	2 to 10 VDC 4 to 20 mA (w/500 Ω, ¼ W resistor) ZG-R01
Input impedance	100 kΩ for 2 to 10 VDC (0.1 mA) 500 Ω for 4 to 20 mA 1500 Ω for PWM, on/off and floating point
Feedback output U	2 to 10 VDC, 0.5 mA max
Maximum stroke	¾" [20mm]
Force	
NVD24-3 US	90 lbf [400 N]
NV24-3 US	225 lbf [1000 N]
NVG24-MFT US	360 lbf [1600 N]
Position indication	stroke indicator on bracket
Manual override	3/16" hex, 5mm hex or phillips screwdriver
Running time	150 seconds, independent of load
Humidity	5 to 95% RH non-condensing
Ambient temperature	32°F to 122°F [0°C to 50°C]
Storage temperature	20°F to 176°F [-7°C to 80°C]
Housing	NEMA 2/IP54 with cable entry down
Housing material	UL94-5V (flammability rating)
Agency listings†	cULus to UL 60730-1A/UL60730-2-14 and CAN/CSA E60730-1/CSA C22.2 No. 24-93 CE acc. to 2004/108/EC & 2006/95/EC, tested to 1EC/EN 60730-1 and 1EC/EN 60370-2-14
Noise level	<35 dB(A)
Quality standard	ISO 9001

Dimensions with G2... Series 2-Way Valve
Assembly using UNV-001 Bracket



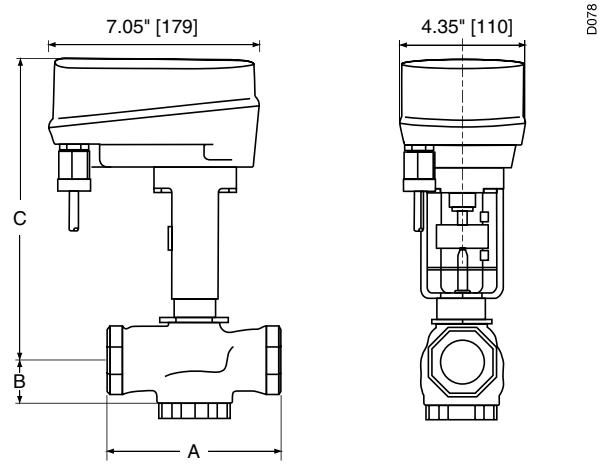
	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2	1/2"	15	3.00" [76]	1.06" [27]	9.75" [248]
G2	3/4"	20	3.62" [92]	1.06" [27]	9.75" [248]
G2	1"	25	4.62" [117]	1.12" [29]	10.43" [265]
G2	1-1/4"	32	4.62" [117]	1.37" [35]	10.43" [265]
G2	1-1/2"	40	5.37" [137]	1.50" [38]	10.50" [267]
G2	2"	50	6.12" [156]	1.56"[40]	10.81" [275]

Dimensions with G2...S Series 2-Way Valve
Assembly using UNV-035 Bracket (Bracket is 1.563" longer than UNV-001)



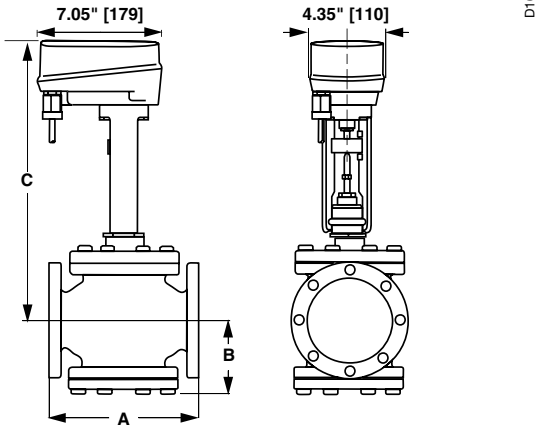
	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2S	1/2"	15	3.00" [76]	1.06" [27]	11.31" [287]
G2S	3/4"	20	3.62" [92]	1.06" [27]	11.31" [287]
G2S	1"	25	4.62" [117]	1.12" [29]	12.00" [305]
G2S	1-1/4"	32	4.62" [117]	1.37" [35]	12.00" [305]
G2S	1-1/2"	40	5.37" [137]	1.50" [38]	12.06" [306]
G2S	2"	50	6.12" [156]	1.56" [40]	12.37" [314]

Dimensions with G3...(D) Series 3-Way Valve



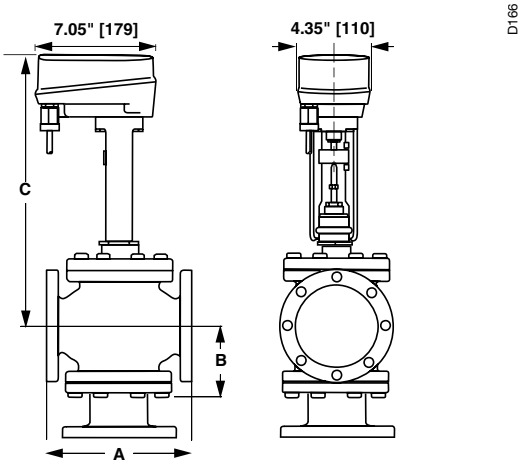
	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	1/2"	15	3.00" [76]	1.37" [35]	9.75" [248]
G3(D)	1/2"	15	3.00" [76]	1.37" [35]	9.75" [248]
G3(D)	3/4"	20	3.62" [92]	1.68" [43]	9.75" [248]
G3(D)	1"	25	4.62" [117]	1.56" [40]	9.81" [249]
G3(D)	1-1/4"	32	4.62" [117]	1.62" [41]	10.06" [256]
G3(D)	1-1/2"	40	5.37" [137]	1.62" [41]	9.18" [234]
G3(D)	2"	50	6.12" [156]	1.87" [48]	9.25" [235]

Dimensions with G6/G6C ANSI 125 and G6 ANSI 250 Series 2-Way Valve



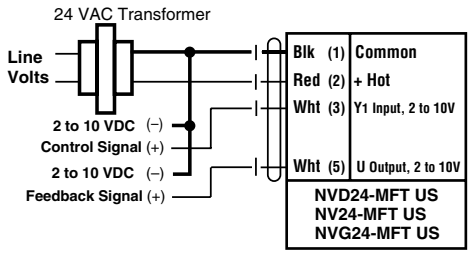
	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G6/G6C ANSI 125	2-1/2"	65	9.00" [229]	4.75" [120]	15.00" [381]
G6/G6C ANSI 125	3"	80	10.00" [254]	5.37" [137]	15.43" [392]
G6 ANSI 250	2-1/2"	65	9.62" [244]	4.75" [120]	15.00" [381]
G6 ANSI 250	3"	80	10.75" [273]	5.37" [137]	15.43" [392]

Dimensions with G7 and G7D ANSI 125/250 Series 3-Way Valve

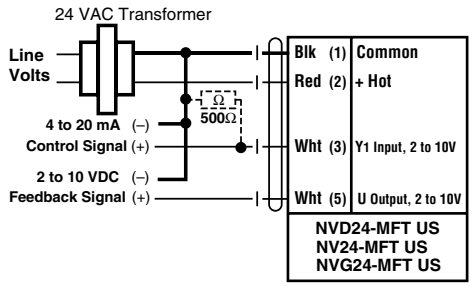


	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G7 ANSI 125	2-1/2"	65	9.00" [229]	7.12" [181]	15.37" [391]
G7 ANSI 125	3"	80	10.00" [254]	8.00" [203]	15.93" [405]
G7D ANSI 125	2-1/2"	65	9.00" [229]	7.12" [181]	15.12" [384]
G7D ANSI 125	3"	80	10.00" [254]	8.00" [203]	15.93" [405]
G7D ANSI 125	4"	100	13.00" [330]	9.87" [251]	16.75" [425]
G7 ANSI 250	2-1/2"	65	9.62" [244]	7.37" [187]	15.50" [394]
G7 ANSI 250	3"	80	10.75" [273]	8.37" [213]	16.12" [410]
G7D ANSI 250	2-1/2"	65	9.62" [244]	7.37" [187]	15.25" [387]
G7D ANSI 250	3"	80	10.75" [273]	8.37" [213]	16.06" [408]
G7D ANSI 250	4"	100	13.62" [346]	10.25" [260]	16.87" [429]

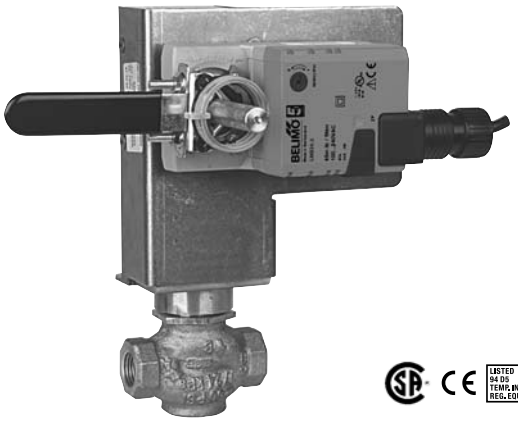
Wiring Diagrams



2 to 10 VDC Control Signal



4 to 20 mA Control Signal



5 YEAR WARRANTY

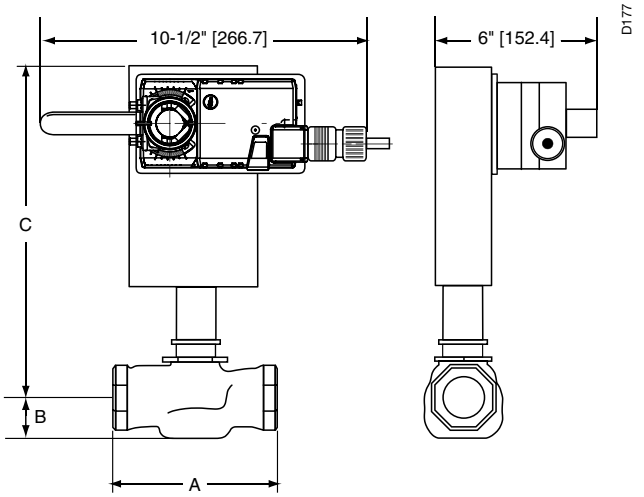
Models

LMB24-3-X1
LMB24-3-S-X1 w/built-in Aux. Switch

Technical Data	
Control	on/off, floating point
Power supply	24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption running	1.5 W
holding	0.2 W
Transformer sizing	3 VA (class 2 power source)
Electrical connection LMB24-3-X1 LMB24-3-S-X1	½" conduit connector 3 ft, 18 GA plenum rated cables 3 ft, 18 GA appliance cables
Overload protection	electronic throughout 0° to 95° rotation
Input impedance	600 Ω
Angle of rotation	95°
Torque	45 in-lb [5 Nm]
Direction of rotation	reversible with ↷/↶ switch
Position indication	reflective visual indicator (snap-on)
Manual override	external push button
Running time	95 seconds, constant independent of load
Humidity	5 to 95% RH non-condensing (EN 60730-1)
Ambient temperature	-22° F to 122° F [-30° C to 50° C]
Storage temperature	-40° F to 176° F [-40° C to 80° C]
Housing	NEMA type 2/IP54
Housing material	UL94-5VA
Agency listings	cULus acc. to UL 60730-1/-2-14, CAN/CSA C22.2 No. 24 certified, CE acc. to 73/23/EEC
Noise level	<35 db(A)
Quality standard	ISO 9001

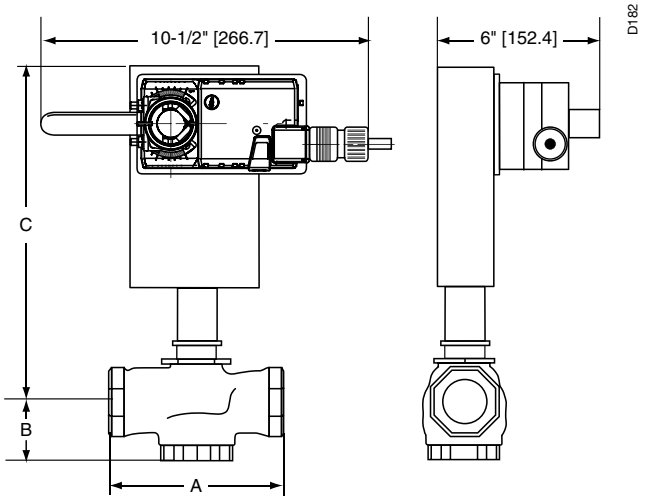
LMB24-3-S-X1	
Auxiliary switch	1 x SPDT, 6A (1.5A) @ 250 VAC, UL Listed, adjustable 0° to 95° (double insulated)

Dimensions with G2...(S) Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	½"	15	3.00" [76]	1.06" [27]	7.56" [192]
G2(S)	¾"	20	3.62" [92]	1.06" [27]	7.56" [192]

Dimensions with G3...(D) Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	½"	15	3.00" [76]	1.37" [35]	7.87" [200]
G3(D)	¾"	20	3.62" [92]	1.68" [43]	8.18" [208]

Wiring Diagrams

INSTALLATION NOTES

1 Provide overload protection and disconnect as required.

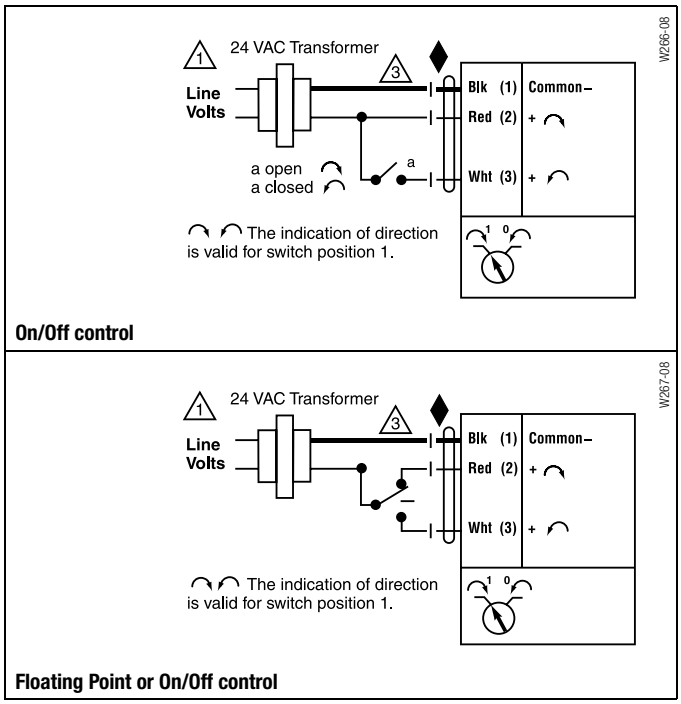
3 Actuators may also be powered by 24 VDC.

APPLICATION NOTES

Meets cULus or UL and CSA requirements without the need of an electrical ground connection.

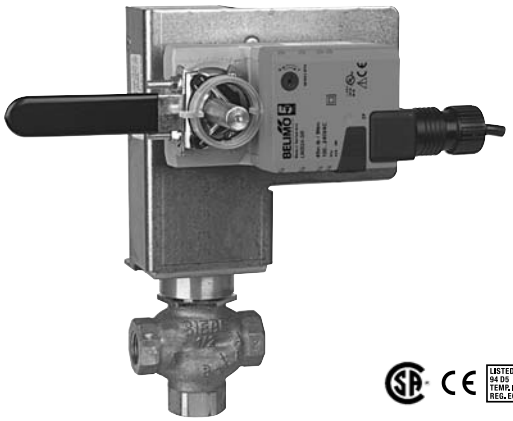
***WARNING** Live Electrical Components!*

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.



On/Off control

Floating Point or On/Off control

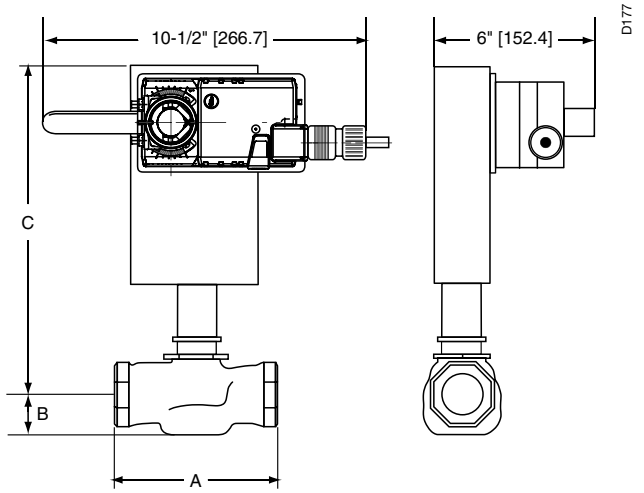


Models

LMB24-SR-X1 w/built-in Aux. Switch

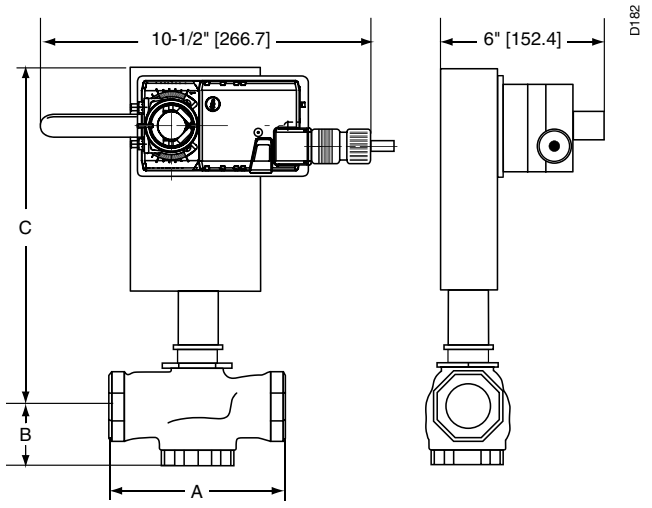
Technical Data	
Control	proportional
Power supply	24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption running	1.5 W
holding	0.4 W
Transformer sizing	3 VA (class 2 power source)
Electrical connection	3 ft, 18 GA plenum rated cable ½" conduit connector
Overload protection	electronic throughout 0° to 95° rotation
Operating range Y	2 to 10 VDC, 4 to 20 mA
Input impedance	100 kΩ (0.1 mA), 500 Ω
Angle of rotation	max 95°, adjustable with mechanical stop
Torque	45 in-lb [5 Nm]
Direction of rotation	reversible with ↷/↶ switch ↶ =CCW with decreasing control signal (10-2V) ↷ =CW with decreasing control signal (10-2V)
Position indication	reflective visual indicator (snap-on)
Manual override	external push button
Running time	95 seconds, constant independent of load
Humidity	5 to 95% RH non-condensing (EN 60730-1)
Ambient temperature	-22° F to 122° F [-30° C to 50° C]
Storage temperature	-40° F to 176° F [-40° C to 80° C]
Housing	NEMA type 2/IP54
Housing material	UL94-5VA
Agency listings	cULus acc. to UL 60730-1/-2-14, CAN/CSA C22.2 No. 24 certified, CE acc. to 73/23/EEC
Noise level	<35 db(A)
Quality standard	ISO 9001

Dimensions with G2...(S) Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	½"	15	3.00" [76]	1.06" [27]	7.56" [192]
G2(S)	¾"	20	3.62" [92]	1.06" [27]	7.56" [192]

Dimensions with G3...(D) Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	½"	15	3.00" [76]	1.37" [35]	7.87" [200]
G3(D)	¾"	20	3.62" [92]	1.68" [43]	8.18" [208]

Wiring Diagrams

INSTALLATION NOTES

1 Provide overload protection and disconnect as required.

2 ***CAUTION** Equipment damage!*
Actuators may be connected in parallel.
Power consumption and input impedance must be observed.

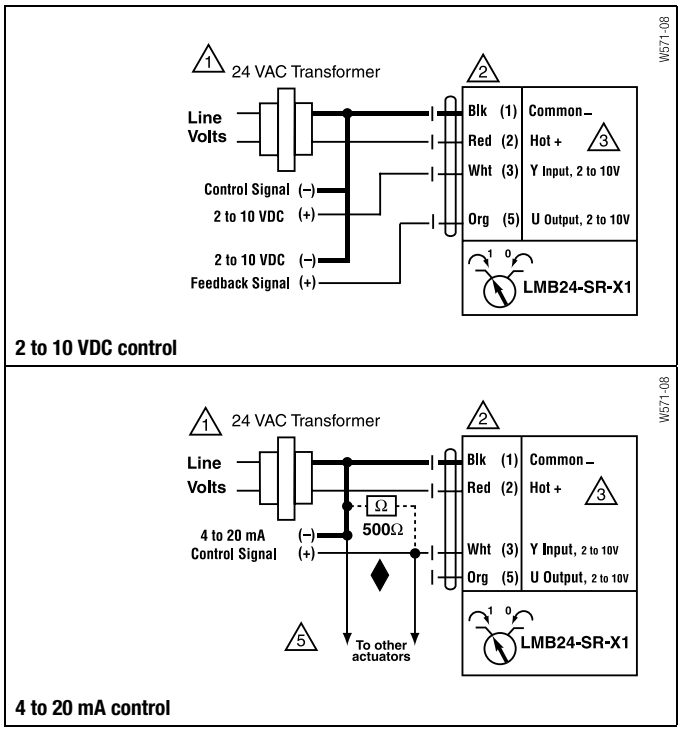
3 Actuators may also be powered by 24 VDC.

5 Only connect common to neg. (–) leg of control circuits.

APPLICATION NOTES

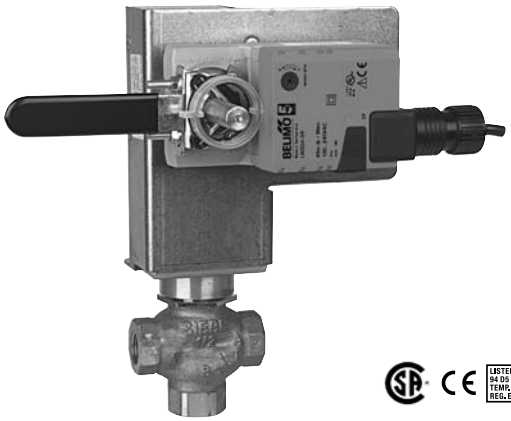
The ZG-R01 500 Ω resistor converts the 4 to 20 mA control signal to 2 to 10 VDC, up to 2 actuators may be connected in parallel.

***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.



2 to 10 VDC control

4 to 20 mA control



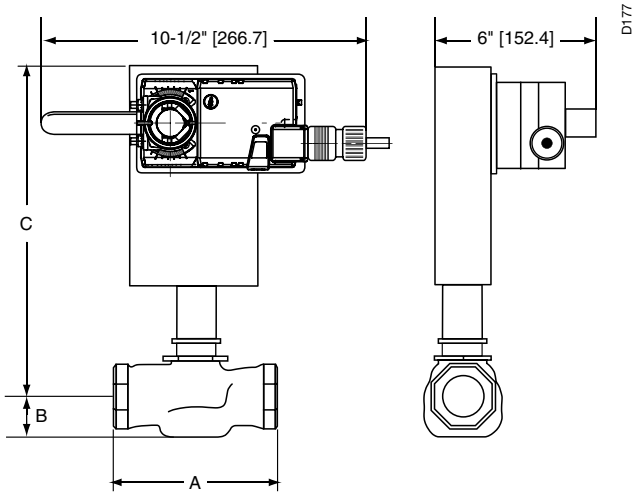
5 YEAR WARRANTY

Models

LMX24-MFT-X1

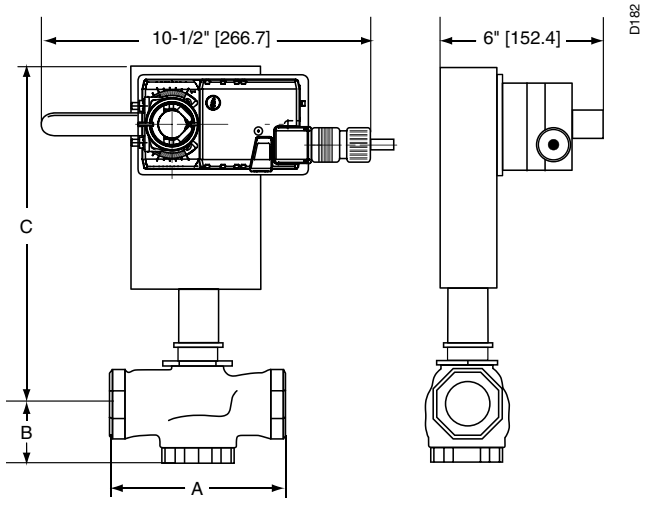
Technical Data		
Power supply		24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption		2 W (1.2 W)
Transformer sizing		3.5 VA (class 2 power source)
Electrical connection		3 ft, 10 ft, 16ft, 18 GA plenum rated cable ½" conduit connector
Overload protection		electronic throughout 0° to 95° rotation
Operating range Y		2 to 10 VDC, 4 to 20 mA (default) variable (VDC, PWM, floating point, on/off)
Input impedance		100 kΩ (0.1 mA), 500 Ω 1500 Ω (PWM, floating point, on/off)
Feedback output U		2 to 10 VDC, 0.5 mA max, VDC variable
Angle of rotation		max 95°, adjustable with mechanical stop electronically variable
Torque		45 in-lb [5 Nm]
Direction of rotation		reversible with ↷/↶ switch
Position indication		reflective visual indicator (snap-on)
Manual override		external push button
Running time	default	150 seconds
	variable	35 to 150 seconds
Humidity		5 to 95% RH non-condensing (EN 60730-1)
Ambient temperature		-22° F to 122° F [-30° C to 50° C]
Storage temperature		-40° F to 176° F [-40° C to 80° C]
Housing		NEMA type 2/IP54
Housing material		UL94-5VA
Agency listings		cULus acc. to UL 60730-1A/-2-14, CAN/CSA E60730-1, CSA C22.2 No. 24-93, CE acc. to 89/336/EEC
Noise level		<35 db(A)
Quality standard		ISO 9001

Dimensions with G2...(S) Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	½"	15	3.00" [76]	1.06" [27]	7.56" [192]
G2(S)	¾"	20	3.62" [92]	1.06" [27]	7.56" [192]

Dimensions with G3...(D) Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	½"	15	3.00" [76]	1.37" [35]	7.87" [200]
G3(D)	¾"	20	3.62" [92]	1.68" [43]	8.18" [208]

Wiring Diagrams

INSTALLATION NOTES

1 Provide overload protection and disconnect as required.

2 ***CAUTION** Equipment damage!*
Actuators may be connected in parallel.
Power consumption and input impedance must be observed.

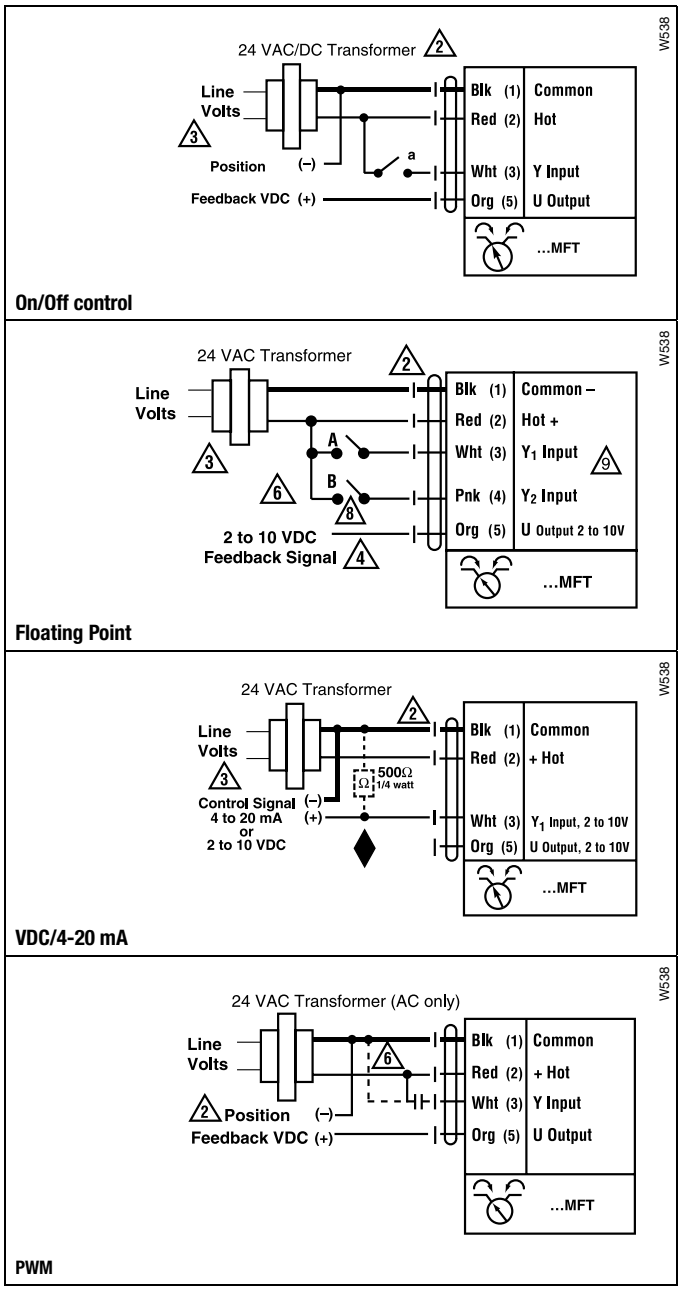
3 Actuators may also be powered by 24 VDC.

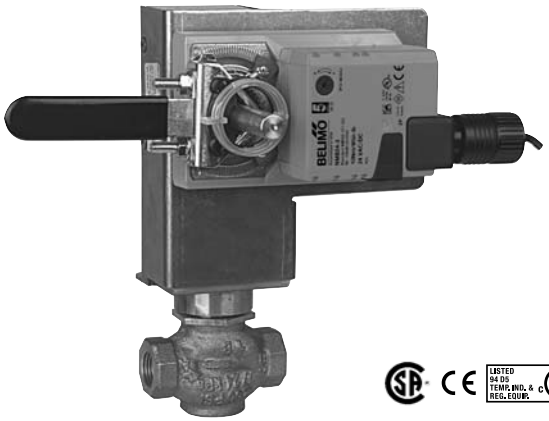
5 Only connect common to neg. (–) leg of control circuits.

APPLICATION NOTES

The ZG-R01 500 Ω resistor converts the 4 to 20 mA control signal to 2 to 10 VDC, up to 2 actuators may be connected in parallel.

***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.





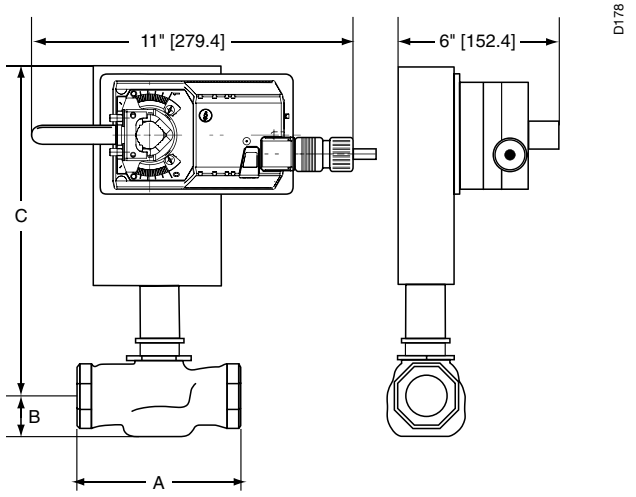
5 YEAR WARRANTY

Models

NMB24-3-X1

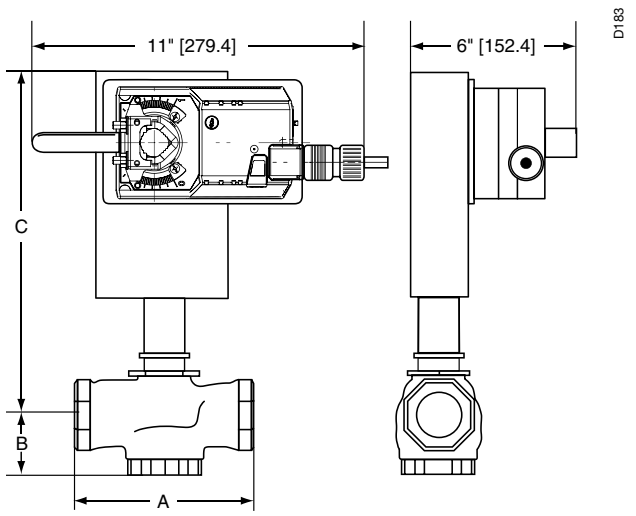
Technical Data	
Control	on/off, floating point
Power supply	24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption running	2.0 W
holding	0.2 W
Transformer sizing	4 VA (class 2 power source)
Electrical connection	3 ft, 18 GA plenum rated cable ½" conduit connector
Overload protection	electronic throughout 0° to 95° rotation
Input impedance	600 Ω
Angle of rotation	max 95°, adjustable with mechanical stop
Torque	90 in-lb [10 Nm]
Direction of rotation	reversible with ↷/↶ switch ↶ =CCW with decreasing control signal (10-2V) ↷ =CW with decreasing control signal (10-2V)
Position indication	reflective visual indicator (snap-on)
Manual override	external push button
Running time	95 seconds, constant independent of load
Humidity	5 to 95% RH non-condensing (EN 60730-1)
Ambient temperature	-22° F to 122° F [-30° C to 50° C]
Storage temperature	-40° F to 176° F [-40° C to 80° C]
Housing	NEMA type 2/IP54
Housing material	UL94-5VA
Agency listings	cULus acc. to UL 60730-1/-2-14, CAN/CSA C22.2 No. 24 certified, CE acc. to 73/23/EEC
Noise level	<45 db(A)
Quality standard	ISO 9001

Dimensions with G2...(S) Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	1"	25	4.62" [117]	1.12" [29]	8.12" [206]
G2(S)	1¼"	32	4.62" [117]	1.37" [35]	8.37" [213]

Dimensions with G3...(D) Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	1"	25	4.62" [117]	1.56" [40]	8.56" [217]
G3(D)	1¼"	32	4.62" [117]	1.62" [41]	8.62" [219]

Wiring Diagrams

INSTALLATION NOTES

1 Provide overload protection and disconnect as required.

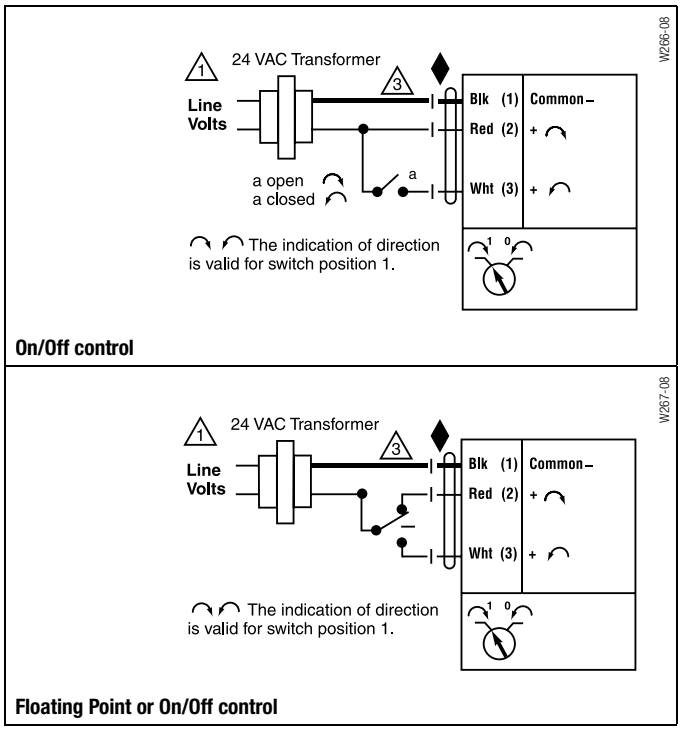
3 Actuators may also be powered by 24 VDC.

APPLICATION NOTES

Meets cULus or UL and CSA requirements without the need of an electrical ground connection.

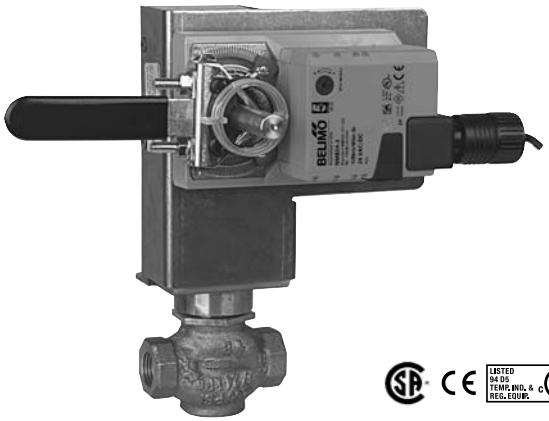
WARNING *Live Electrical Components!*

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.



On/Off control

Floating Point or On/Off control



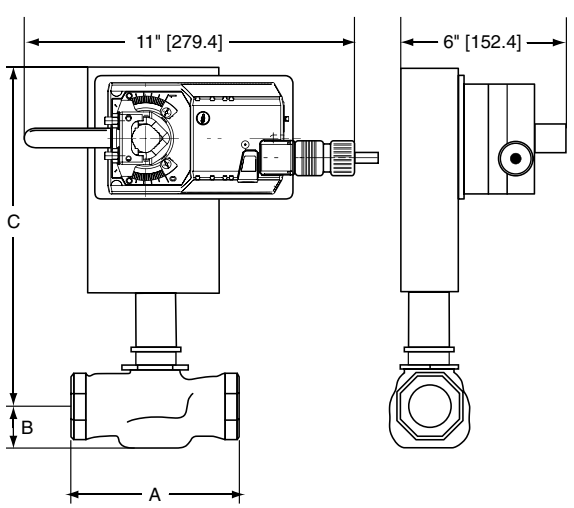
5 YEAR WARRANTY

Models

NMB24-SR-X1

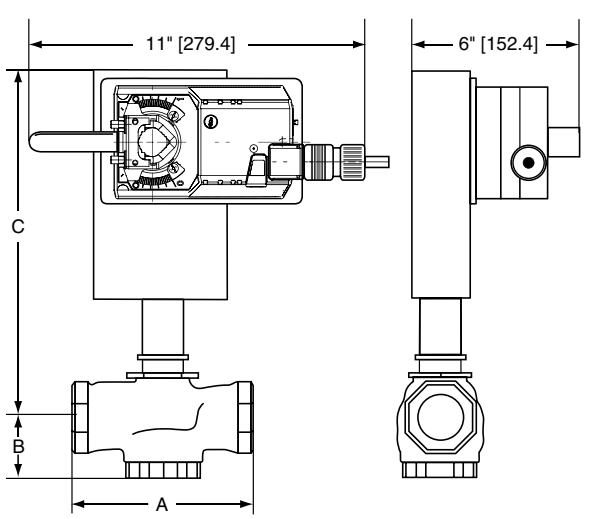
Technical Data		
Control		proportional
Power supply		24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption	running	2.5 W
	holding	0.4 W
Transformer sizing		5 VA (Class 2 power source)
Electrical connection		3 ft, 18 GA plenum rated cable ½" conduit connector
Overload protection		electronic throughout 0° to 95° rotation
Operating range Y		2 to 10 VDC, 4 to 20 mA
Input impedance		100 kΩ (0.1 mA), 500 Ω
Angle of rotation		max 95°, adjustable with mechanical stop
Torque		90 in-lb [10 Nm]
Direction of rotation		reversible with ↷/↶ switch
Position indication		reflective visual indicator (snap-on)
Manual override		external push button
Running time		95 seconds, constant independent of load
Humidity		5 to 95% RH non-condensing (EN 60730-1)
Ambient temperature		-22° F to 122° F [-30° C to 50° C]
Storage temperature		-40° F to 176° F [-40° C to 80° C]
Housing		NEMA type 2/IP54
Housing material		UL94-5VA
Agency listings		cULus acc. to UL 60730-1/-2-14, CAN/CSA C22.2 No. 24 certified, CE acc. to 73/23/EEC
Noise level		<45 db(A)
Quality standard		ISO 9001

Dimensions with G2...(S) Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	1"	25	4.62" [117]	1.12" [29]	8.12" [206]
G2(S)	1¼"	32	4.62" [117]	1.37" [35]	8.37" [213]

Dimensions with G3...(D) Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	1"	25	4.62" [117]	1.56" [40]	8.56" [217]
G3(D)	1¼"	32	4.62" [117]	1.62" [41]	8.62" [219]

Wiring Diagrams

INSTALLATION NOTES

1 Provide overload protection and disconnect as required.

2 ***CAUTION** Equipment damage!*
Actuators may be connected in parallel.
Power consumption and input impedance must be observed.

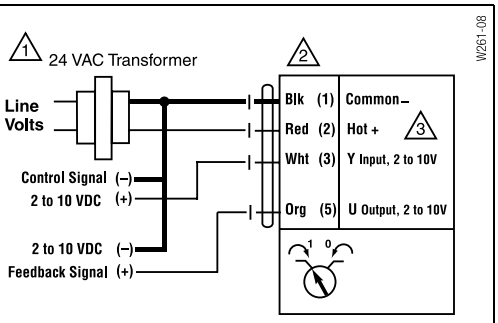
3 Actuators may also be powered by 24 VDC.

5 Only connect common to neg. (–) leg of control circuits.

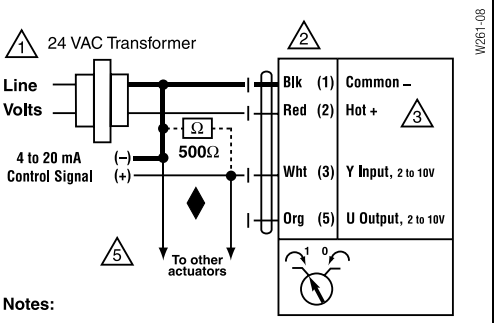
APPLICATION NOTES

Meets cULus or UL and CSA requirements without the need of an electrical ground connection.

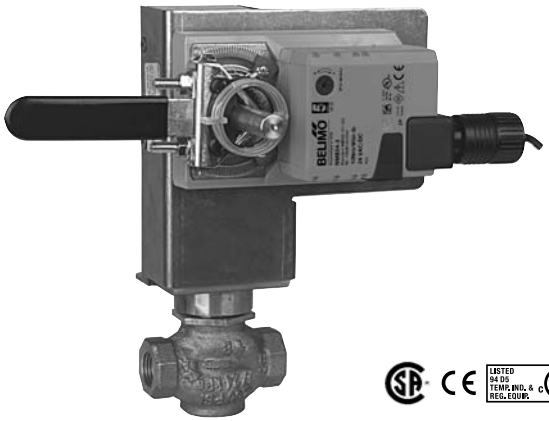
***WARNING** Live Electrical Components!*
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components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



2 to 10 VDC control



4 to 20 mA control



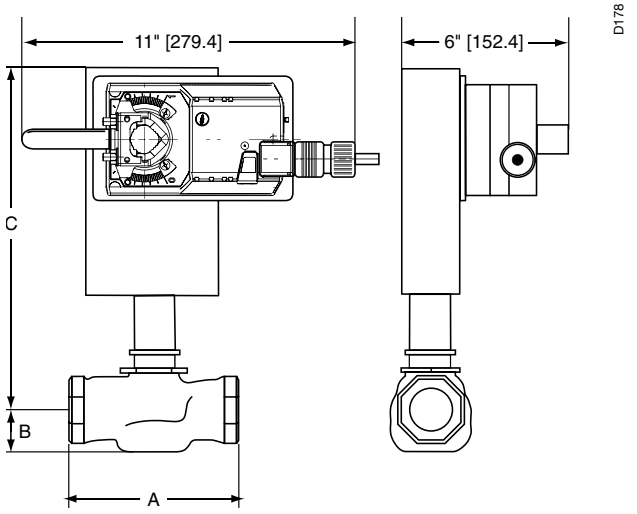
5 YEAR WARRANTY

Models

NMX24-MFT-X1

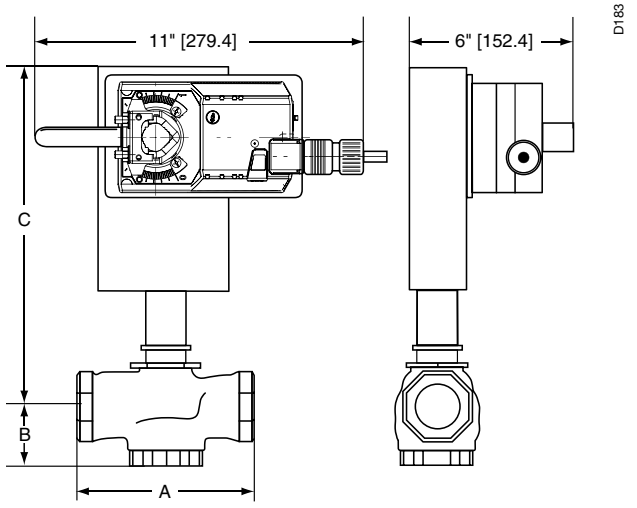
Technical Data		
Power supply		24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption		3.5 W (1.25 W)
Transformer sizing		5.5 VA (Class 2 power source)
Electrical connection		3 ft, 10ft, 16ft, 18 GA plenum rated cable ½" conduit connector
Overload protection		electronic throughout 0° to 95° rotation
Operating range Y		2 to 10 VDC, 4 to 20 mA (default) variable (VDC, PWM, floating point, on/off)
Input impedance		100 kΩ (0.1 mA), 500 Ω 1500 Ω (PWM, floating point, on/off)
Feedback output U		2 to 10 VDC, 0.5 mA max, VDC variable
Angle of rotation		max 95°, adjustable with mechanical stop electronically variable
Torque		90 in-lb [10 Nm]
Direction of rotation		reversible with ↷/↶ switch
Position indication		reflective visual indicator (snap-on)
Manual override		external push button
Running time	default variable	150 seconds 45 to 170 seconds
Humidity		5 to 95% RH non-condensing (EN 60730-1)
Ambient temperature		-22° F to 122° F [-30° C to 50° C]
Storage temperature		-40° F to 176° F [-40° C to 80° C]
Housing		NEMA type 2/IP54
Housing material		UL94-5VA
Agency listings		cULus acc. to UL 60730-1A/-2-14, CAN/CSA E60730-1, CSA C22.2 No. 24-93,CE acc. to 89/336/EEC
Noise level		<45 db(A)
Quality standard		ISO 9001

Dimensions with G2...(S) Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	1"	25	4.62" [117]	1.12" [29]	8.12" [206]
G2(S)	1¼"	32	4.62" [117]	1.37" [35]	8.37" [213]

Dimensions with G3...(D) Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	1"	25	4.62" [117]	1.56" [40]	8.56" [217]
G3(D)	1¼"	32	4.62" [117]	1.62" [41]	8.62" [219]

Wiring Diagrams

INSTALLATION NOTES

1 Provide overload protection and disconnect as required.

2 ***CAUTION** Equipment damage!*
Actuators may be connected in parallel.
Power consumption and input impedance must be observed.

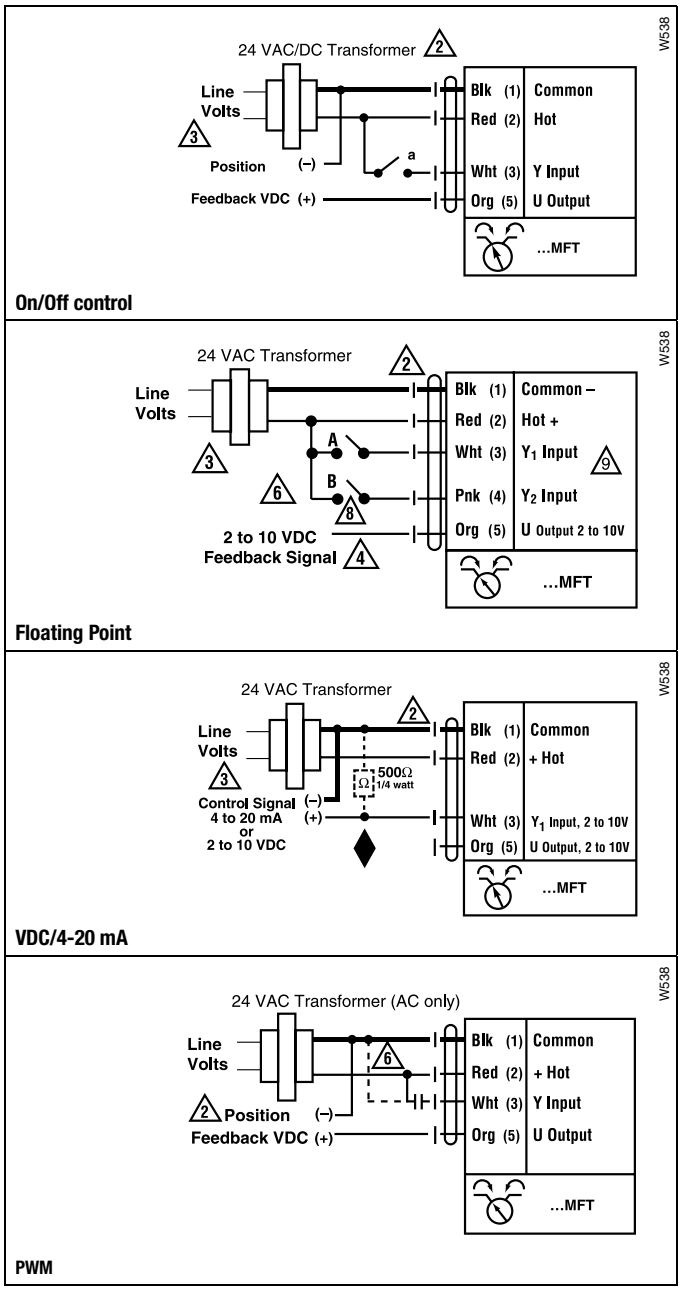
3 Actuators may also be powered by 24 VDC.

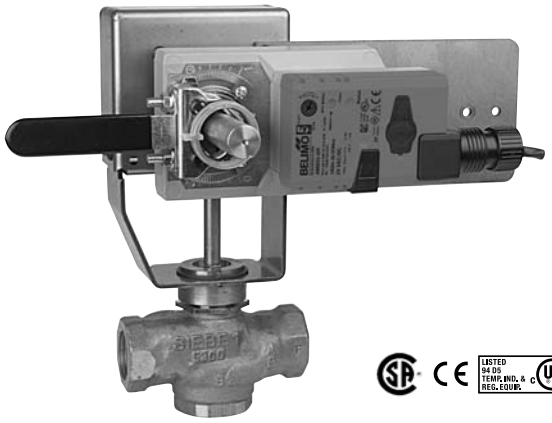
5 Only connect common to neg. (–) leg of control circuits.

APPLICATION NOTES

Meets cULus or UL and CSA 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.





5 YEAR WARRANTY

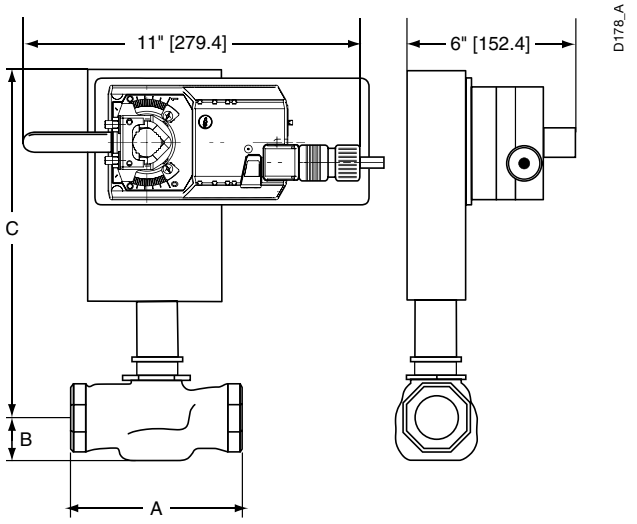
Models

AMB24-3-X1
AMB24-3-S-X1 w/built-in Aux. Switch

Technical Data	
Control	on/off, floating point
Power supply	24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption running	2.5 W
holding	0.2 W
Transformer sizing	5.5 VA (Class 2 power source)
Electrical connection AMB24-3-X1 AMB24-3-S-X1	½" conduit connector 3 ft, 18 GA plenum rated cable 3 ft, 18 GA appliance cable
Overload protection	electronic throughout 0° to 95° rotation
Input impedance	600 Ω
Angle of rotation	max 95°, adjustable with mechanical stop
Torque	180 in-lb [20 Nm]
Direction of rotation	reversible with ↷/↶ switch
Position indication	reflective visual indicator (snap-on)
Manual override	external push button
Running time	95 seconds, constant independent of load
Humidity	5 to 95% RH non-condensing (EN 60730-1)
Ambient temperature	-22° F to 122° F [-30° C to 50° C]
Storage temperature	-40° F to 176° F [-40° C to 80° C]
Housing	NEMA type 2/IP54
Housing material	UL94-5VA
Agency listings	cULus acc. to UL 60730-1/-2-14, CAN/CSA C22.2 No. 24 certified, CE acc. to 73/23/EEC
Noise level	<45 db(A)
Quality standard	ISO 9001

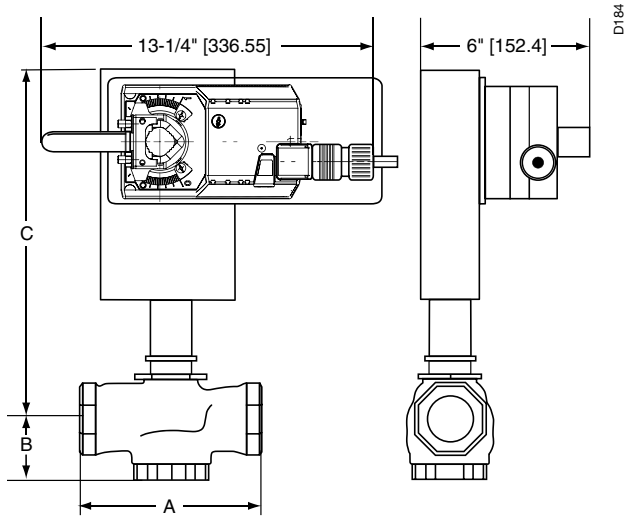
AMB24-3-S-X1	
Auxiliary switch	1 x SPDT, 6A (1.5A) @ 250 VAC, UL Listed, adjustable 0° to 95° (double insulated)

Dimensions with G2...(S) Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	1½"	40	5.37" [137]	1.50" [38]	8.50" [216]
G2(S)	2"	50	6.12" [156]	1.56" [40]	8.56" [217]

Dimensions with G3...(D) Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	1½"	40	5.37" [137]	1.62" [41]	8.62" [219]
G3(D)	2"	50	6.12" [156]	1.87" [48]	8.87" [225]

Wiring Diagrams

INSTALLATION NOTES

1 Provide overload protection and disconnect as required.

2 ***CAUTION** Equipment damage!*
Actuators may be connected in parallel.
Power consumption and input impedance must be observed.

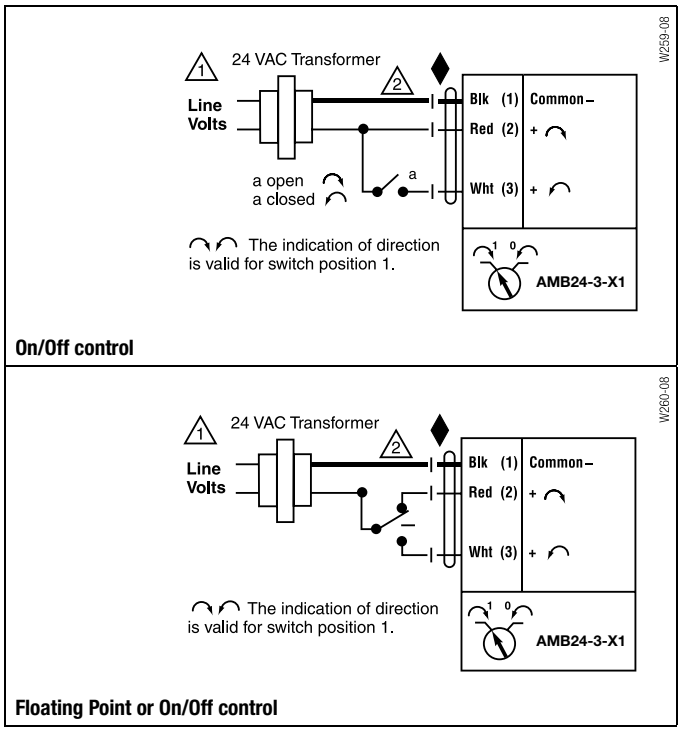
3 Actuators may also be powered by 24 VDC.

5 Only connect common to neg. (–) leg of control circuits.

APPLICATION NOTES

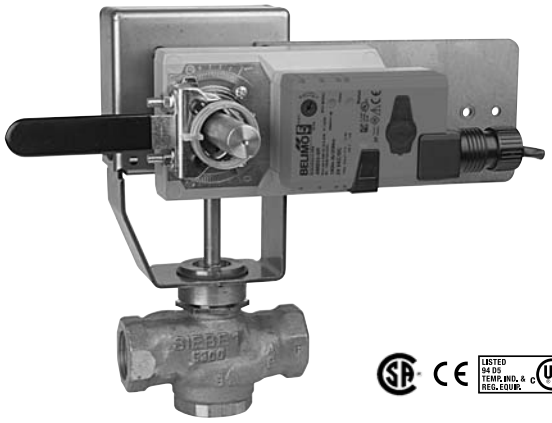
Meets cULus or UL and CSA requirements without the need of an electrical ground connection.

***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.



On/Off control

Floating Point or On/Off control

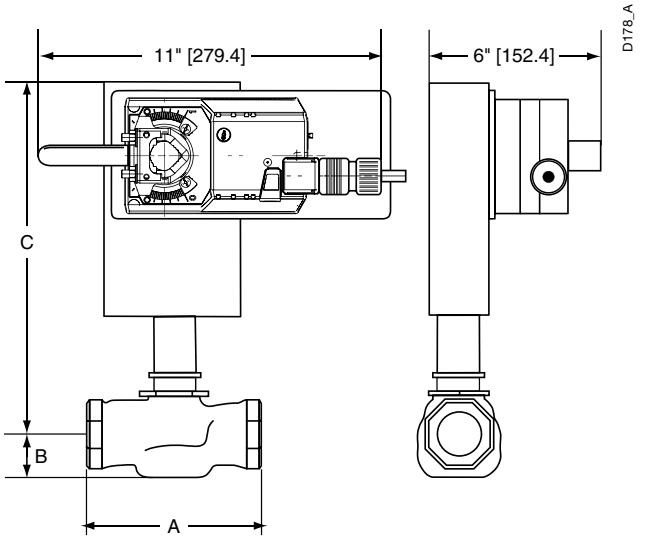


Models

AMB24-SR-X1

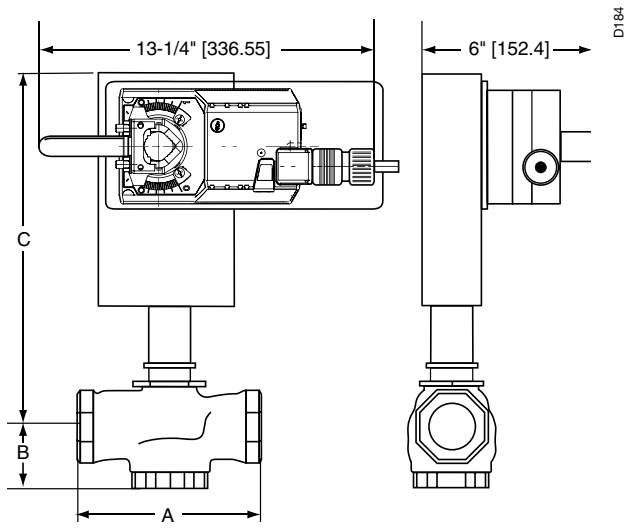
Technical Data	
Control	proportional
Power supply	24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption running	2.5 W
holding	0.4 W
Transformer sizing	5 VA (Class 2 power source)
Electrical connection	3 ft, 18 GA appliance cable ½" conduit connector
Overload protection	electronic throughout 0° to 95° rotation
Operating range Y	2 to 10 VDC, 4 to 20 mA
Input impedance	100 kΩ (0.1 mA), 500 Ω
Angle of rotation	max 95°, adjustable with mechanical stop
Torque	180 in-lb [20 Nm]
Direction of rotation	reversible with ↷/↶ switch ↶ =CCW with decreasing control signal (10-2V) ↷ =CW with decreasing control signal (10-2V)
Position indication	reflective visual indicator (snap-on)
Manual override	external push button
Running time	95 seconds, constant independent of load
Humidity	5 to 95% RH non-condensing (EN 60730-1)
Ambient temperature	-22° F to 122° F [-30° C to 50° C]
Storage temperature	-40° F to 176° F [-40° C to 80° C]
Housing	NEMA type 2/IP54
Housing material	UL94-5VA
Agency listings	cULus acc. to UL 60730-1/-2-14, CAN/CSA C22.2 No. 24 certified, CE acc. to 73/23/EEC
Noise level	<45 db(A)
Quality standard	ISO 9001

Dimensions with G2...(S) Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	1½"	40	5.37" [137]	1.50" [38]	8.50" [216]
G2(S)	2"	50	6.12" [156]	1.56" [40]	8.56" [217]

Dimensions with G3...(D) Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	1½"	40	5.37" [137]	1.62" [41]	8.62" [219]
G3(D)	2"	50	6.12" [156]	1.87" [48]	8.87" [225]

Wiring Diagrams

INSTALLATION NOTES

1 Provide overload protection and disconnect as required.

2 ***CAUTION** Equipment damage!*
Actuators may be connected in parallel.
Power consumption and input impedance must be observed.

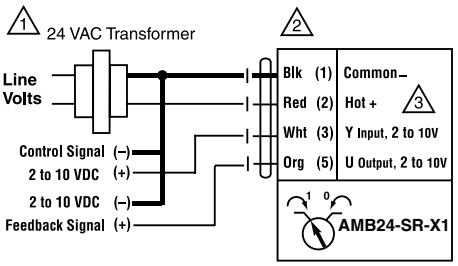
3 Actuators may also be powered by 24 VDC.

5 Only connect common to neg. (–) leg of control circuits.

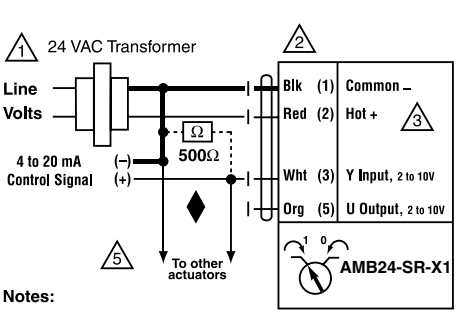
APPLICATION NOTES

The ZG-R01 500 Ω resistor converts the 4 to 20 mA control signal to 2 to 10 VDC, up to 2 actuators may be connected in parallel.

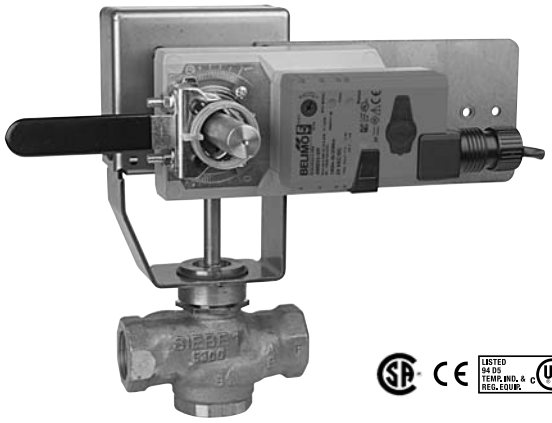
***WARNING** Live Electrical Components!*
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components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



2 to 10 VDC Control



4 to 20 mA Control



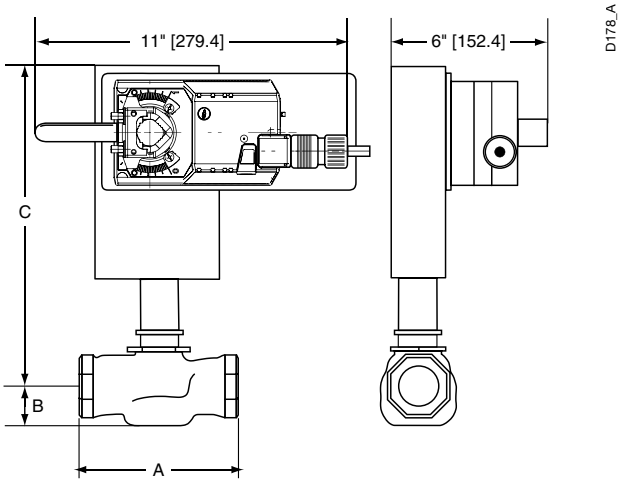
5 YEAR WARRANTY

Models

AMX24-MFT-X1

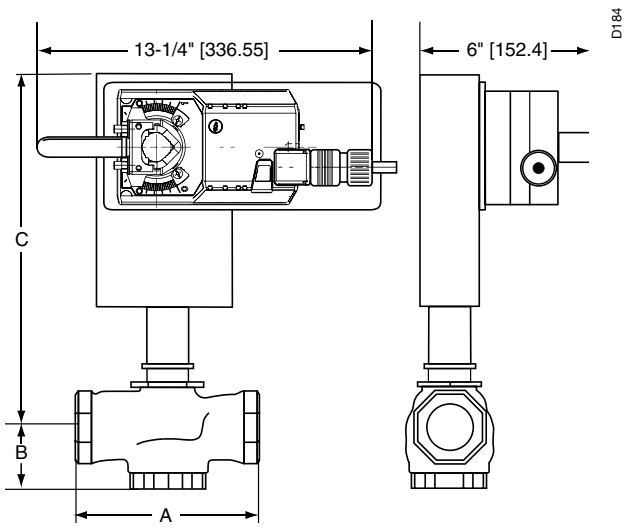
Technical Data		
Power supply		24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption		4 W (1.25 W)
Transformer sizing		6 VA (Class 2 power source)
Electrical connection		3 ft, 10ft, 16ft, 18 GA plenum rated cable ½" conduit connector
Overload protection		electronic throughout 0° to 95° rotation
Operating range Y		2 to 10 VDC, 4 to 20 mA (default) variable (VDC, PWM, floating point, on/off)
Input impedance		100 kΩ (0.1 mA), 500 Ω 1500 Ω (PWM, floating point, on/off)
Feedback output U		2 to 10 VDC, 0.5 mA max, VDC variable
Angle of rotation		max 95°, adjustable with mechanical stop electronically variable
Torque		180 in-lb [20 Nm]
Direction of rotation		reversible with ↷/↶ switch
Position indication		reflective visual indicator (snap-on)
Manual override		external push button
Running time	default	150 seconds
	variable	90 to 350 seconds
Humidity		5 to 95% RH non-condensing (EN 60730-1)
Ambient temperature		-22° F to 122° F [-30° C to 50° C]
Storage temperature		-40° F to 176° F [-40° C to 80° C]
Housing		NEMA type 2/IP54
Housing material		UL94-5VA
Agency listings		cULus acc. to UL 60730-1A/-2-14, CAN/CSA E60730-1, CSA C22.2 No. 24-93,CE acc. to 89/336/EEC
Noise level		<45 db(A)
Quality standard		ISO 9001

Dimensions with G2...(S) Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	1½"	40	5.37" [137]	1.50" [38]	8.50" [216]
G2(S)	2"	50	6.12" [156]	1.56" [40]	8.56" [217]

Dimensions with G3...(D) Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	1½"	40	5.37" [137]	1.62" [41]	8.62" [219]
G3(D)	2"	50	6.12" [156]	1.87" [48]	8.87" [225]

Wiring Diagrams

INSTALLATION NOTES

1 Provide overload protection and disconnect as required.

2 ***CAUTION** Equipment damage!*
Actuators may be connected in parallel.
Power consumption and input impedance must be observed.

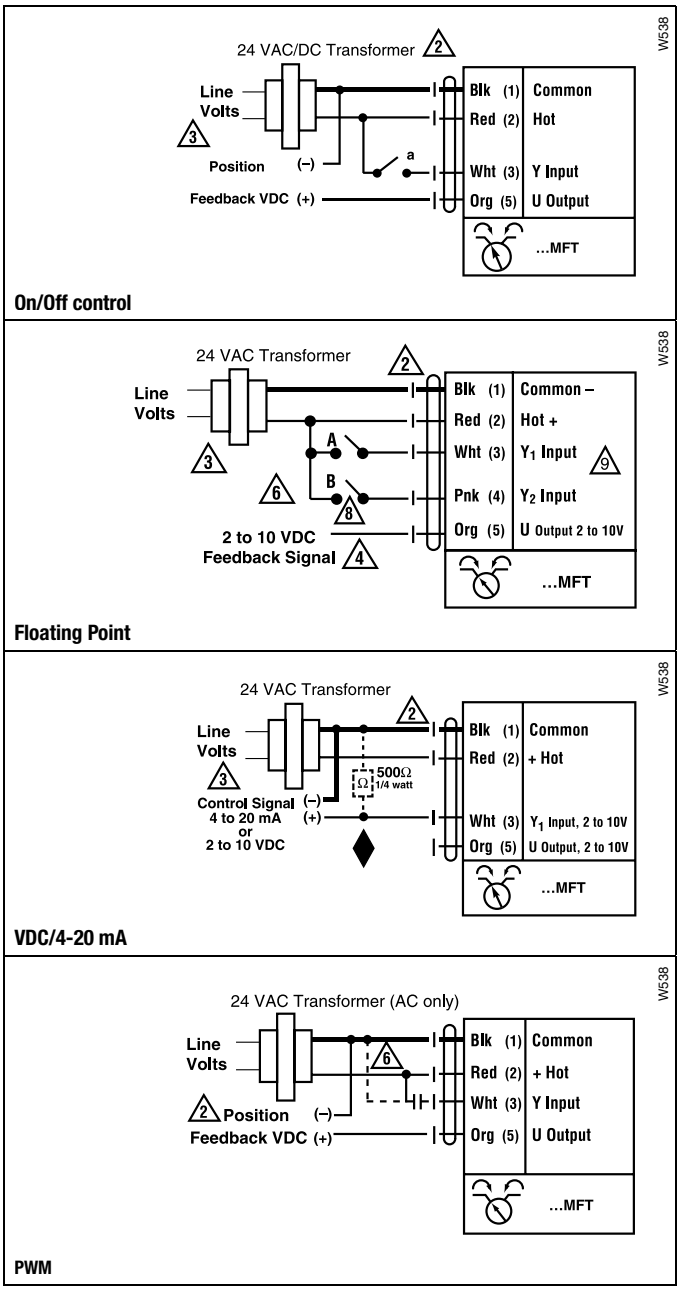
3 Actuators may also be powered by 24 VDC.

5 Only connect common to neg. (–) leg of control circuits.

APPLICATION NOTES

The ZG-R01 500 Ω resistor converts the 4 to 20 mA control signal to 2 to 10 VDC, up to 2 actuators may be connected in parallel.

***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.



5 YEAR WARRANTY

CE LISTED 94 DS TEMP.IND. & REG.EQUIP. c UL us

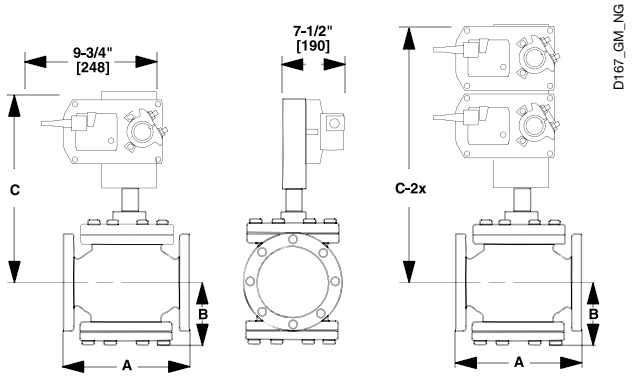
BRUSHLESS DC motor

Models

GMB24-3-X1
2xGMB24-3-X1

Technical Data		
Power supply		24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption	running	4 W
	holding	2 W
Transformer sizing		6 VA (Class 2 power source)
Electrical connection		3 ft [1m] 18 GA plenum rated cable ½" conduit connector
Overload protection		electronic throughout stroke
Control		on/off, floating point
Angle of rotation		95°
Direction of rotation		reversible with ↷/↶ switch
Position indication		reflective visual indicator (snap-on)
Running time		150 seconds, constant independent of load
Humidity		5 to 95% RH non-condensing
Ambient temperature		-22°F to 122°F [-30°C to 50°C]
Housing		NEMA 2/IP54 with cable entry down
Housing material		UL94-5V (flammability rating)
Agency listings		cULus acc. to UL 60730-1A/-2-14, CAN/CSA E60730-1, CSA C22.2 No. 24-93, CE acc. to 89/336/EEC
Noise level		<45 dB(A)
Quality standard		ISO 9001

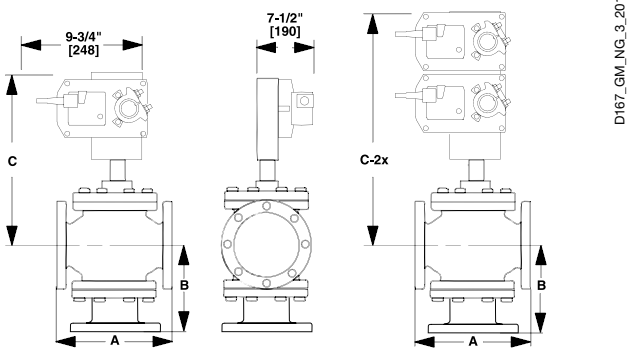
Dimensions with G6/G6C ANSI 125 and G6/G6C ANSI 250 Series 2-Way Valve



Valve Body	Valve Nominal Size Inches	DN [mm]	Dimensions (Inches [mm]) A	B	C
G6 ANSI 125	2½"	65	9.00" [229]	4.75" [121]	13.50" [343]
G6 ANSI 125	3"	80	10.00" [254]	5.37" [136]	13.93" [355]
G6 ANSI 125	4"	100	13.00" [330]	6.37" [162]	16.00" [406]
G6 ANSI 250	2½"	65	9.62" [244]	4.75" [121]	13.50" [343]
G6 ANSI 250	3"	80	10.75" [273]	5.37" [136]	13.93" [355]
G6 ANSI 250	4"	100	13.62" [346]	6.37" [162]	16.00" [406]
G6C ANSI 125	4"	100	13.00" [330]	6.87" [175]	15.50" [394]
G6C ANSI 125	5"	125	15.75" [400]	7.87" [200]	16.12" [410]
G6C ANSI 125	6"	150	17.75" [451]	8.50" [216]	16.75" [425]
G6C ANSI 250	4"	100	13.62" [346]	6.87" [175]	15.50" [394]
G6C ANSI 250	5"	125	16.62" [422]	7.87" [200]	16.12" [410]
G6C ANSI 250	6"	150	18.62" [473]	8.50" [216]	16.75" [425]

Valve Body	Valve Nominal Size Inches	DN [mm]	Dimensions (Inches [mm]) A	B	C-2x
G6 ANSI 125	2½"	65	9.00" [229]	4.75" [121]	18.25" [464]
G6 ANSI 125	3"	80	10.00" [254]	5.37" [136]	19.18" [487]
G6 ANSI 250	2½"	65	9.62" [244]	4.75" [121]	18.25" [464]
G6 ANSI 250	3"	80	10.75" [273]	5.37" [136]	19.18" [487]

Dimensions with G7 and G7D ANSI 125/250 Series 3-Way Valve

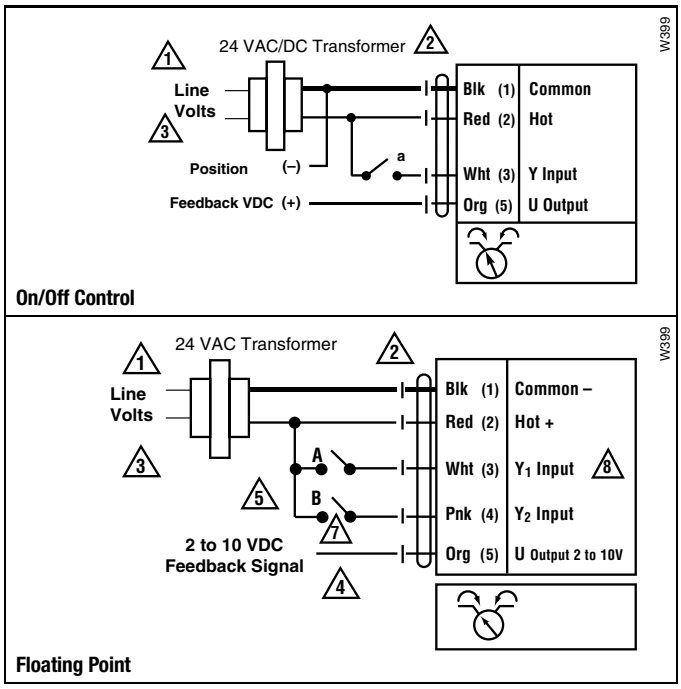


	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G7 & G7D ANSI 125	2-1/2"	65	9.00" [229]	7.12" [181]	13.87" [352]
G7 & G7D ANSI 125	3"	80	10.00" [254]	8.00" [203]	14.43" [367]
G7 & G7D ANSI 125	4"	100	13.00" [330]	9.87" [251]	15.50" [394]
G7D ANSI 125	5"	125	12.00" [305]	10.50" [267]	14.12" [359]
G7D ANSI 125	6"	150	14.12" [359]	11.12" [282]	15.12" [505]
G7 & G7D ANSI 250	2-1/2"	65	9.62" [244]	7.37" [187]	13.87" [352]
G7 & G7D ANSI 250	3"	80	10.75" [273]	8.37" [213]	14.43" [367]
G7 & G7D ANSI 250	4"	100	13.62" [346]	10.25" [260]	15.50" [394]
G7D ANSI 250	5"	125	12.87" [327]	11.00"[279]	14.12" [359]
G7D ANSI 250	6"	150	14.50" [368]	11.50" [292]	15.12" [505]

	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C-2x
G7 ANSI 125	2-1/2"	65	9.00" [229]	7.12" [181]	18.62 [473]
G7 ANSI 125	3"	80	10.00" [254]	8.00" [203]	19.18 [487]
G7 ANSI 125	4"	100	13.00" [330.2]	9.87" [251]	20.25 [514]
G7 ANSI 125	5"	125	15.75" [400]	9.25" [235]	18.87 [480]
G7 ANSI 125	6"	150	17.75" [451]	9.87" [251]	19.87 [505]
G7 ANSI 250	2-1/2"	65	9.62" [244]	7.37" [187]	18.75 [476]
G7 ANSI 250	3"	80	10.75" [273]	8.37" [213]	19.37 [492]
G7 ANSI 250	4"	100	13.62" [346]	10.25" [260]	20.37 [517]
G7 ANSI 250	5"	125	16.62" [422]	10.37" [264]	19.25 [489]
G7 ANSI 250	6"	150	18.62" [473]	11.00 [279]	19.75 [502]

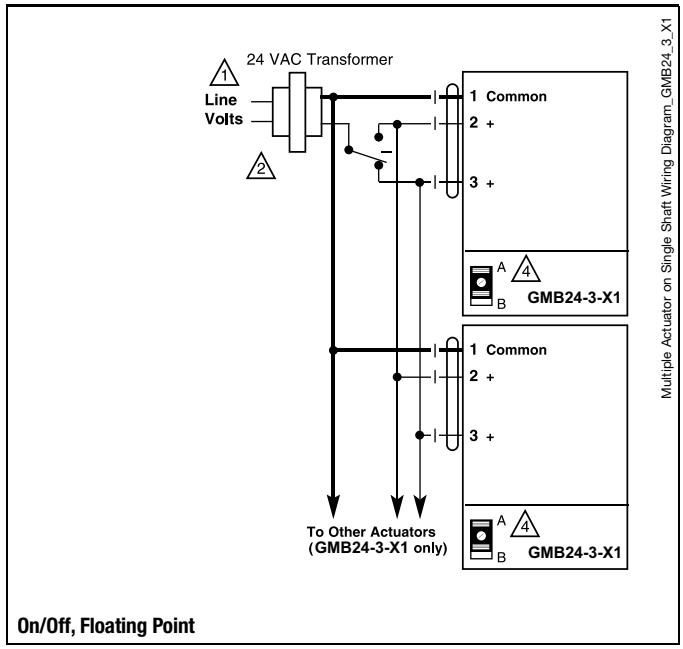
Wiring Diagrams

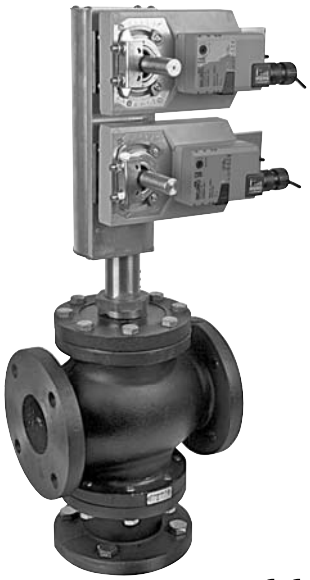
1. Provide overload protection and disconnect as required.
2. Actuators may be connected in parallel if not mechanically mounted to the same shaft. Power consumption and input impedance must be observed.
3. Actuators may also be powered by 24 VDC.
4. Position feedback cannot be used with Triac sink controller. The actuator internal common reference is not compatible.
5. Control signal may be pulsed from either the Hot (source) or the Common (sink) 24 VAC line.
7. Contact closures A & B also can be triacs. A& B should both be closed for triac source and open for triac sink.
8. For triac sink the common connection from the actuator must be connected to the hot connection of the controller.



Wiring Diagrams for Multiple On/Off, Floating Point Actuators

1. Provide overload protection and disconnect as required.
2. Actuators may be connected in parallel. Power consumption and input impedance must be observed.
3. Actuators may also be powered by 24 VDC.
4. Set reversing switch (CCW-CW) (A-B) as required by control logic and control range..





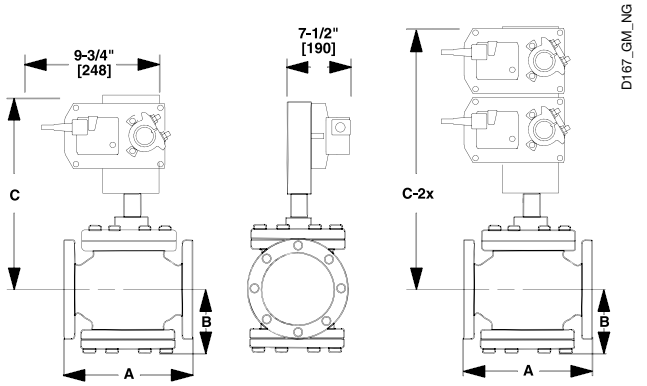
MFT 5 YEAR WARRANTY

Models

GMX24-MFT-X1
2*GMX24-MFT-X1

Technical Data	
Control	MFT
Control signal	2 to 10 VDC, floating point, on/off, PWM, 0-135 Ω (MFT95)
Power supply	24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption running	4.5 W
holding	3 W
Transformer sizing	7 VA (Class 2 power source)
Electrical connection	3 ft [1m] 18 GA plenum rated cable ½" conduit connector
Overload protection	electronic throughout stroke
Input impedance	100 kΩ for 2 to 10 VDC (0.1 mA) 500 Ω for 4 to 20 mA 750 Ω for PWM 1500 Ω for on/off and floating point
Feedback	2 to 10 VDC, 0.5 mA max VDC variable
Angle of rotation	95°
Direction of rotation	reversible with ↷/↶ switch
Position indication	reflective visual indicator (snap-on)
Running time	150 seconds, constant independent of load
Humidity	5 to 95% RH non-condensing
Ambient temperature	-22°F to 122°F [-30°C to 50°C]
Housing	NEMA 2/IP54 with cable entry down
Housing material	UL94-5V (flammability rating)
Agency listings	cULus acc. to UL 60730-1A/-2-14, CAN/CSA E60730-1, CSA C22.2 No. 24-93, CE acc. to 89/336/EEC
Noise level	<45 dB(A)
Quality standard	ISO 9001

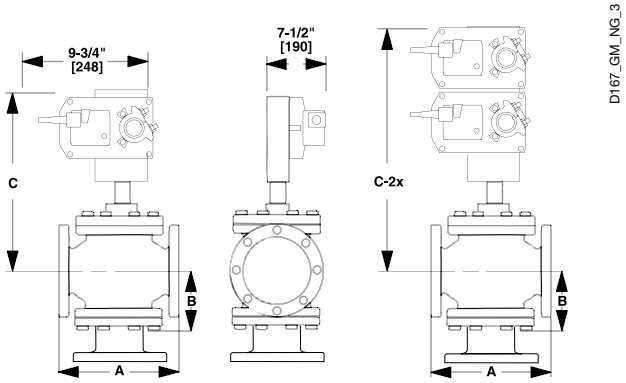
Dimensions with G6/G6C ANSI 125 and G6/G6C ANSI 250 Series 2-Way Valve



Valve Body	Valve Nominal Size Inches	DN [mm]	Dimensions (Inches [mm]) A	B	C
G6 ANSI 125	2½"	65	9.00" [229]	4.75" [121]	13.50" [343]
G6 ANSI 125	3"	80	10.00" [254]	5.37" [136]	13.93" [355]
G6 ANSI 125	4"	100	13.00" [330]	6.37" [162]	16.00" [406]
G6 ANSI 250	2½"	65	9.62" [244]	4.75" [121]	13.50" [343]
G6 ANSI 250	3"	80	10.75" [273]	5.37" [136]	13.93" [355]
G6 ANSI 250	4"	100	13.62" [346]	6.37" [162]	16.00" [406]
G6C ANSI 125	4"	100	13.00" [330.2]	6.87" [175]	15.50" [394]
G6C ANSI 125	5"	125	15.75" [400]	7.87" [200]	16.12" [410]
G6C ANSI 125	6"	150	17.75" [451]	8.50" [216]	16.75" [425]
G6C ANSI 250	4"	100	13.62" [346]	6.87" [175]	15.50" [394]
G6C ANSI 250	5"	125	16.62" [422]	7.87" [200]	16.12" [410]
G6C ANSI 250	6"	150	18.62" [473]	8.50" [216]	16.75" [425]

Valve Body	Valve Nominal Size Inches	DN [mm]	Dimensions (Inches [mm]) A	B	C-2x
G6 ANSI 125	2½"	65	9.00" [229]	4.75" [121]	18.25" [464]
G6 ANSI 125	3"	80	10.00" [254]	5.37" [136]	19.18" [487]
G6 ANSI 250	2½"	65	9.62" [244]	4.75" [121]	18.25" [464]
G6 ANSI 250	3"	80	10.75" [273]	5.37" [136]	19.18" [487]

Dimensions with G7 and G7D ANSI 125/250 Series 3-Way Valve



Valve Body	Valve Nominal Size Inches	DN [mm]	Dimensions (Inches [mm]) A	B	C
G7 & G7D ANSI 125	2½"	[65]	9.00" [229]	7.12" [181]	13.87" [352]
G7 & G7D ANSI 125	3"	[80]	10.00" [254]	8.00" [203]	14.43" [367]
G7 & G7D ANSI 125	4"	[100]	13.00" [330.2]	9.87" [251]	15.50" [394]
G7D ANSI 125	5"	[125]	12.00" [305]	10.50" [267]	14.12" [359]
G7D ANSI 125	6"	[150]	14.12" [359]	11.12" [282]	15.12" [505]
G7 & G7D ANSI 250	2½"	[65]	9.62" [244]	7.37" [187]	13.87" [352]
G7 & G7D ANSI 250	3"	[80]	10.75" [273]	8.37" [213]	14.43" [367]
G7 & G7D ANSI 250	4"	[100]	13.62" [346]	10.25" [260]	15.50" [394]
G7D ANSI 250	5"	[125]	12.87" [327]	11.00" [279]	14.12" [359]
G7D ANSI 250	6"	[150]	14.50" [368]	11.50" [292]	15.12" [505]

Valve Body	Valve Nominal Size Inches	DN [mm]	Dimensions (Inches [mm]) A	B	C-2x
G7 ANSI 125	2½"	[65]	9.00" [229]	7.12" [181]	18.58" [473]
G7 ANSI 125	3"	[80]	10.00" [254]	8.00" [203]	19.18" [487]
G7 ANSI 125	4"	[100]	13.00" [330.2]	9.87" [251]	20.25" [514]
G7 ANSI 125	5"	[125]	15.75" [400]	9.25" [235]	18.87" [480]
G7 ANSI 125	6"	[150]	17.75" [451]	9.87" [251]	19.87" [505]
G7 ANSI 250	2½"	[65]	9.62" [244]	7.37" [187]	18.75" [476]
G7 ANSI 250	3"	[80]	10.75" [273]	8.37" [213]	19.37" [492]
G7 ANSI 250	4"	[100]	13.62" [346]	10.25" [260]	20.37" [517]
G7 ANSI 250	5"	[125]	16.62" [422]	10.37" [264]	19.25" [489]
G7 ANSI 250	6"	[150]	18.62" [473]	11.00" [279]	19.75" [502]

Wiring Diagrams

1 Provide overload protection and disconnect as required.

2 Actuators may be connected in parallel if not mechanically mounted to the same shaft. Power consumption and input impedance must be observed.

3 Actuators may also be powered by 24 VDC.

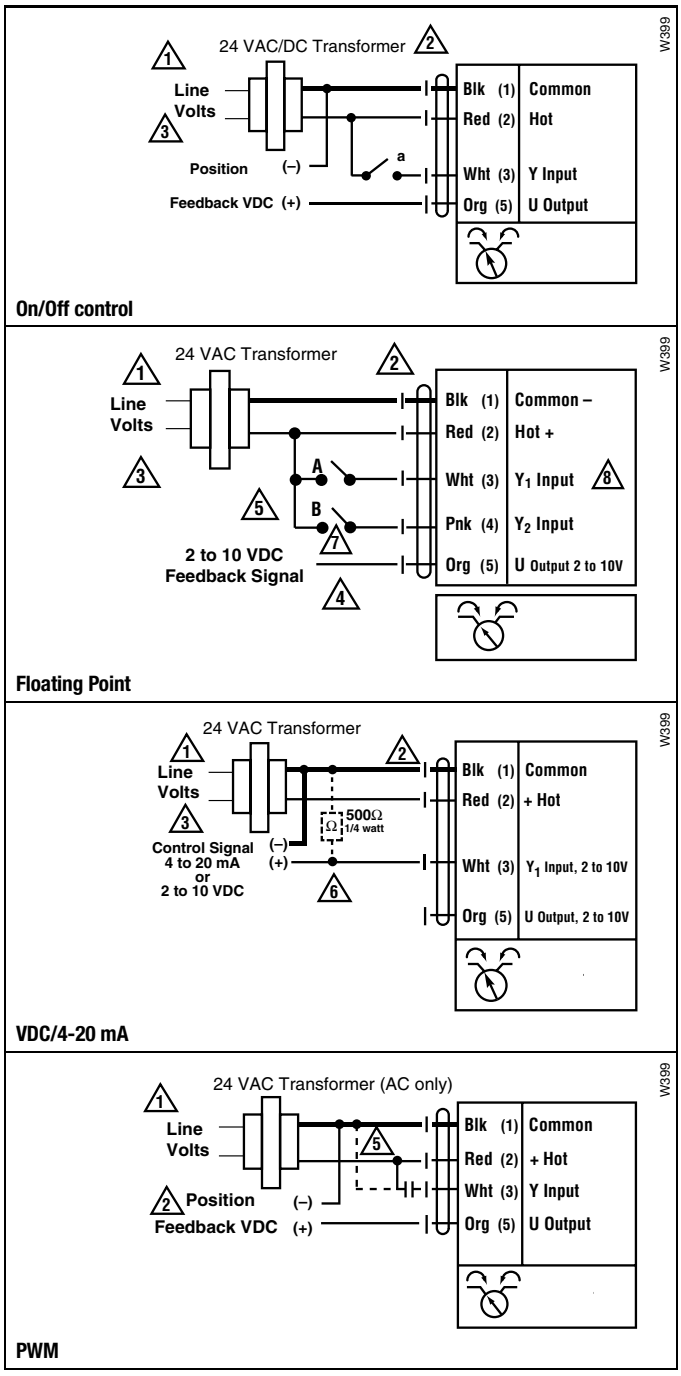
4 Position feedback cannot be used with Triac sink controller. The actuator internal common reference is not compatible.

5 Control signal may be pulsed from either the Hot (source) or the Common (sink) 24 VAC line.

6 ZG-R01 may be used.

7 Contact closures A & B also can be triacs. A& B should both be closed for triac source and open for triac sink.

8 For triac sink the common connection from the actuator must be connected to the hot connection of the controller.



Wiring Diagrams for Multiple MFT Actuators

1 Provide overload protection and disconnect as required.

3 Actuators may also be powered by 24 VDC.

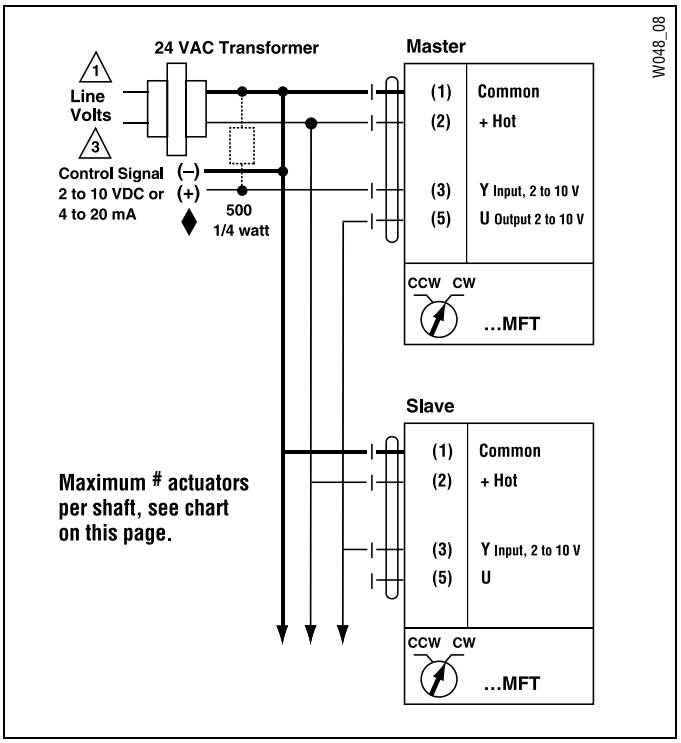
5 Control signal may be pulsed from either the Hot (source) or the Common (sink) 24 VAC line.

APPLICATION NOTES

♦ The ZG-R01 500 Ω resistor may be used.

***WARNING** Live Electrical Components!*

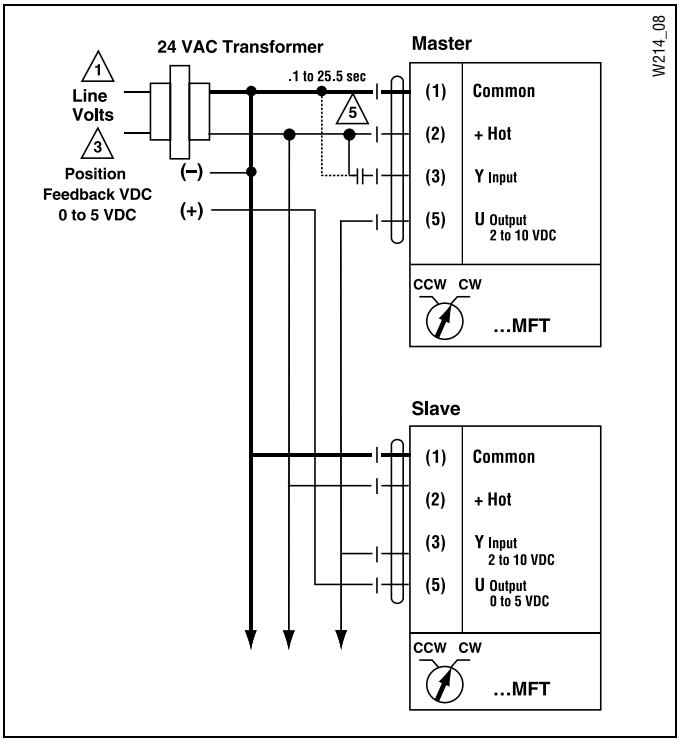
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow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



Wiring multiple …MFT actuators to one shaft.
All MFT actuators are wired in master-slave configuration.

Wiring of multiple …MFT actuators on valves must be master-slave (wires 3-5).

MFT actuator configurations should also co-ordinate with each other.
Meaning the master input = controllers output. Master output = slave input. Slave output = controller input.



Controller Output	Master Feedback	Slave Input	Slave Feedback
0.1 to 25.5 sec	2 to 10 VDC	2 to 10 VDC	0 to 5 VDC

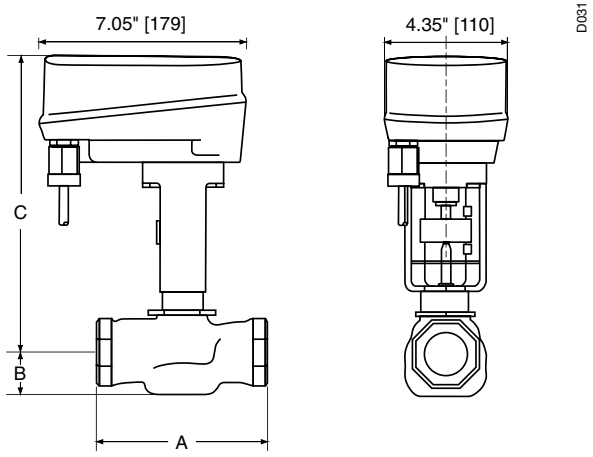
NVF(D)24(-E) US Actuators, On/Off

Models

NVF24 US	Spring Up
NVF24-E US	Spring Down
NVFD24 US	Spring Up
NVFD24-E US	Spring Down

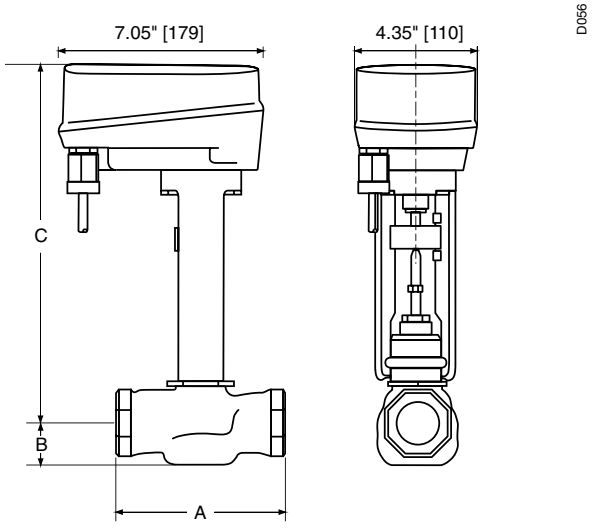
Technical Data	
Power supply	24 VAC ± 20% 50/60 Hz, 24 VDC ± 10%
Nominal voltage range	19.2...28.8 VAC, 21.6...28.8 VDC
Power consumption	5.5 W
Transformer sizing	10 VA (Class 2 power source)
Electrical connection	3 ft, 18 GA plenum rated cable ½" conduit connector
Overload protection	electronic throughout stroke
Control signal Y	on/off
Operating range	2 to 10 VDC
Maximum stroke	¾" [20mm]
Plunger	
NVF...24 US	spring up
NVF...24-E US	spring down
Force	
NVFD24(-E) US	90 lbf [400 N]
NVF24(-E) US	180 lbf [800 N]
Position indication	stroke indicator on bracket
Manual override	3/16" hex, 5mm hex or phillips screwdriver
Running time motor	150 seconds, independent of load
spring	30 seconds at ¾" [20mm] stroke
Humidity	5 to 95% RH non-condensing
Ambient temperature	32°F to 122°F [0°C to 50°C]
Storage temperature	20°F to 176°F [-7°C to 80°C]
Housing	NEMA 2/IP54 with cable entry down
Housing material	UL94-5V (flammability rating)
Agency listings†	cULus to UL 60730-1A/UL60730-2-14 and CAN/CSA E60730-1/CSA C22.2 No. 24-93 CE acc. to 2004/108/EC & 2006/95/EC, tested to 1EC/EN 60730-1 and 1EC/EN 60370-2-14
Noise level	<35 dB(A)
Quality standard	ISO 9001

Dimensions with G2... Series 2-Way Valve
Assembly using UNV-001 Bracket



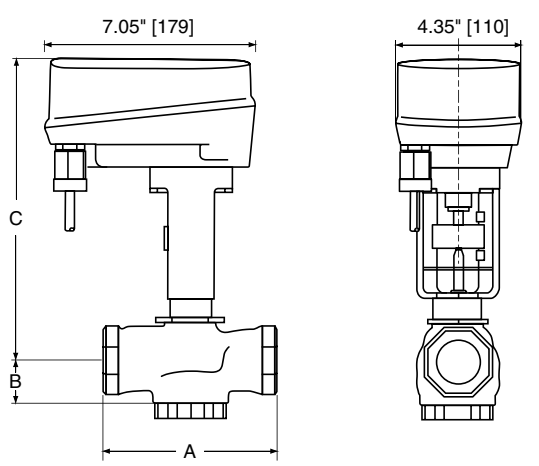
	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2	½"	15	3.00" [76]	1.06" [27]	9.75" [248]
G2	¾"	20	3.62" [92]	1.06" [27]	9.75" [248]
G2	1"	25	4.62" [117]	1.12" [29]	10.43" [265]
G2	1¼"	32	4.62" [117]	1.37" [35]	10.43" [265]
G2	1½"	40	5.37" [137]	1.50" [38]	10.50" [267]
G2	2"	50	6.12" [156]	1.56" [40]	10.81" [275]

Dimensions with G2...S Series 2-Way Valve
Assembly using UNV-035 Bracket (Bracket is 1.563" longer than UNV-001)



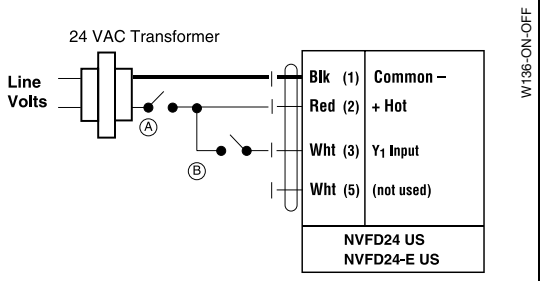
	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2S	½"	15	3.00" [76]	1.06" [27]	11.31" [287]
G2S	¾"	20	3.62" [92]	1.06" [27]	11.31" [287]
G2S	1"	25	4.62" [117]	1.12" [29]	12.00" [305]
G2S	1 ¼"	32	4.62" [117]	1.37" [35]	12.00" [305]
G2S	1½"	40	5.37" [137]	1.50" [38]	12.06" [306]
G2S	2"	50	6.12" [156]	1.56" [40]	12.37" [314]

Dimensions with G3...(D) Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	½"	15	3.00" [76]	1.37" [35]	9.75" [248]
G3(D)	½"	15	3.00" [76]	1.37" [35]	9.75" [248]
G3(D)	¾"	20	3.62" [92]	1.68" [43]	9.75" [248]
G3(D)	1"	25	4.62" [117]	1.56" [40]	9.81" [249]
G3(D)	1¼"	32	4.62" [117]	1.62" [41]	10.06" [256]
G3(D)	1½"	40	5.37" [137]	1.62" [41]	9.18" [234]
G3(D)	2"	50	6.12" [156]	1.87" [48]	9.25" [235]

Wiring Diagrams



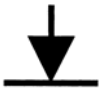
	Actuator		Control Switch Location	Correct LED Indication
	"Open" (Switch Selectable)	"Closed" (Switch Selectable)		
OFF/ON Drive "open" Spring "closed"	150 sec. (MFT selectable)	30 sec. Spring return	A	Flashing Red
OFF/ON Drive "open" Drive "closed"	150 sec. (MFT selectable)	150 sec. (MFT selectable)	B	Steady Green

If the switch location "A" is selected, the switch in location "B" is not required.
If the switch location "B" is selected, the switch in location "A" is not required.

On/Off control

Spring Return Actuators Model Designation

NVF(D)24 US
retracting plunger (spring up)



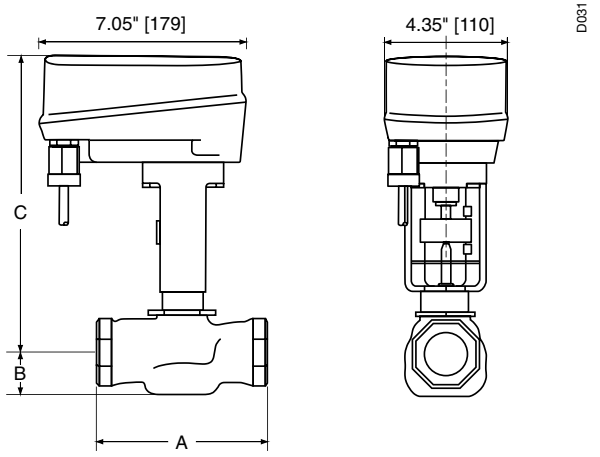
NVF(D)24-E US
extending plunger (spring down)

Models

NVF24-MFT US	Spring Up
NVF24-MFT-E US	Spring Down
NVFD24-MFT US	Spring Up
NVFD24-MFT-E US	Spring Down

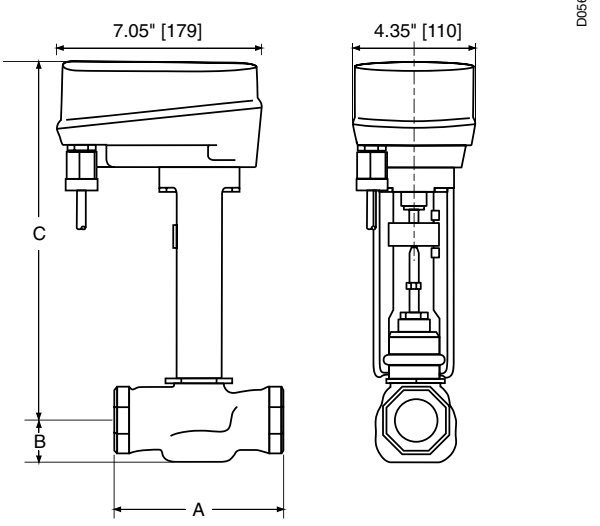
Technical Data		
Power supply		24 VAC ± 20% 50/60 Hz, 24 VDC ± 10%
Nominal voltage range		19.2...28.8 VAC, 21.6...28.8 VDC
Power consumption		5.5 W
Transformer sizing		10 VA (Class 2 power source)
Electrical connection		3 ft, 18 GA plenum rated cable ½" conduit connector
Overload protection		electronic throughout stroke
Control signal Y		2 to 10 VDC (V-10001 default), PWM available
Operating range		2 to 10 VDC 4 to 20 mA (w/500 Ω, ¼ W resistor) ZG-R01
Input impedance		100 kΩ for 2 to 10 VDC (0.1 mA) 500 Ω for 4 to 20 mA 1500 Ω for PWM, on/off and floating point
Operating range		2 to 10 VDC
Maximum stroke		¾" [20mm]
Plunger		
NVF...24-MFT US		spring up
NVF...24-MFT-E US		spring down
Force		
NVFD24-MFT(-E) US		90 lbf [400 N]
NVF24-MFT(-E) US		180 lbf [800 N]
Position indication		stroke indicator on bracket
Manual override		3/16" hex, 5mm hex or phillips screwdriver
Running time	motor	150 seconds, independent of load and stroke
	spring	30 seconds at ¾" [20mm] stroke
Humidity		5 to 95% RH non-condensing
Ambient temperature		32°F to 122°F [0°C to 50°C]
Storage temperature		20°F to 176°F [-7°C to 80°C]
Housing		NEMA 2/IP54 with cable entry down
Housing material		UL94-5V (flammability rating)
Agency listings†		cULus to UL 60730-1A/UL60730-2-14 and CAN/CSA E60730-1/CSA C22.2 No. 24-93 CE acc. to 2004/108/EC & 2006/95/EC, tested to 1EC/EN 60730-1 and 1EC/EN 60370-2-14
Noise level		<35 dB(A)
Quality standard		ISO 9001

Dimensions with G2... Series 2-Way Valve
Assembly using UNV-001 Bracket



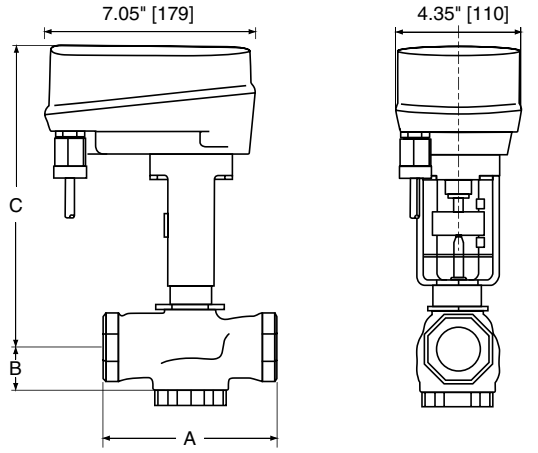
Valve Body	Valve Nominal Size Inches	DN [mm]	Dimensions (Inches [mm]) A	B	C
G2	½"	15	3.00" [76]	1.06" [27]	9.75" [248]
G2	¾"	20	3.62" [92]	1.06" [27]	9.75" [248]
G2	1"	25	4.62" [117]	1.12" [29]	10.43" [265]
G2	1¼"	32	4.62" [117]	1.37" [35]	10.43" [265]
G2	1½"	40	5.37" [137]	1.50" [38]	10.50" [267]
G2	2"	50	6.12" [156]	1.56" [40]	10.81" [275]

Dimensions with G2...S Series 2-Way Valve
Assembly using UNV-035 Bracket (Bracket is 1.563" longer than UNV-001)



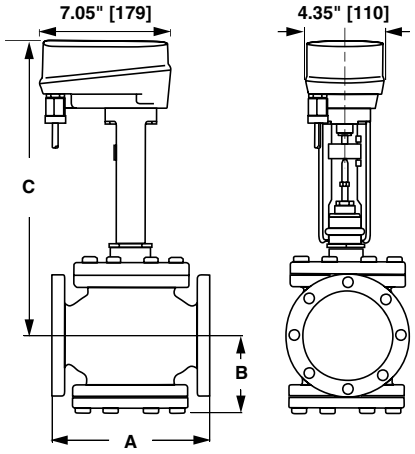
Valve Body	Valve Nominal Size Inches	DN [mm]	Dimensions (Inches [mm]) A	B	C
G2S	½"	15	3.00" [76]	1.06" [27]	11.31" [287]
G2S	¾"	20	3.62" [92]	1.06" [27]	11.31" [287]
G2S	1"	25	4.62" [117]	1.12" [29]	12.00" [305]
G2S	1¼"	32	4.62" [117]	1.37" [35]	12.00" [305]
G2S	1½"	40	5.37" [137]	1.50" [38]	12.06" [306]
G2S	2"	50	6.12" [156]	1.56" [40]	12.37" [314]

Dimensions with G3...(D) Series 3-Way Valve



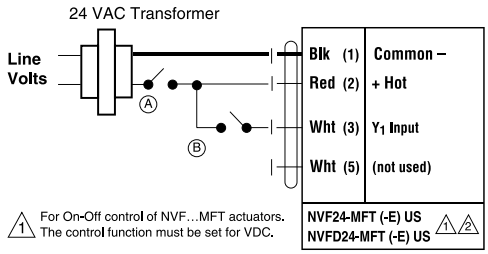
	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	½"	15	3.00" [76]	1.37" [35]	9.75" [248]
G3(D)	½"	15	3.00" [76]	1.37" [35]	9.75" [248]
G3(D)	¾"	20	3.62" [92]	1.68" [43]	9.75" [248]
G3(D)	1"	25	4.62" [117]	1.56" [40]	9.81" [249]
G3(D)	1¼"	32	4.62" [117]	1.62" [41]	10.06" [256]
G3(D)	1½"	40	5.37" [137]	1.62" [41]	9.18" [234]
G3(D)	2"	50	6.12" [156]	1.87" [48]	9.25" [235]

Dimensions with G6...C Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G6C ANSI 125	2½"	65	9.00" [229]	4.75" [120]	15.00" [381]
G6C ANSI 125	3"	80	10.00" [254]	5.37" [137]	15.43" [392]

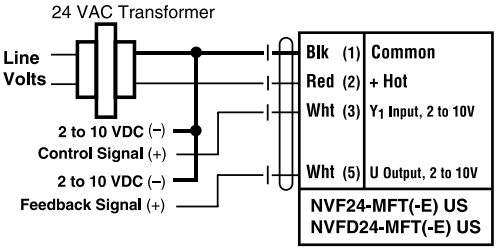
Wiring Diagrams



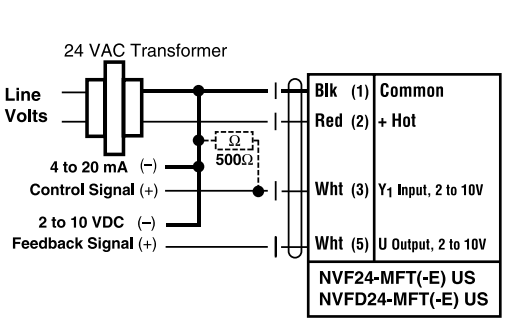
	Actuator		Control Switch Location	Correct LED Indication
	"Open" (Switch Selectable)	"Closed" (Switch Selectable)		
OFF/ON Drive "open" Spring "closed"	150 sec. (MFT selectable)	30 sec. Spring return	A	Flashing Red
OFF/ON Drive "open" Drive "closed"	150 sec. (MFT selectable)	150 sec. (MFT selectable)	B	Steady Green

If the switch location "A" is selected, the switch in location "B" is not required.
If the switch location "B" is selected, the switch in location "A" is not required.

On/Off Control



2 to 10 VDC



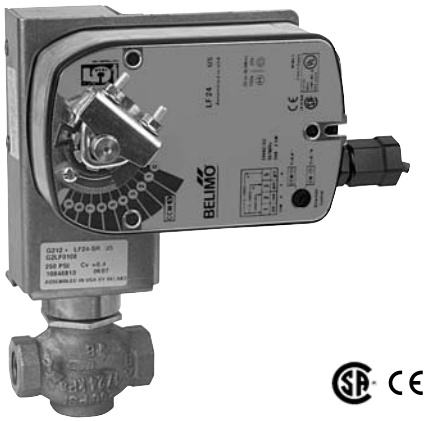
4 to 20 mA

Spring Return Actuators Model Designation

NVF(D)24-MFT US
retracting plunger (spring up)

NVF(D)24-MFT-E US
extending plunger (spring down)

LF24 US Actuators, On/Off



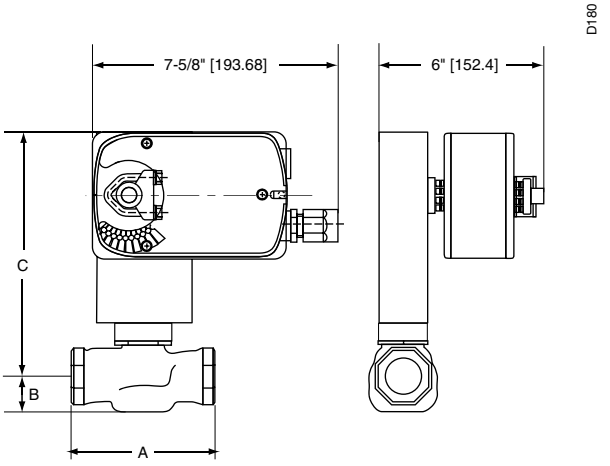
Models

LF24 US	
LF24-S US	w/built-in Aux. Switch
LF120 US	
LF120-S US	w/built-in Aux. Switch

Technical Data		
Control		on/off, floating point
Power supply		
LF24(-S) US		24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
LF120(-S) US		120 VAC ± 10% 50/60 Hz
Power consumption		
LF24(-S) US	running	5 W
	holding	2.5 W
LF120(-S) US	running	5.5 W
	holding	3.5 W
Transformer sizing		
LF24(-S) US		7 VA, class 2 power source
LF120(-S) US		7.5 VA, class 2 power source
Electrical connection		3 ft, 18 GA appliance cable (-S models have 2 cables) ½" conduit connector
Electrical protection		120V actuators double insulated
Overload protection		electronic throughout rotation
Angle of rotation		95°
Spring return direction		reversible with CW/CCW mounting
Position indication		visual indicator 0° to 90°
Running time		<40 to 75 sec. (on-off)
	spring	<25 sec. @-4°F to 122°F [-20°C to 50°C] <60 sec. @-22°F [-30°C]
Ambient temperature		-22° F to 122° F [-30° C to 50° C]
Housing		NEMA 2
Agency listings†		UL 873, CSA C22.2 No. 24 certified, CE
Quality standard		ISO 9001
Noise level		max. 62 dB(A)
LF...-S US		
Auxiliary switch		1 x SPDT, 6A (1.5A) @ 250 VAC, UL Listed, adjustable 0° to 95° (double insulated)

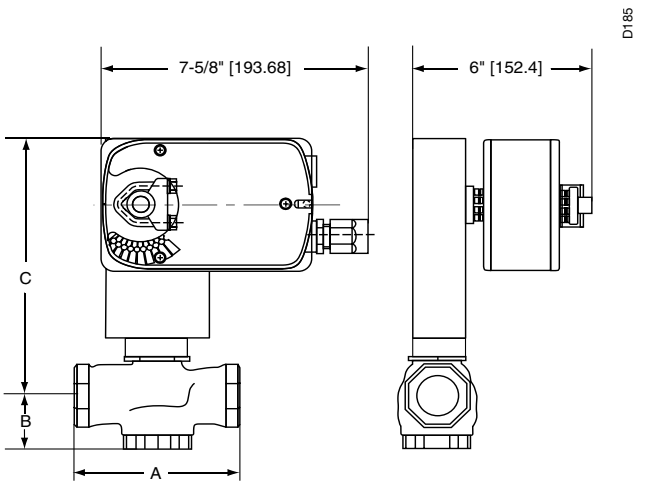
† Rated impulse voltage 800V (4kV for 120V model), Control pollution degree 3, Type of action 1.AA (1.AA.B for -S models)

Dimensions with G2...(S) Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	½"	15	3.00" [76]	1.06" [27]	7.56" [192]
G2(S)	¾"	20	3.62" [92]	1.06" [27]	7.56" [192]

Dimensions with G3...(D) Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	½"	15	3.00" [76]	1.37" [35]	7.87" [200]
G3(D)	¾"	20	3.62" [92]	1.68" [43]	8.18" [208]

Wiring Diagrams

INSTALLATION NOTES

△2 ***CAUTION** Equipment damage!*
Actuators may be connected in parallel.
Power consumption must be observed.

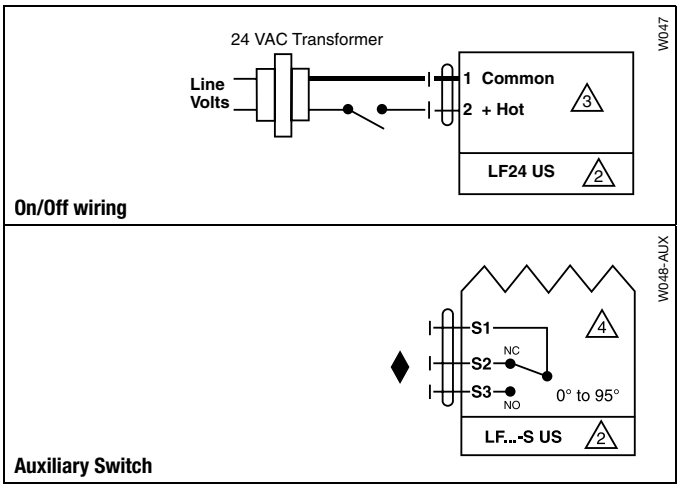
△3 Actuator may also be powered by 24 VDC.

△4 For end position indication, interlock control, fan startup, etc.,
LF24-S US and LF120-S US incorporates a built-in auxiliary switch:
1 x SPDT, 6A (1.5A) @ 250 VAC, UL listed, adjustable 0° to 95°.

APPLICATION NOTES

♦ Meets cULus or UL and CSA requirements without the need of an electrical ground connection.

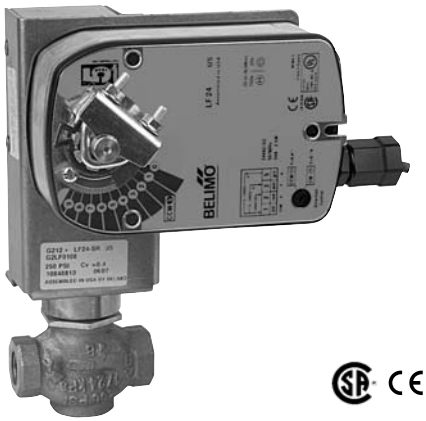
⚠ ***WARNING** Live Electrical Components!*
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components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



On/Off wiring

Auxiliary Switch

LF24-3 US Actuators, Floating Point



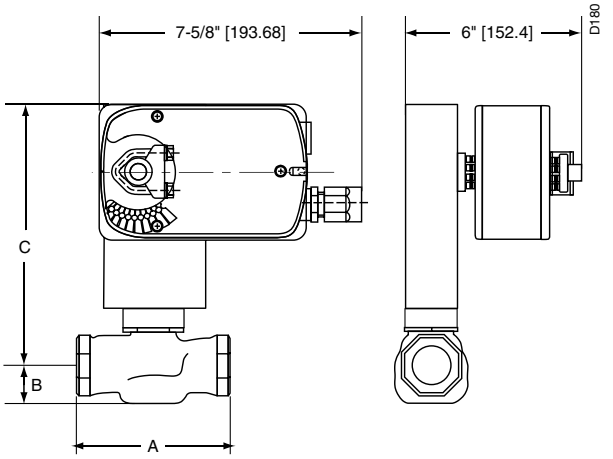
Models

LF24-3 US
LF24-3-S US w/built-in Aux. Switch

Technical Data		
Power supply		24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption	running	2.5 W
	holding	1W
Transformer sizing		5 VA (class 2 power source)
Electrical connection		3 ft, 18 GA appliance cables (-S model has 2 cables) ½" conduit connector
Overload protection		electronic throughout 0° to 95° rotation
Input impedance		1000 Ω (0.6w) control inputs
Angle of rotation		95°
Torque		35 in-lb [Nm]
Direction of rotation	spring	reversible with CW/CCW mounting
	motor	reversible with built-in ↷/↶ switch
Position indication		visual indicator 0° to 90°
Running time	motor	150 sec. constant independent of load
	spring	<25 sec. @ -4°F to 122°F [-20°C to 50°C] <60 sec. @ -22°F [-30°C]
Humidity		5 to 95% RH non-condensing
Ambient temperature		-22° F to 122° F [-30° C to 50° C]
Storage temperature		-40° F to 176° F [-40° C to 80° C]
Housing		NEMA type 2/IP54
Housing material		zinc coated metal
Agency listings		UL 873 listed, CSA C22.2 No. 24 certified, CE
Noise level (max)	running	<30 db(A)
	spring return	62 dB(A)
Servicing		maintenance free
Quality standard		ISO 9001

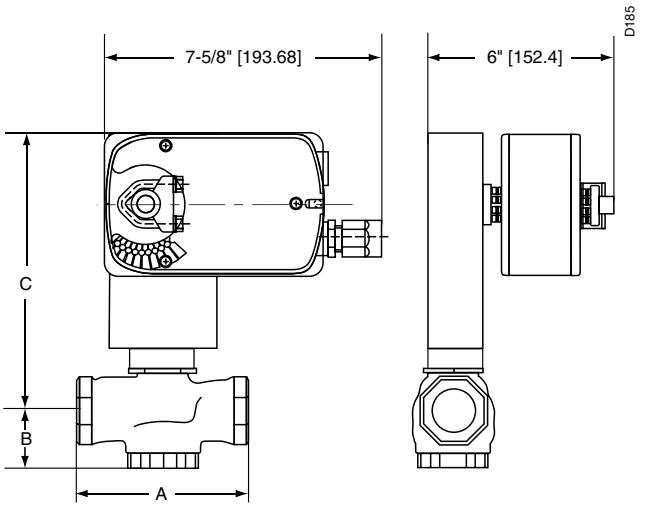
LF24-3-S US	
Auxiliary switch	1 x SPDT, 6A (1.5A) @ 250 VAC, UL Listed, adjustable 0° to 95° (double insulated)

Dimensions with G2...(S) Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	½"	15	3.06" [78]	1.06" [27]	7.56" [192]
G2(S)	¾"	20	3.62" [92]	1.06" [27]	7.56" [192]

Dimensions with G3...(D) Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	½"	(15)	3.00" [76]	1.37" [35]	7.87" [200]
G3(D)	¾"	(20)	3.62" [92]	1.68" [43]	8.18" [208]

Wiring Diagrams

INSTALLATION NOTES

***CAUTION** Equipment damage!*

2 Actuators may be connected in parallel. Power consumption must be observed.

3 Actuators may also be powered by 24 VDC.

4 The common connection from the actuator must be connected to the Hot connection of the controller.

5 The actuator Hot must be connected to the control board common.

6 For end position indication, interlock control, fan startup, etc., LF24-3-S US incorporates one built-in auxiliary switch: 1 x SPDT, 6A (1.5A) @ 250 VAC, UL listed, adjustable 0° to 95°.

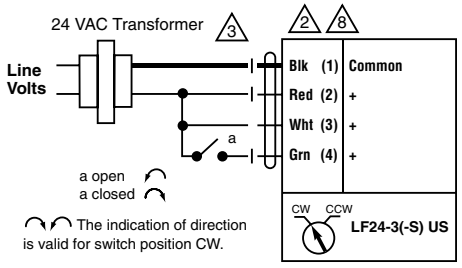
8 Actuators with plenum rated cable do not have numbers on wires; use color coded instead. Actuators with appliance rated cable use numbers.

APPLICATION NOTES

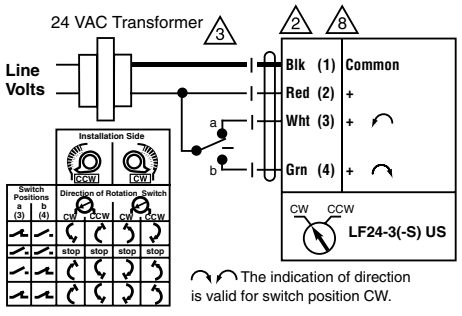
◆ Meets cULus or UL and CSA requirements without the need of an electrical ground connection.

***WARNING** Live Electrical Components!*

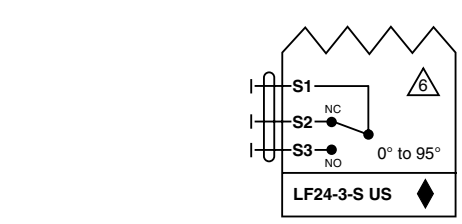
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow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



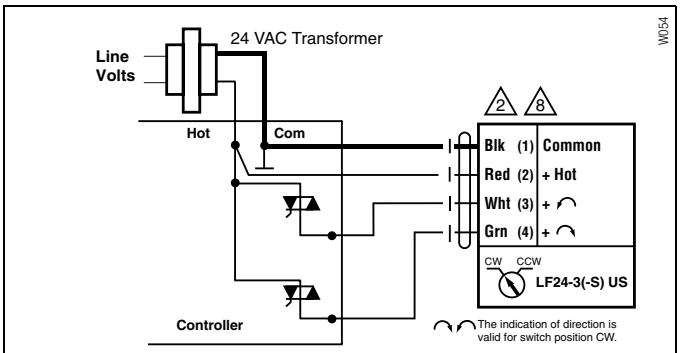
On/Off control



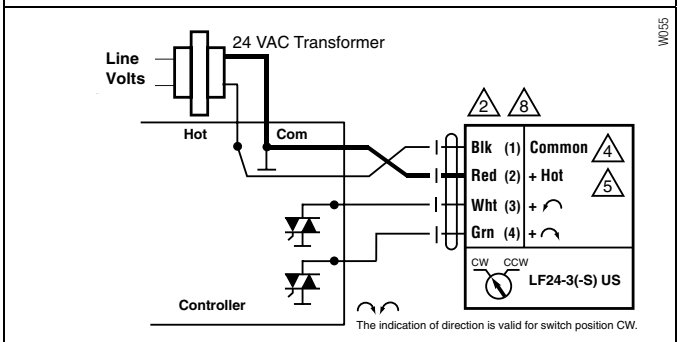
Floating Point control



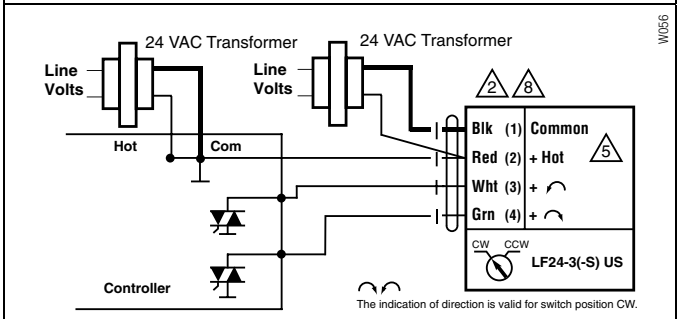
Auxiliary switch



Triac source

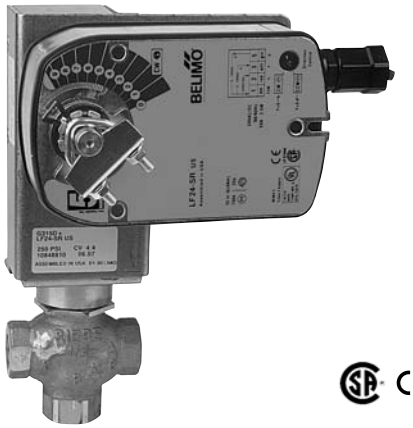


Triac sink



Triac sink with separate transformers

LF24-SR US Actuators, Proportional



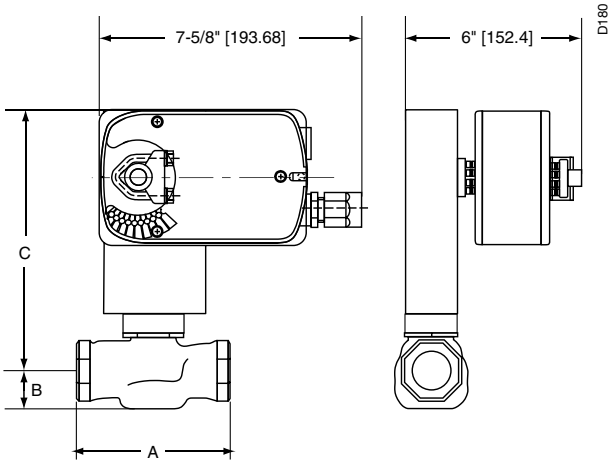
Models

LF24-SR US
LF24-SR-S US w/built-in Aux. Switch

Technical Data		
Control		proportional
Control signal		2 to 10 VDC 4 to 20 mA (with 500 Ω resistor)
Power consumption	running	2.5 W
	holding	1 W
Transformer sizing		5 VA (Class 2 power)
Electrical connection		3 ft, 18 GA appliance cables (-S model has 2 cables) ½" conduit connector
Overload protection		electronic throughout 0° to 95° rotation
Input impedance		100 kΩ
Feedback output		2 to 10 VDC
Angle of rotation		95°
Direction of rotation	spring	reversible with CW/CCW mounting
	motor	reversible with built-in ↷/↶ switch
Position indication		visual indicator
Running time	motor	<40 to 75 sec. (on/off) 150 sec. independent of load (proportional)
	spring	<25 sec. @ -4°F to 122°F [-20°C to 50°C] <60 sec. @ -22°F [-30°C]
Ambient temperature		-22° F to 122° F [-30° C to 50° C]
Housing		NEMA 2
Agency listings		UL 873, CSA C22.2 No. 24 certified, CE
Quality standard		ISO 9001
Noise level		max. 62 dB(A)

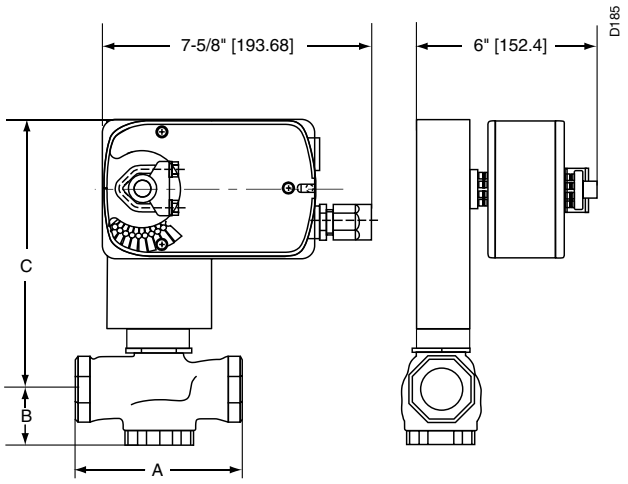
LF24-SR-S US	
Auxiliary switch	1 x SPDT, 6A (1.5A) @ 250 VAC, UL Listed, adjustable 0° to 95° (double insulated)

Dimensions with G2...(S) Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	½"	(15)	3.00" [76]	1.06" [27]	7.56" [192]
G2(S)	¾"	(20)	3.62" [92]	1.06" [27]	7.56" [192]

Dimensions with G3...(D) Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	½"	15	3.00" [76]	1.37" [35]	7.87" [200]
G3(D)	¾"	20	3.62" [92]	1.68" [43]	8.18" [208]

Wiring Diagrams

INSTALLATION NOTES

△2 ***CAUTION** Equipment damage!*
Actuators may be connected in parallel. Up to 4 actuators may be connected in parallel. With 4 actuators wired to one 500 Ω resistor, a +2% shift of control signal may be required. Power consumption must be observed.

△3 Actuators may also be powered by 24 VDC.

△4 Actuators with plenum rated cable do not have numbers on wires; use color codes instead.

△5 Only connect common to neg. (–) leg of control circuits.

△6 For end position indication, interlock control, fan startup, etc., LF24-SR-S US incorporates one built-in auxiliary switch: 1 x SPDT, 6A (1.5A) @ 250 VAC, UL listed, adjustable 0° to 95°.

△7 The LF24-SR-S US wire 5 is white.

APPLICATION NOTES

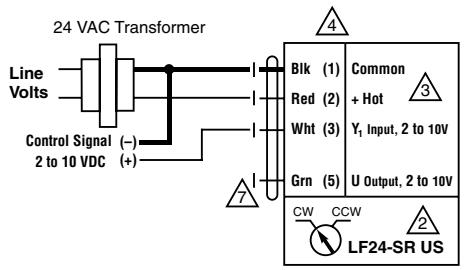
♦ The ZG-R01 500 Ω resistor converts the 4 to 20 mA control signal to 2 to 10 VDC, up to 2 actuators may be connected in parallel.

♦ Meets cULus or UL and CSA requirements without the need of an electrical ground connection.

⚠ *WARNING Live Electrical Components!*

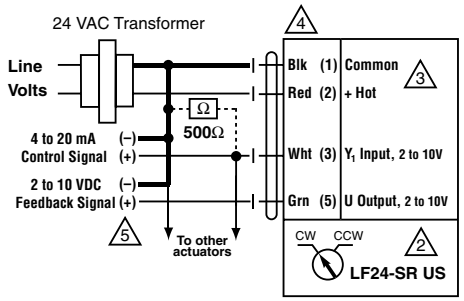
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow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

W057



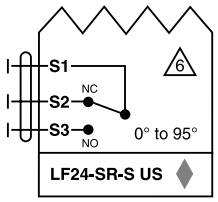
2 to 10 VDC control

W059

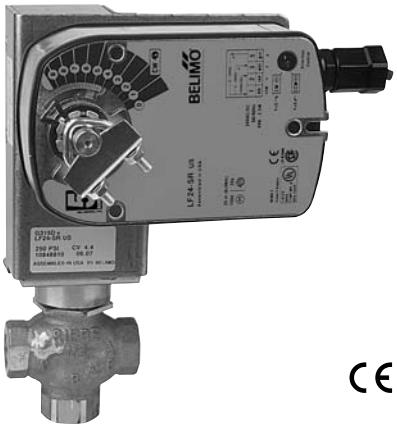


4 to 20 mA control

W058



Auxiliary switch



MFT

5 YEAR WARRANTY

LISTED 94 D5 TEMP.IND. & REG. EQUIP.

BRUSHLESS DC. motor

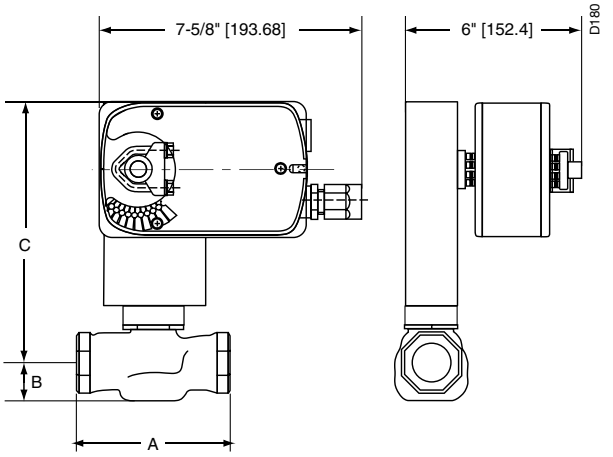
Models

LF24-MFT US
LF24-MFT-S US w/built-in Aux. Switch

Technical Data		
Control		MFT
Control signal		2 to 10 VDC
Power consumption	running	2.5 W
	holding	1 W
Transformer sizing		5 VA (Class 2 power source)
Electrical connection (-S models have 2 cables)		½" conduit connector 3 ft [1m], 18 GA appliance cable
Overload protection		electronic throughout 0° to 95° rotation
Feedback output		2 to 10 VDC, 0.5 mA max
Input impedance		100 kΩ for 2 to 10 VDC (0.1 mA) 500 Ω for 4 to 20mA 750 Ω for PWM 500 Ω for on/off and floating point
Angle of rotation		95°
Direction of rotation	spring	reversible with CW/CCW mounting
	motor	reversible with built-in ↷/↶ switch
Position indication		visual indicator
Running time	motor	150 sec. independent of load (proportional, default)
	spring	<25 sec. @-4°F to 122°F [-20°C to 50°C] <60 sec. @-22°F [-30°C]
Ambient temperature		-22° F to 122° F [-30° C to 50° C]
Housing		NEMA 2
Agency listings		cULus according to UL 873 and CAN/CSA C22.2 No. 24-93
Noise level (max)	running	<30 db(A)
	spring return	62 dB(A)
Quality standard		ISO 9001

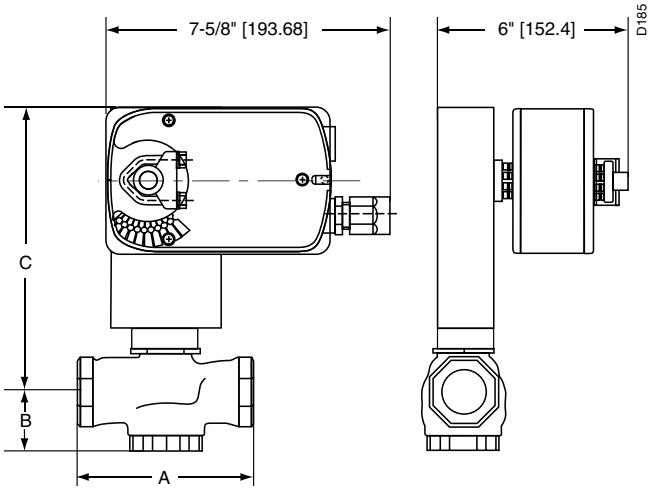
LF24-MFT-S US	
Auxiliary switch	1 x SPDT, 6A (1.5A) @ 250 VAC, UL Listed, adjustable 0° to 95° (double insulated)

Dimensions with G2...(S) Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	½"	15	3.00" [76]	1.06" [27]	7.56" [192]
G2(S)	¾"	20	3.62" [92]	1.06" [27]	7.56" [192]

Dimensions with G3...(D) Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	½"	15	3.00" [76]	1.37" [35]	7.87" [200]
G3(D)	¾"	20	3.62" [92]	1.68" [43]	8.18" [208]

Wiring Diagrams

INSTALLATION NOTES

2 ***CAUTION** Equipment damage!*
Actuators may be connected in parallel if not mechanically mounted to the same shaft. Power consumption and input impedance must be observed.

3 Actuators may also be powered by 24 VDC.

4 IN4004 or IN4007 diode (IN4007 supplied, Belimo part number 40155).

5 Triac A and B can also be contact closures.

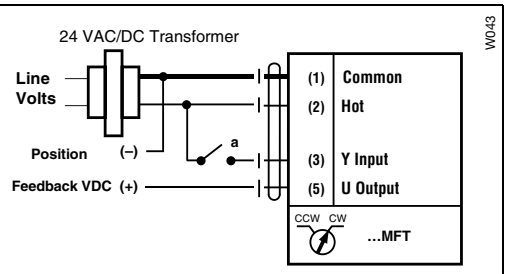
6 Control signal may be pulsed from either the Hot (Source) or Common (Sink) 24 VAC line.

7 Position feedback cannot be used with Triac sink controller. The actuators internal common reference is not compatible.

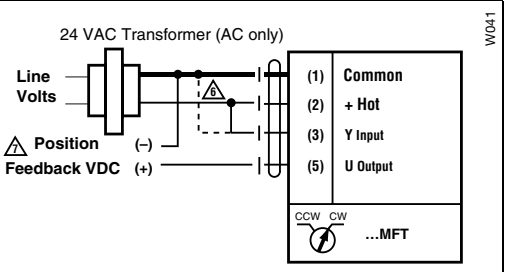
APPLICATION NOTES

The ZG-R01 500 Ω resistor converts the 4 to 20 mA control signal to 2 to 10 VDC, up to 2 actuators may be connected in parallel.

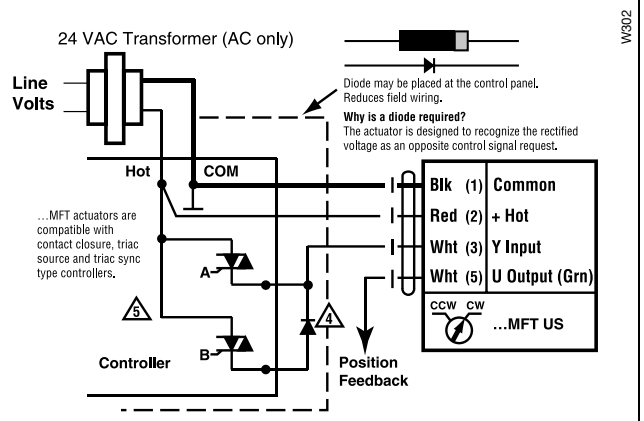
***WARNING** Live Electrical Components!*
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components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



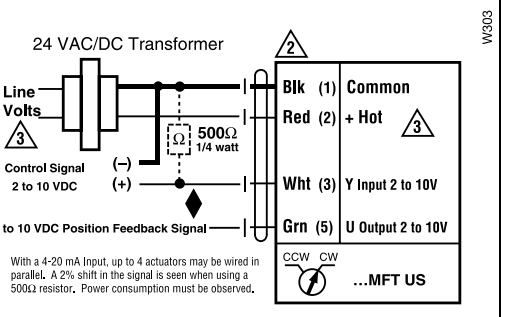
On/Off control



PWM, triac source and sink



Floating Point control



Proportional 2 to 10 or 4 to 20 mA control signal

BELIMO

5 YEAR WARRANTY

Models

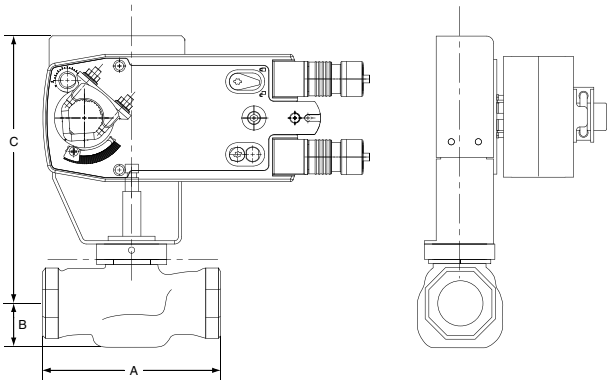
NFBUP-X1
NFBUP-S-X1 w/built-in Aux. Switch

CE LISTED 94 D5 TEMP. IND. & REG. EQUIP. cULus

Technical Data		
Power supply		24...240 VAC -20% / +10%, 50/60 Hz 24...125 VDC ±10%
Power consumption	running	6 W
	holding	2.5 W
Transformer sizing		9.5 VA (Class 2 power source)
Electrical connection		3 ft, 18 GA appliance cable, ½" conduit connector -S models: two 3 ft, 18 gauge appliance cables with ½" conduit connectors
Overload protection		electronic throughout 0 to 95° rotation
Control		on/off
Torque		90 in-lb [10 Nm] minimum
Direction of rotation	spring	reversible with CW/CCW mounting
Mechanical angle of rotation		95° (adjustable with mechanical end stop, 35° to 95°)
Running time	motor	<75 sec
	spring	20 sec @ -4°F to 122°F [-20°C to 50°C]; <60 sec @ -22°F [-30°C]
Position indication		visual indicator, 0° to 95° (0° is full spring return position)
Manual override		5 mm hex crank (3/16" Allen), supplied
Humidity		max. 95% RH non-condensing
Ambient temperature		-22°F to 122°F [-30°C to 50°C]
Housing		Nema 2, IP54, Enclosure Type2
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 & 2006/95/EC
Noise level		<50dB(A) motor @ 75 seconds ≤62dB(A) spring return
Quality standard		ISO 9001
Weight		4.15 lbs (1.9 kg), 4.25 lbs (1.9 kg) with switches
† Rated Impulse Voltage 4kV, Type of action 1.AA (1.AA.B for -S version), Control Pollution Degree 3.		
NFBUP-S-X1		
Auxiliary switches		2 x SPDT 3A (0.5A) @ 250 VAC, UL approved one set at +10°, one adjustable 10° to 90°

Dimensions with G2...(S) Series 2-Way Valve

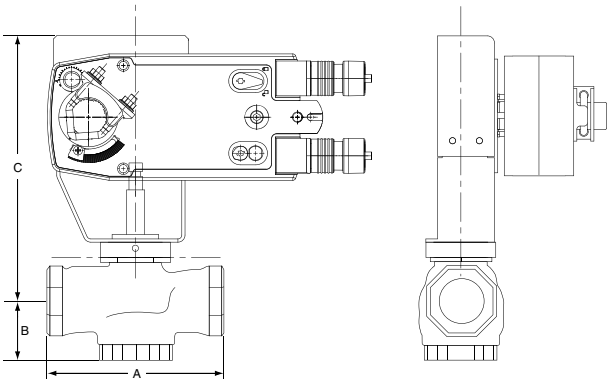
D180



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	1"	32	4.62" [117]	1.12" [29]	8.12" [206]
G2(S)	1¼"	40	4.62" [117]	1.37" [35]	8.37" [213]

Dimensions with G3...(D) Series 3-Way Valve

D185



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	1"	25	4.62" [117]	1.56" [40]	8.56" [217]
G3(D)	1¼"	32	4.62" [117]	1.62" [41]	8.62" [219]

Wiring Diagrams

INSTALLATION NOTES

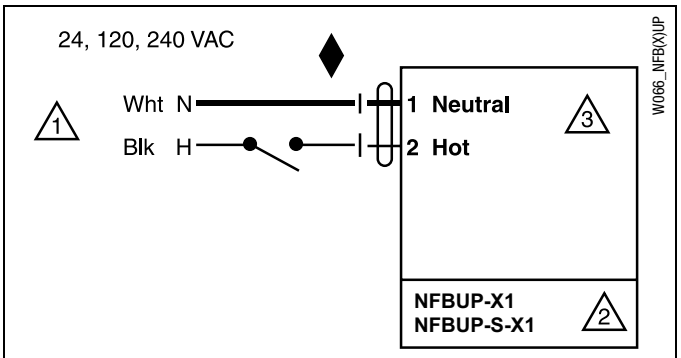
1. Provide overload protection and disconnect as required.
2. ***CAUTION** Equipment Damage!*
   Actuators may be connected in parallel.
   Power consumption and input impedance must be observed.
3. No ground connection is required.
4. For end position indication, interlock control, fan startup, etc., NFBUP-S-X1 incorporates two built-in auxiliary switches: 2 x SPDT, 3A (0.5A) @250 VAC, UL Approved, one switch is fixed at +10°, one is adjustable 10° to 90°.

APPLICATION NOTES

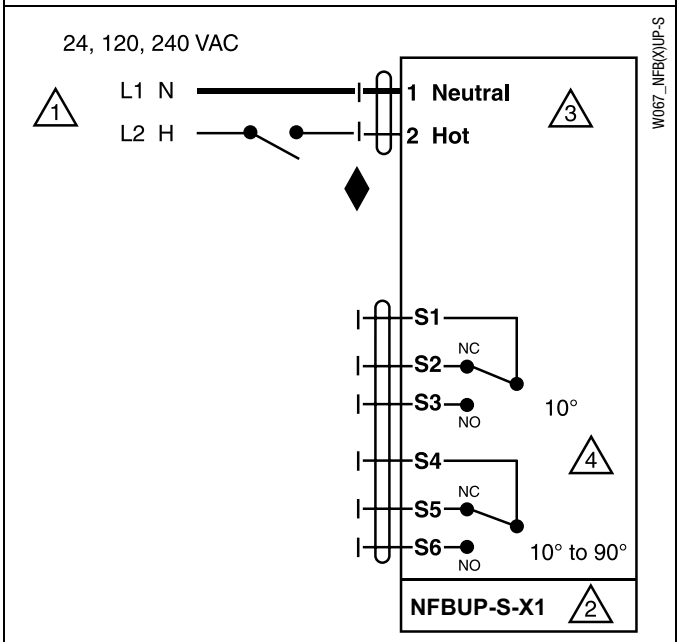
- Meets cULus requirements without the need of an electrical ground connection.

***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.



On/Off wiring for NFBUP-X1



Auxiliary Switches for NFBUP-S-X1

NFB24-SR-X1 Actuators, Proportional

5 YEAR WARRANTY

Models

NFB24-SR-X1
NFB24-SR-S-X1 w/built-in Aux. Switch

CE LISTED 94 05 TEMP. IND. & REG. EQUIP. c UL us BRUSHLESS dc motor

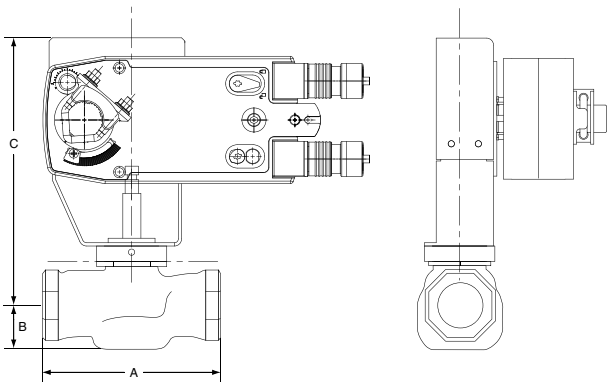
Technical Data		
Power supply		24 VAC ±20%, 50/60 Hz 24 VDC +20% / -10%
Power consumption	running	3.5 W
	holding	2.5 W
Transformer sizing		6 VA (Class 2 power source)
Electrical connection		3 ft, 18 GA appliance cable, ½" conduit connector **-S models:** Two 3 ft, 18 GA appliance cables with ½" conduit connectors
Overload protection		electronic throughout 0 to 95° rotation
Operating range Y		2 to 10 VDC, 4 to 20mA
Input impedance		100 kΩ for 2 to 10 VDC (0.1 mA) 500 Ω for 4 to 20 mA
Feedback output U		2 to 10 VDC (max. 0.5 mA)
Torque		90 in-lb [10 Nm] minimum
Direction of rotation	spring	reversible with CW/CCW mounting
	motor	reversible with built-in switch
Mechanical angle of rotation		95° (adjustable with mechanical end stop, 35° to 95°)
Running time	spring	<20 sec @ -4°F to 122°F [-20°C to 50°C]; <60 sec @ -22°F [-30°C]
	motor	95 sec
Position indication		visual indicator, 0° to 95° (0° is full spring return position)
Manual override		5 mm hex crank (3/16 Allen), supplied
Humidity		max. 95% RH non-condensing
Ambient temperature		-22°F to 122°F [-30°C to 50°C]
Housing		Nema 2, IP54, Enclosure Type2
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 & 2006/95/EC
Noise level		≤40dB(A) motor @ 95 seconds ≤62dB(A) spring return
Quality standard		ISO 9001
Weight		4.15 lbs (1.9 kg); 4.25 lbs (1.9 kg) with switches

† Rated Impulse Voltage 800V, Type of action 1.AA (1.AA.B for -S version), Control Pollution Degree 3.

NFB24-SR-S-X1	
Auxiliary switches	2 x SPDT 3A (0.5A) @ 250 VAC, UL approved one set at +10°, one adjustable 10° to 90°

Dimensions with G2...(S) Series 2-Way Valve

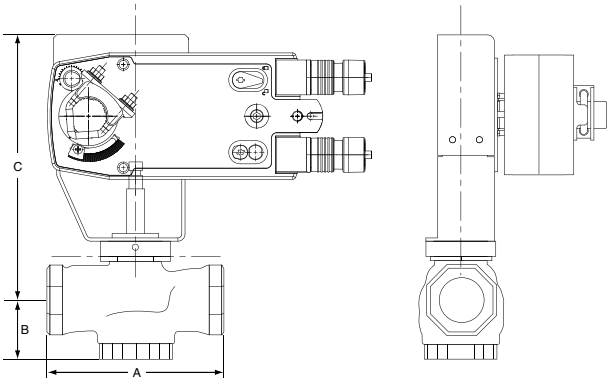
D180



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	1"	32	4.62" [117]	1.12" [29]	8.12" [206]
G2(S)	1¼"	40	4.62" [117]	1.37" [35]	8.37" [213]

Dimensions with G3...(D) Series 3-Way Valve

D185



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	1"	25	4.62" [117]	1.56" [40]	8.56" [217]
G3(D)	1¼"	32	4.62" [117]	1.62" [41]	8.62" [219]

Wiring Diagrams

INSTALLATION NOTES

1 Provide overload protection and disconnect as required.

2 ***CAUTION** Equipment Damage!*
Actuators may be connected in parallel.
Power consumption and input impedance must be observed.

2 Up to 4 actuators may be connected in parallel. With 4 actuators wired to one 500 Ω resistor. Power consumption must be observed.

3 Actuator may also be powered by 24 VDC.

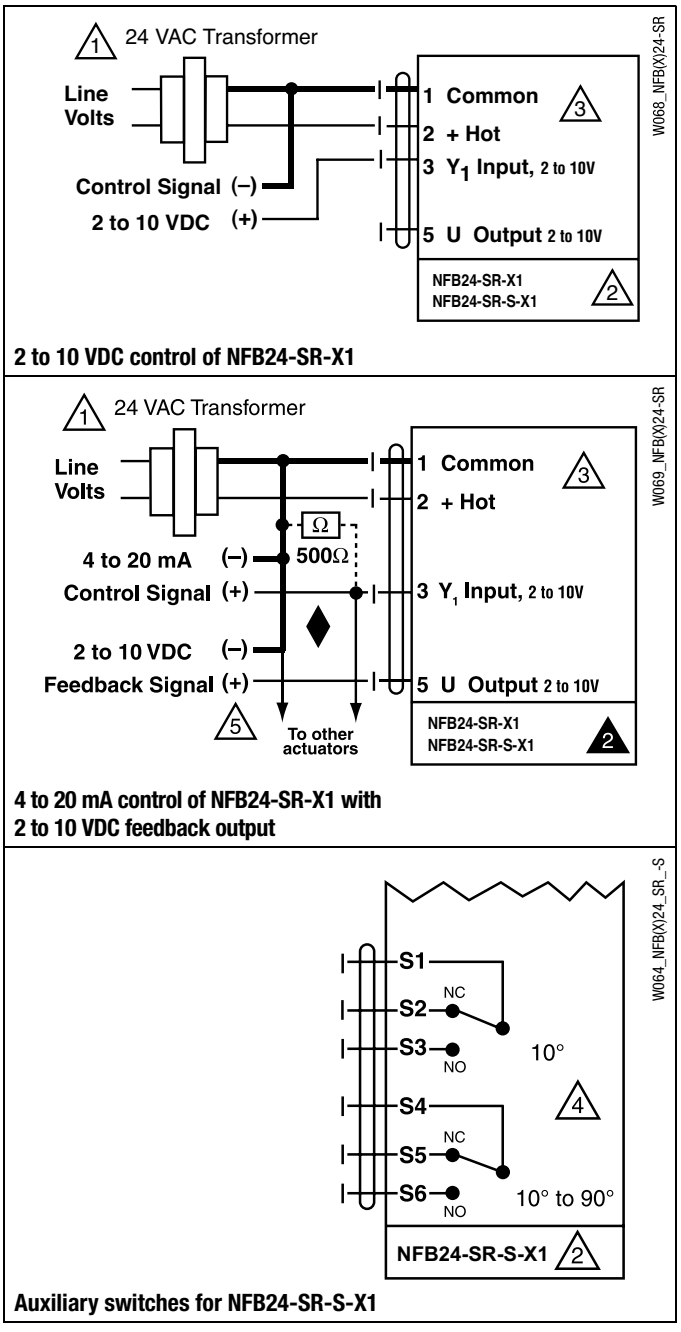
4 For end position indication, interlock control, fan startup, etc., NFB24-SR-S-X1 incorporates two built-in auxiliary switches: 2 x SPDT, 3A (0.5A) @250 VAC, UL Approved, one switch is fixed at +10°, one is adjustable 10° to 90°.

5 Only connect common to neg. (–) leg of control circuits

APPLICATION NOTES

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

***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.



2 to 10 VDC control of NFB24-SR-X1

4 to 20 mA control of NFB24-SR-X1 with 2 to 10 VDC feedback output

Auxiliary switches for NFB24-SR-S-X1

NFX24-MFT-X1 Actuators, Multi-Function Technology

MFT

5 YEAR WARRANTY

Models

NFX24-MFT-X1
NFX24-MFT-S-X1

Technical Data		
Power supply		24 VAC ±20%, 50/60 Hz 24 VDC +20% / -10%
Power consumption ♦	running	6.5 W
	holding	3 W
Transformer sizing ♦		9 VA (Class 2 power source)
Electrical connection		3 ft [1m], 10 ft [3m] or 16 ft [5m] 18 GA appliance or plenum cables, with or without ½" conduit connector **-S models:** two 3 ft [1m], 10 ft [3m] or 16 ft [5m] appliance cables with or without ½" conduit connectors
Overload protection		electronic throughout 0 to 95° rotation
Operating range Y*		2 to 10 VDC, 4 to 20mA (default) variable (VDC, PWM, floating point, on/off)
Input impedance		100 kΩ for 2 to 10 VDC (0.1 mA) 500 Ω for 4 to 20 mA 1500 Ω for PWM, floating point, on/off
Feedback output U*		2 to 10 VDC (max. 0.5 mA)
Torque		90 in-lb [10 Nm] minimum
Direction of rotation*	spring	reversible with CW/CCW mounting
	motor	reversible with built-in switch
Mechanical angle of rotation*		95° (adjustable with mechanical end stop, 35° to 95°)
Running time	spring	<20 seconds @ -4°F to 122°F [-20°C to 50°C]; <60 seconds @ -22°F [-30°C]
	motor*	150 seconds (default), variable (40 to 220 seconds)
Angle of rotation adaptation*		off (default)
Override control*		min position = 0% mid. position = 50% max. position = 100%
Position indication		visual indicator, 0° to 95° (0° is full spring return position)
Manual override		5 mm hex crank (3/16" Allen), supplied
Humidity		max. 95% RH non-condensing
Ambient temperature		-22°F to 122°F [-30°C to 50°C]
Housing		Nema 2, IP54, Enclosure Type2
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 & 2006/95/EC
Noise level		≤40dB(A) motor @ 150 secs, run time dependent ≤62dB(A) spring return
Quality standard		ISO 9001
Weight		4.2 lbs (1.9 kg), 4.3 lbs (2.0 kg) with switches

*Variable when configured with MFT options.

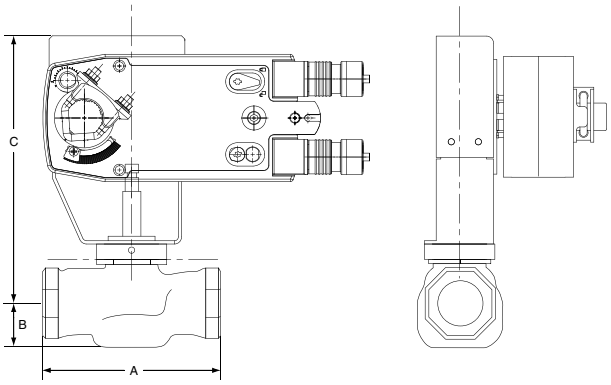
† Rated Impulse Voltage 800V, Type of action 1.AA (1.AA.B for -S version), Control Pollution Degree 3.

♦ **Programmed for 40 sec motor run time. At 150 sec motor run time, transformer sizing is 6.5 VA and power consumption is 4.5 W running / 3 W holding.**

NFX24-MFT-S-X1	
Auxiliary switches	2 x SPDT 3A (0.5A) @ 250 VAC, UL Approved one set at +10°, one adjustable 10° to 90°

Dimensions with G2...(S) Series 2-Way Valve

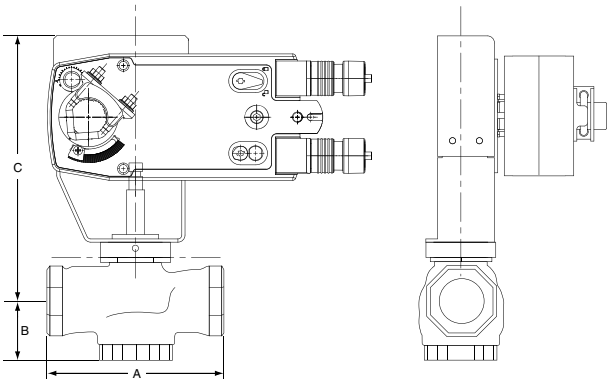
D180



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	1"	32	4.62" [117]	1.12" [29]	8.12" [206]
G2(S)	1¼"	40	4.62" [117]	1.37" [35]	8.37" [213]

Dimensions with G3...(D) Series 3-Way Valve

D185



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	1"	25	4.62" [117]	1.56" [40]	8.56" [217]
G3(D)	1¼"	32	4.62" [117]	1.62" [41]	8.62" [219]

Wiring Diagrams

INSTALLATION NOTES

1 Provide overload protection and disconnect as required.

2 ***CAUTION** Equipment Damage!*
Actuators may be connected in parallel if not mechanically mounted to the same shaft. Power consumption and input impedance must be observed.

3 Actuators may also be powered by 24 VDC.

4 Position feedback cannot be used with Triac sink controller.
The actuator internal common reference is not compatible.

5 Control signal may be pulsed from either the Hot (source) or the Common (sink) 24 VAC line.

8 Contact closures A & B also can be triacs.
A & B should both be closed for triac source and open for triac sink.

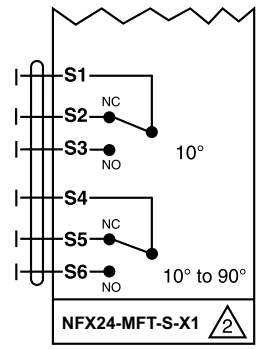
9 For triac sink the common connection from the actuator must be connected to the hot connection of the controller.

APPLICATION NOTES

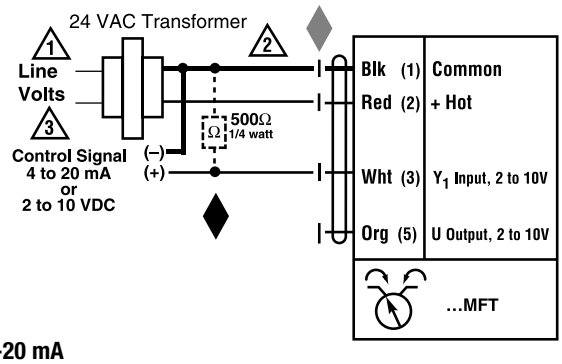
◆ Meets UL requirements without the need of an electrical ground connection.

◆ The ZG-R01 500 Ω resistor may be used.

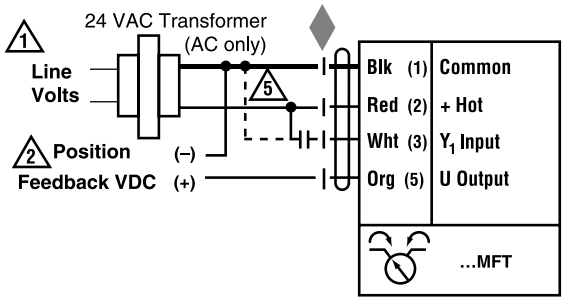
***WARNING** Live Electrical Components!*
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components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



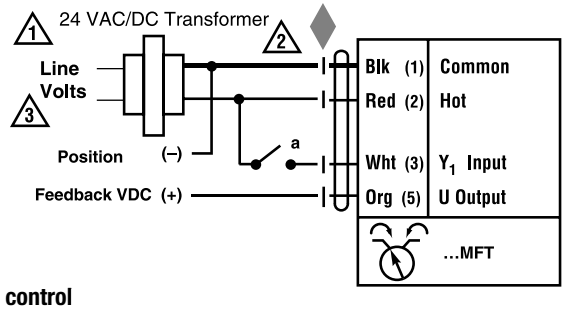
Auxiliary Switches for NFX24-MFT-S-X1



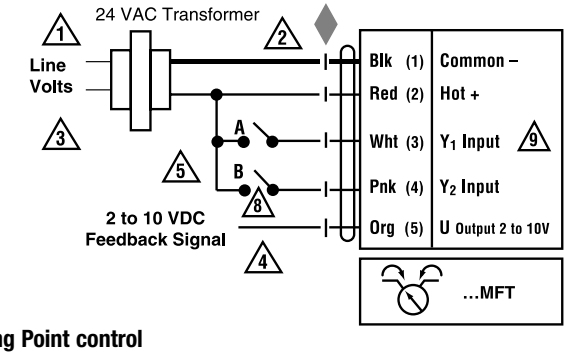
VDC/4-20 mA



PWM



On/Off control



Floating Point control

AF24(-S) US Actuators, On/Off

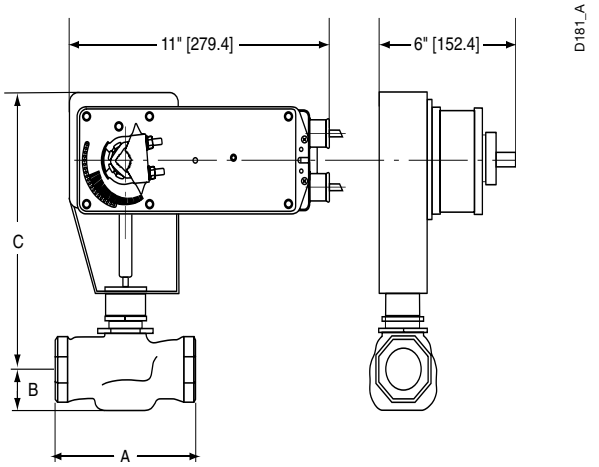
Models

AF24 US
AF24-S US w/built-in Aux. Switches

Technical Data		
Control		on/off
Power supply		24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption	running	5 W
	holding	1.5 W
Transformer sizing		10 VA (Class 2 power)
Electrical connection		3 ft, 18 GA appliance cables (-S model has 2 cables) ½" conduit connector
Electrical protection		auxiliary switches are double insulated
Overload protection		electronic throughout 0° to 95° rotation
Angle of rotation		95°
Position indication		visual indicator, 0° to 95°
Manual override		hex crank
Running time	control	150 seconds independent of load
	spring	< 20 seconds
Ambient temperature		-22° F to 122° F [-30° C to 50° C]
Housing		NEMA 2 / IP54
Agency listings		UL 873, CSA C22.2 No. 24 certified, CE
Noise level		max. 45 dB(A)

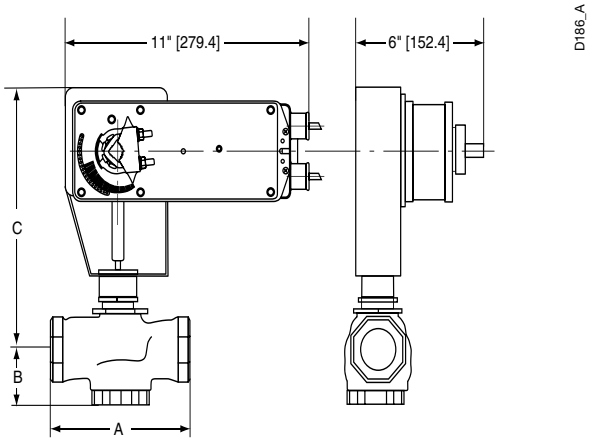
AF24-S US	
Auxiliary switches	2 x SPDT, 7A (2.5A) @ 250 VAC, UL listed, one switch is fixed at +5°, one is adjustable 25° to 85° (double insulated)

Dimensions with G2...(S) Series 2-Way Valve



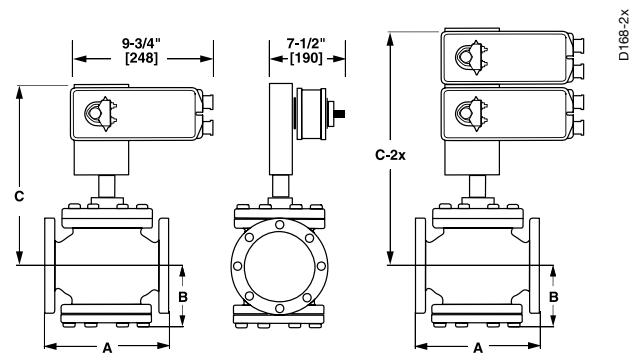
	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	1½"	40	5.37" [137]	1.50" [38]	8.50" [216]
G2(S)	2"	50	6.12" [156]	1.56" [40]	8.56" [217]

Dimensions with G3...(D) Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	1½"	40	5.37" [137]	1.62" [41]	8.62" [219]
G3(D)	2"	50	6.12" [156]	1.87" [48]	8.87" [225]

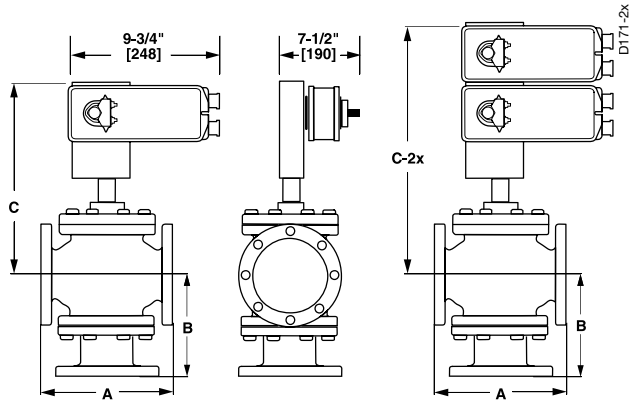
Dimensions with G6/G6C ANSI 125 and G6 ANSI 250 Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G6 ANSI 125	2½"	65	9.00" [229]	4.75" [121]	13.50" [343]
G6 ANSI 125	3"	80	10.00" [254]	5.37" [136]	13.94" [354]
G6 ANSI 250	2½"	65	9.62" [244]	4.75" [121]	14.00" [356]
G6 ANSI 250	3"	80	10.75" [273]	5.37" [136]	14.12" [359]
G6C ANSI 125	2½"	65	9.00" [229]	4.75" [121]	13.50" [343]
G6C ANSI 125	3"	80	10.00" [254]	5.37" [136]	13.94" [354]

	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C-2x
G6 ANSI 125	2½"	65	9.00" [229]	4.75" [121]	18.25" [464]
G6 ANSI 125	3"	80	10.00" [254]	5.37" [136]	19.18" [487]
G6 ANSI 250	2½"	65	9.62" [244]	4.75" [121]	18.75" [476]
G6 ANSI 250	3"	80	10.75" [273]	5.37" [136]	19.75" [502]
G6C ANSI 125	4"	100	13.00" [330.2]	6.87" [175]	20.25" [514]
G6C ANSI 125	5"	125	15.75" [400]	7.87" [200]	20.87" [530]
G6C ANSI 125	6"	150	17.75" [451]	8.50" [216]	21.50" [546]

Dimensions with G7/G7D ANSI 125/250 Series 3-Way Valve



Valve Body	Valve Nominal Size Inches	DN [mm]	Dimensions (Inches [mm]) A	B	C
G7 & G7D ANSI 125	2½"	65	9.00" [229]	7.12" [181]	13.87" [352]
G7 & G7D ANSI 125	3"	80	10.00" [254]	8.00" [203]	14.44" [367]
G7D ANSI 125	4"	100	13.00" [330.2]	9.87" [251]	15.25" [387]
G7 & G7D ANSI 250	2½"	65	9.62" [244]	7.37" [187]	14.00" [356]
G7 & G7D ANSI 250	3"	80	10.75" [273]	8.37" [213]	14.62" [371]
G7D ANSI 250	4"	100	13.62" [346]	10.25" [260]	15.25" [387]

Dimensions with G7/G7D ANSI 125/250 Series 3-Way Valve

	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C-2x
G7 ANSI 125	2½"	65	9.00" [229]	7.12" [181]	18.37" [467]
G7 ANSI 125	3"	80	10.00" [254]	8.00" [203]	19.18" [487]
G7D ANSI 125	5"	125	12.00" [305]	10.50" [267]	20.56" [522]
G7D ANSI 125	6"	150	14.12" [359]	11.12" [282]	21.25" [540]
G7 ANSI 250	2½"	65	9.62" [244]	7.37" [187]	18.75" [476]
G7 ANSI 250	3"	80	10.75" [273]	8.37" [213]	19.37" [492]
G7D ANSI 250	5"	125	12.87" [327]	11.00" [279]	20.56" [522]
G7D ANSI 250	6"	150	14.50" [368]	11.50" [292]	21.25" [540]

Wiring Diagrams

INSTALLATION NOTES

***CAUTION** Equipment damage!*

2 Actuators may be connected in parallel.
Power consumption must be observed.

3 Actuators may be powered by 24 VDC.

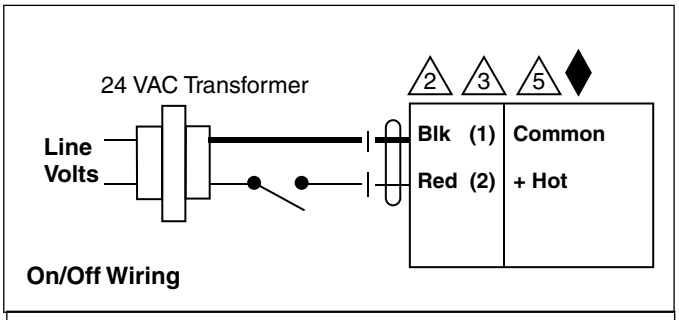
5 Actuators with plenum rated cable do not have numbers on wires; use color codes instead. Actuators with appliance cables are numbered.

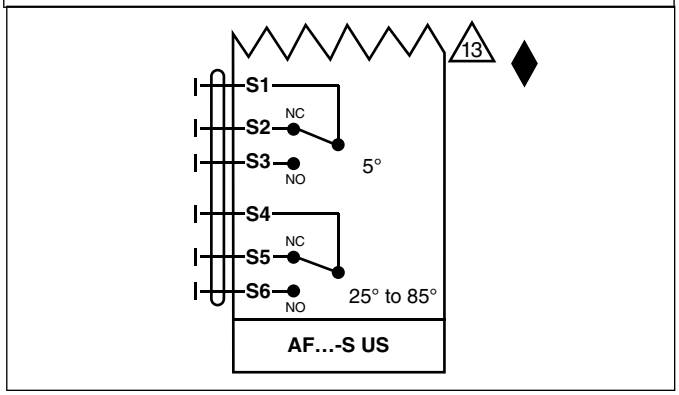
APPLICATION NOTES

◆ Meets cULus or UL and CSA 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.





Auxiliary Switch Wiring for AF... -S US

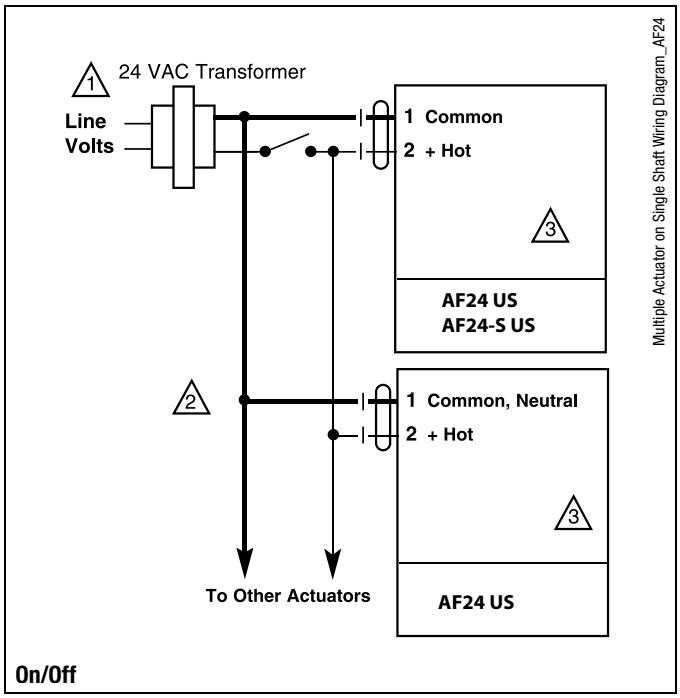
Wiring Diagrams for Multiple On/Off Actuators

1 Provide overload protection and disconnect as required..

2 Actuators may be connected in parallel.
Power consumption must be observed.

3 Actuators may also be powered by 24 VDC.

! Same model numbers must be used when mounted on one shaft..



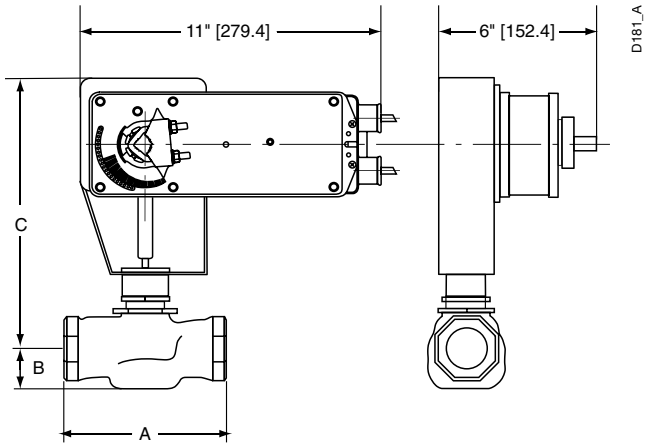
Models

AF120 US
AF120-S US w/built-in Aux. Switches

Technical Data		
Control		on/off
Power consumption	running	6 W
	holding	2.3 W
Transformer sizing		10 VA (Class 2 power)
Electrical connection		3 ft, 18 GA appliance cables (-S model has 2 cables) ½" conduit connector
Electrical protection		120 V actuators double insulated
Overload protection		electronic throughout 0° to 95° rotation
Angle of rotation		95°
Position indication		visual indicator
Manual override		hex crank
Running time	control	150 seconds independent of load
	spring	< 20 seconds
Ambient temperature		-22° F to 122° F [-30° C to 50° C]
Housing		NEMA 2 / IP54
Agency listings		UL 873, CSA C22.2 No. 24 certified, CE
Noise level		max. 45 dB(A)

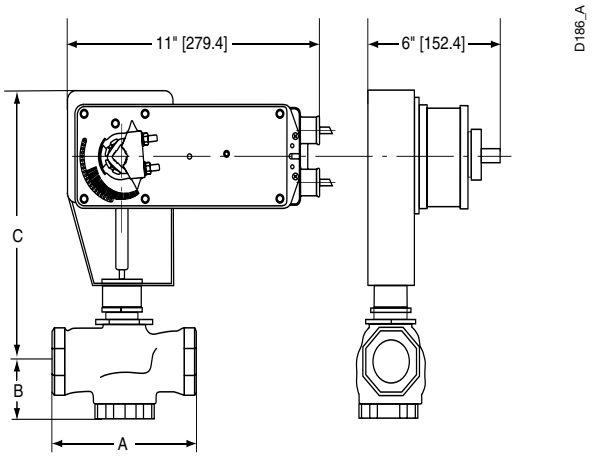
AF120-S US	
Auxiliary switches	2 x SPDT, 7A (2.5A) @ 250 VAC, UL listed, one switch is fixed at +5°, one is adjustable 25° to 85° (double insulated)

Dimensions with G2...(S) Series 2-Way Valve



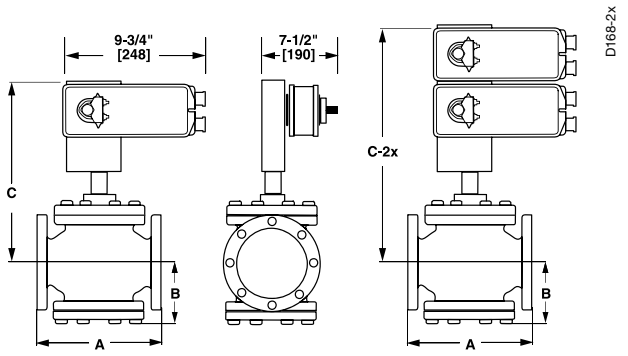
	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	1½"	40	5.37" [137]	1.50" [38]	8.50" [216]
G2(S)	2"	50	6.12" [156]	1.56" [40]	8.56" [217]

Dimensions with G3...(D) Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	1½"	40	5.37" [137]	1.62" [41]	8.62" [219]
G3(D)	2"	50	6.12" [156]	1.87" [48]	8.87" [225]

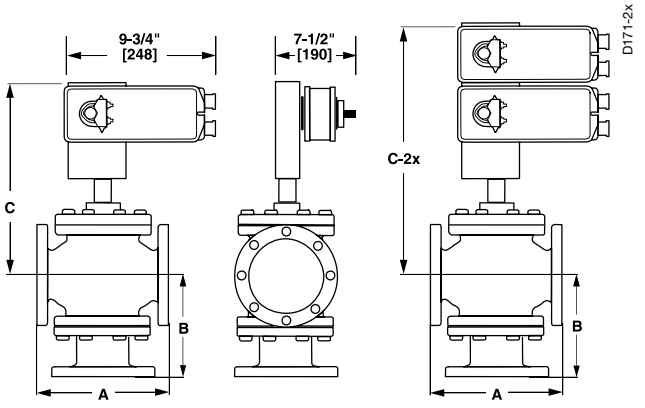
Dimensions with G6/G6C ANSI 125 and G6 ANSI 250 Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G6 ANSI 125	2½"	65	9.00" [229]	4.75" [121]	13.50" [343]
G6 ANSI 125	3"	80	10.00" [254]	5.37" [136]	13.94" [354]
G6 ANSI 250	2½"	65	9.62" [244]	4.75" [121]	14.00" [356]
G6 ANSI 250	3"	80	10.75" [273]	5.37" [136]	14.12" [359]
G6C ANSI 125	2½"	65	9.00" [229]	4.75" [121]	13.50" [343]
G6C ANSI 125	3"	80	10.00" [254]	5.37" [136]	13.94" [354]

	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C-2x
G6C ANSI 125	4"	100	13.00" [330.2]	6.87" [175]	20.25" [514]
G6C ANSI 125	5"	125	15.75" [400]	7.87" [200]	20.87" [530]
G6C ANSI 125	6"	150	17.75" [451]	8.50" [216]	21.50" [546]
G6 ANSI 125	2½"	65	9.00" [229]	4.75" [121]	18.25" [464]
G6 ANSI 125	3"	80	10.00" [254]	5.37" [136]	19.18" [487]
G6 ANSI 250	2½"	65	9.62" [244]	4.75" [121]	18.75" [476]
G6 ANSI 250	3"	80	10.75" [273]	5.37" [136]	19.75" [502]

Dimensions with G7/G7D ANSI 125/250 Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G7 & G7D ANSI 125	2½"	65	9.00" [229]	7.12" [181]	13.87" [352]
G7 & G7D ANSI 125	3"	80	10.00" [254]	8.00" [203]	14.44" [367]
G7D ANSI 125	4"	100	13.00" [330]	9.87" [251]	15.25" [387]
G7 & G7D ANSI 250	2½"	65	9.62" [244]	7.37" [187]	14.00" [356]
G7 & G7D ANSI 250	3"	80	10.75" [273]	8.37" [213]	14.62" [371]
G7D ANSI 250	4"	100	13.62" [346]	10.25" [260]	15.25" [387]

Dimensions with G7/G7D ANSI 125/250 Series 3-Way Valve

	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C-2x
G7 ANSI 125	2½"	65	9.00" [229]	7.12" [181]	18.37" [467]
G7 ANSI 125	3"	80	10.00" [254]	8.00" [203]	19.18" [487]
G7D ANSI 125	5"	125	12.00" [305]	10.50"[267]	20.56" [522]
G7D ANSI 125	6"	150	14.12" [359]	11.12" [282]	21.25" [540]
G7 ANSI 250	2½"	65	9.62" [244]	7.37" [187]	18.75" [476]
G7 ANSI 250	3"	80	10.75" [273]	8.37" [213]	19.37" [492]
G7D ANSI 250	5"	125	12.87" [327]	11.00" [279]	20.56" [522]
G7D ANSI 250	6"	150	14.50" [368]	11.50" [292]	21.25" [540]

Wiring Diagrams

INSTALLATION NOTES

***CAUTION** Equipment damage!*

2 Actuators may be connected in parallel.
Power consumption must be observed.

3 Actuators may be powered by 24 VDC.

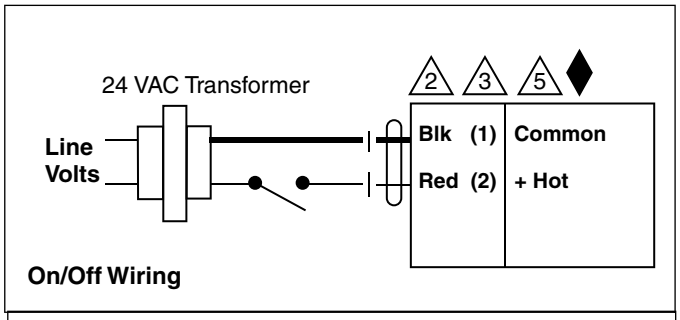
5 Actuators with plenum rated cable do not have numbers on wires; use color codes instead. Actuators with appliance cables are numbered.

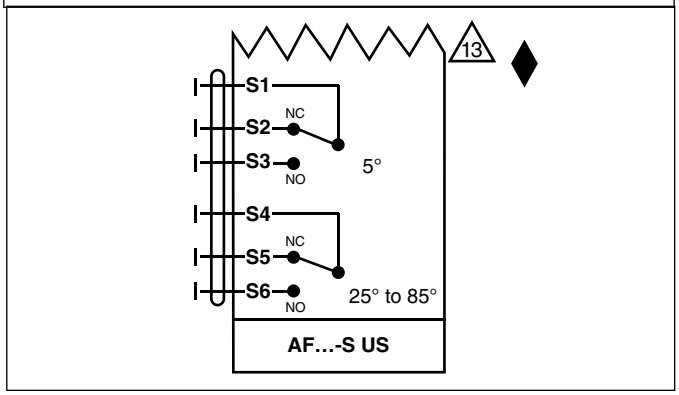
APPLICATION NOTES

♦ Meets cULus or UL and CSA 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.





Auxiliary Switch Wiring for AF… -S US

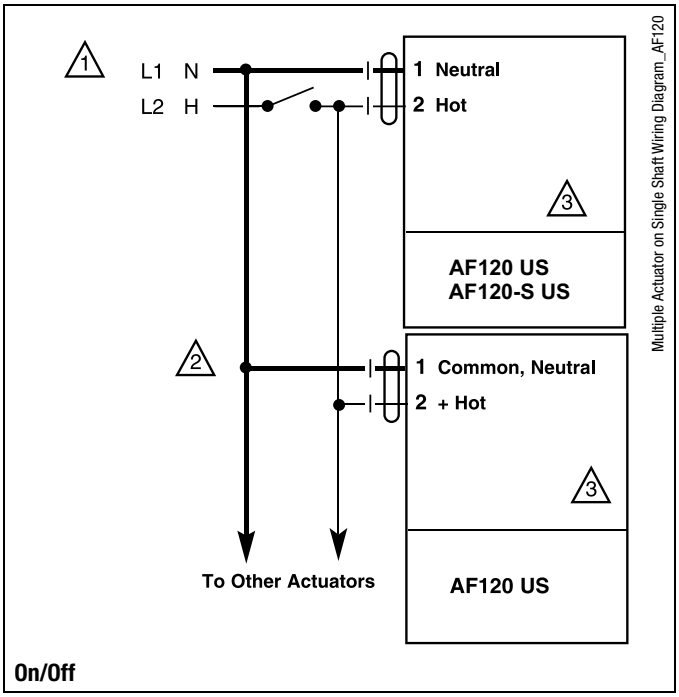
Wiring Diagrams for Multiple On/Off Actuators

1 Provide overload protection and disconnect as required..

2 Actuators may be connected in parallel.
Power consumption must be observed.

3 Actuators may also be powered by 24 VDC.

! Same model numbers must be used when mounted on one shaft..



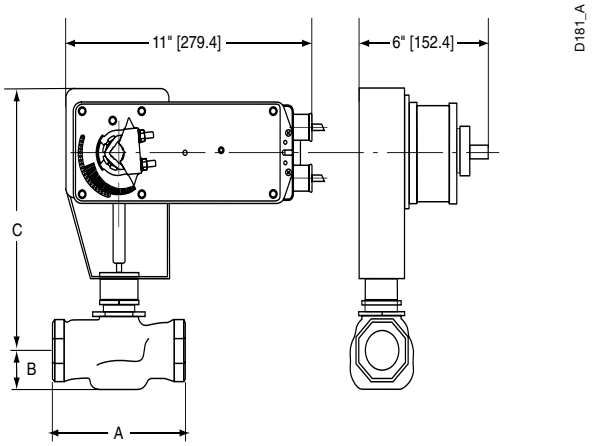
AF24-SR US Actuators, Proportional

Models

AF24-SR US

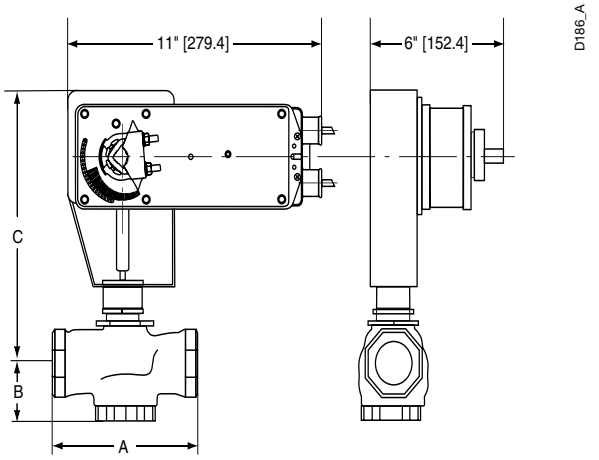
Technical Data		
Power supply		24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Feedback output		2 to 10 VDC, 0.5 mA max
Control		proportional
Power consumption	running	6 W
	holding	2 W
Transformer sizing		10 VA, class 2 power
Electrical connection		3 ft, 18 GA appliance cable ½" conduit connector
Overload protection		electronic throughout 0° to 95° rotation
Angle of rotation		95°
Direction of rotation	spring	reversible with CW/CCW mounting
	motor	reversible with built-in ↷/↶ switch
Position indication		visual indicator
Manual override		hex crank
Running time	control	150 seconds independent of load
	spring	< 20 seconds
Ambient temperature		-22° F to 122° F [-30° C to 50° C]
Housing		NEMA 2, IP54
Agency listings		UL 873, CSA C22.2 No. 24 certified, CE
Noise level		max. 45 dB(A)

Dimensions with G2...(S) Series 2-Way Valve



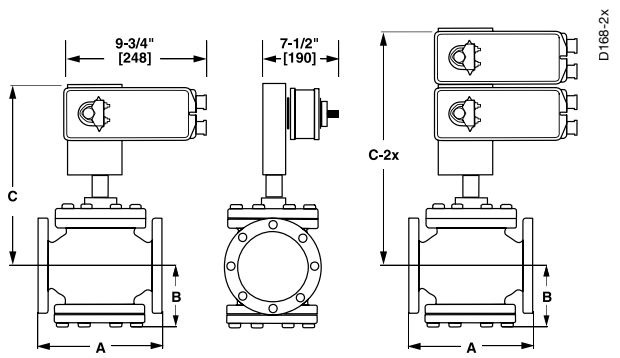
	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	1½"	40	5.37" [137]	1.50" [38]	8.50" [216]
G2(S)	2"	50	6.12" [156]	1.56" [40]	8.56" [217]

Dimensions with G3...(D) Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	1½"	40	5.37" [137]	1.62" [41]	8.62" [219]
G3(D)	2"	50	6.12" [156]	1.87" [48]	8.87" [225]

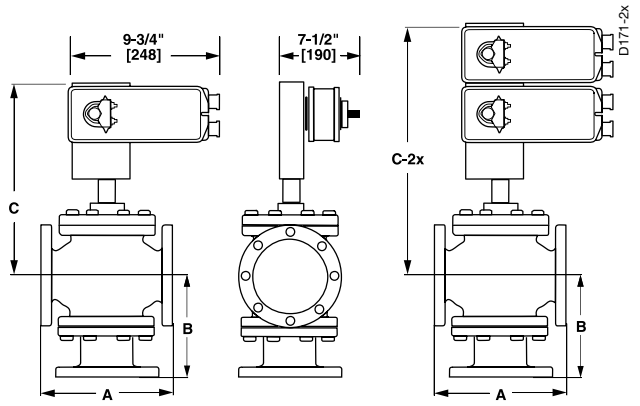
Dimensions with G6/G6C ANSI 125 and G6 ANSI 250 Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G6 ANSI 125	2½"	65	9.00" [229]	4.75" [121]	13.50" [343]
G6 ANSI 125	3"	80	10.00" [254]	5.37" [136]	13.94" [354]
G6 ANSI 250	2½"	65	9.62" [244]	4.75" [121]	14.00" [356]
G6 ANSI 250	3"	80	10.75" [273]	5.37" [136]	14.12" [359]
G6C ANSI 125	2½"	65	9.00" [229]	4.75" [121]	13.50" [343]
G6C ANSI 125	3"	80	10.00" [254]	5.37" [136]	13.94" [354]

	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C-2x
G6C ANSI 125	4"	100	13.00" [330.2]	6.87" [175]	20.25" [514]
G6C ANSI 125	5"	125	15.75" [400]	7.87" [200]	20.87" [530]
G6C ANSI 125	6"	150	17.75" [451]	8.50" [216]	21.50" [546]
G6 ANSI 125	2½"	65	9.00" [229]	4.75" [121]	18.25" [464]
G6 ANSI 125	3"	80	10.00" [254]	5.37" [136]	19.18" [487]
G6 ANSI 250	2½"	65	9.62" [244]	4.75" [121]	18.75" [476]
G6 ANSI 250	3"	80	10.75" [273]	5.37" [136]	19.75" [502]

Dimensions with G7/G7D ANSI 125/250 Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G7 & G7D ANSI 125	2½"	65	9.00" [229]	7.12" [181]	13.87" [352]
G7 & G7D ANSI 125	3"	80	10.00" [254]	8.00" [203]	14.44" [367]
G7D ANSI 125	4"	100	13.00" [330.2]	9.87" [251]	15.25" [387]
G7 & G7D ANSI 250	2½"	65	9.62" [244]	7.37" [187]	14.00" [356]
G7 & G7D ANSI 250	3"	80	10.75" [273]	8.37" [213]	14.62" [371]
G7D ANSI 250	4"	100	13.62" [346]	10.25" [260]	15.25" [387]

Dimensions with G7/G7D ANSI 125/250 Series 3-Way Valve

	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C-2x
G7 ANSI 125	2½"	65	9.00" [229]	7.12" [181]	18.37" [467]
G7 ANSI 125	3"	80	10.00" [254]	8.00" [203]	19.18" [487]
G7D ANSI 125	5"	125	12.00" [305]	10.50" [267]	20.56" [522]
G7D ANSI 125	6"	150	14.12" [359]	11.12" [282]	21.25" [540]
G7 ANSI 250	2½"	65	9.62" [244]	7.37" [187]	18.75" [476]
G7 ANSI 250	3"	80	10.75" [273]	8.37" [213]	19.37" [492]
G7D ANSI 250	5"	125	12.87" [327]	11.00" [279]	20.56" [522]
G7D ANSI 250	6"	150	14.50" [368]	11.50" [292]	21.25" [540]

Wiring Diagrams

INSTALLATION NOTES

***CAUTION** Equipment damage!*

2 Actuators may be connected in parallel.
Power consumption must be observed.

3 Actuators may also be powered by 24 VDC.

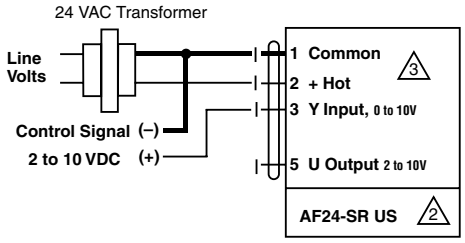
5 Actuators with plenum rated cable do not have numbers on wires; use color codes instead. Actuators with appliance cables are numbered.

APPLICATION NOTES

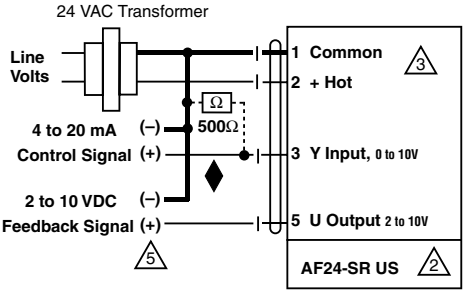
Meets cULus or UL and CSA requirements without the need of an electrical ground connection.

***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.



Proportional 2 to 10 VDC control signal



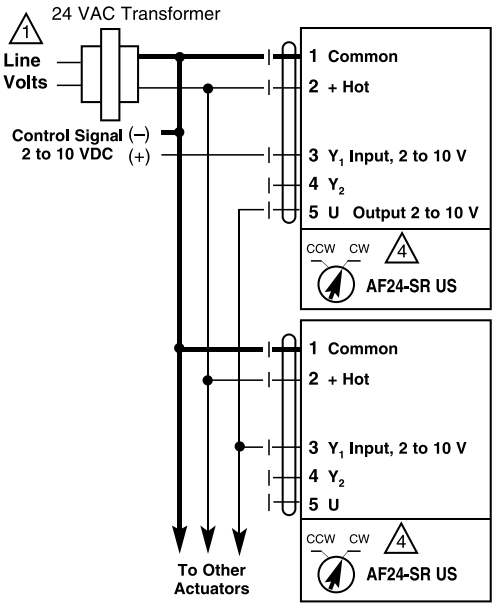
Proportional 4 to 20 mA control signal

Wiring Diagrams for Multiple Proportional Actuators

1 Provide overload protection and disconnect as required..

4 Set reversing switch (CCW-CW) (A-B) as required by control logic and control range.

! Same model numbers must be used when mounted on one shaft.



Proportional

MFT

5 YEAR WARRANTY

Models

AFX24-MFT-X1
AFX24-MFT-S-X1 w/built-in Aux. Switch

Technical Data	
Power supply	24 VAC, +/- 20%, 50/60 Hz 24 VDC, +20% / -10%
Power consumption♦ running	7.5 W
holding	3 W
Transformer sizing♦	10 VA (Class 2 power source)
Electrical connection	3 ft [1m], 10 ft [3m] or 16 ft [5m] 18 GA appliance or plenum cables, with or without ½" conduit connector **-S models:** two 3 ft [1m], 10 ft [3m] or 16 ft [5m] appliance cables with or without ½" conduit connectors
Overload protection	electronic throughout 0 to 95° rotation
Operating range Y*	2 to 10 VDC, 4 to 20 mA (default) variable (VDC, PWM, floating point, on/off)
Input impedance	100 kΩ for 2 to 10 VDC (0.1 mA) 500 Ω for 4 to 20 mA 1500 Ω for PWM, floating point and on/off control
Feedback output U*	2 to 10 VDC, 0.5 mA max
Torque	minimum 180 in-lb (20 Nm)
Direction of rotation* spring	reversible with cw/ccw mounting
motor	reversible with built-in switch
Mechanical angle of rotation*	95° (adjustable with mechanical end stop, 35° to 95°)
Running time spring	<20 seconds @ -4°F to 122°F [-20° C to 50° C]; <60 seconds @ -22°F [-30° C]
motor*	150 seconds (default), variable (70 to 220 seconds)
Angle of rotation adaptation	off (default)
Override control*	min position = 0% mid. position = 50% max. position = 100%
Position indication	visual indicator, 0° to 95° (0° is spring return position)
Manual override	5 mm hex crank (3/16" Allen), supplied
Humidity	max. 95% RH, non-condensing
Ambient temperature	-22 to 122° F (-30 to 50° C)
Housing	NEMA 2, IP54, Enclosure Type 2
Housing material	zinc coated metal and plastic casing
Noise level	≤40dB(A) motor @ 150 seconds, run time dependent ≤62dB(A) spring return
Agency listings †	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC & 2006/95/EC
Quality standard	ISO 9001
Weight	4.2 lbs. (1.9 kg), 4.3 lbs. (2 kg) with switch

* Variable when configured with MFT options

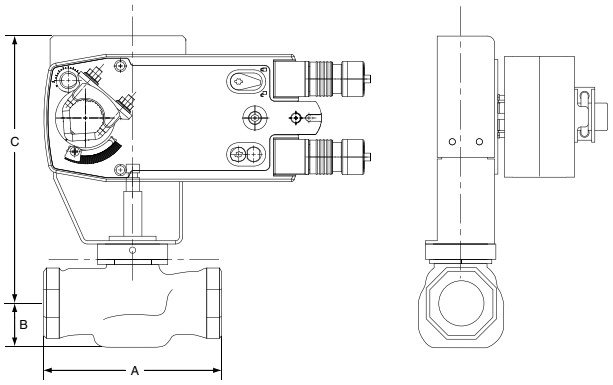
† Rated Impulse Voltage 800V, Type of action 1.AA (1.AA.B for -S version), Control Pollution Degree 3.

♦ Programmed for 70 sec motor run time. At 150 sec motor run time, transformer sizing is 8.5 VA and power consumption is 6 W running / 3 W holding.

AFX24-MFT-S-X1	
Auxiliary switches	2 x SPDT 3A (0.5A) @ 250 VAC, UL approved one set at +10°, one adjustable 10° to 90°

Dimensions with G2...(S) Series 2-Way Valve

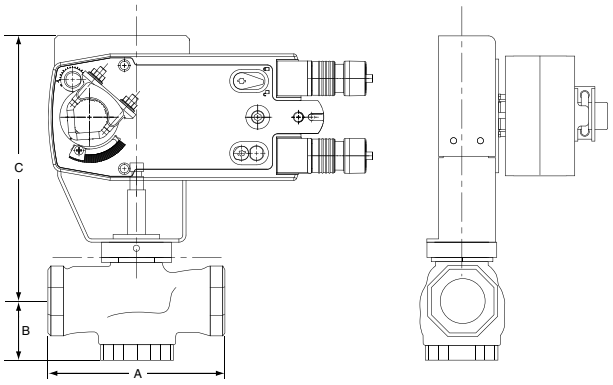
D180



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	1½"	40	5.37" [137]	1.50" [38]	8.50" [216]
G2(S)	2"	50	6.12" [156]	1.56" [40]	8.56" [217]

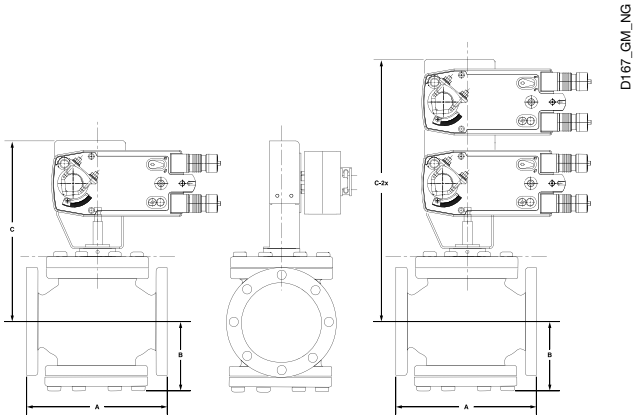
Dimensions with G3...(D) Series 3-Way Valve

D185



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	1½"	40	5.37" [137]	1.62" [41]	8.62" [219]
G3(D)	2"	50	6.12" [156]	1.87" [48]	8.87" [225]

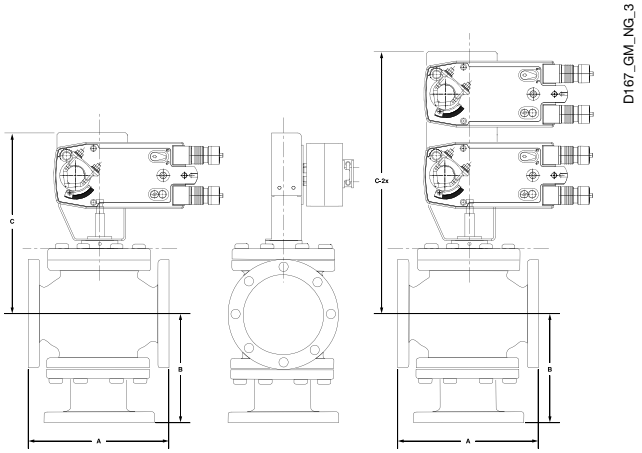
Dimensions with G6/G6C ANSI 125 and G6 ANSI 250 Series 2-Way Valve



Valve Body	Valve Nominal Size Inches	DN [mm]	Dimensions (Inches [mm]) A	B	C
G6 ANSI 125	2½"	65	9.00" [229]	4.75" [121]	13.50" [343]
G6 ANSI 125	3"	80	10.00" [254]	5.37" [136]	13.94" [354]
G6 ANSI 250	2½"	65	9.62" [244]	4.75" [121]	14.00" [356]
G6 ANSI 250	3"	80	10.75" [273]	5.37" [136]	14.12" [359]
G6C ANSI 125	2½"	65	9.00" [220]	4.75" [121]	13.50" [343]
G6C ANSI 125	3"	80	10.00" [254]	5.37" [136]	13.94" [354]
G6C ANSI 250	2½"	65	9.62" [244]	4.75" [121]	13.50" [343]
G6C ANSI 250	3"	80	10.75" [254]	5.37" [136]	13.94" [354]

Valve Body	Valve Nominal Size Inches	DN [mm]	Dimensions (Inches [mm]) A	B	C-2x
G6 ANSI 125	2½"	65	9.00" [229]	4.75" [121]	18.25" [464]
G6 ANSI 125	3"	80	10.00" [254]	5.37" [136]	19.18" [487]
G6 ANSI 250	2½"	65	9.62" [244]	4.75" [121]	18.25" [464]
G6 ANSI 250	3"	80	10.75" [273]	5.37" [136]	19.18" [487]
G6C ANSI 125	4"	100	13.00" [330]	6.87" [175]	20.25" [514]
G6C ANSI 125	5"	125	15.75" [400]	7.87" [200]	20.87" [530]
G6C ANSI 125	6"	150	17.75" [451]	8.50" [216]	21.50" [546]
G6C ANSI 250	4"	100	13.62" [346]	6.87" [175]	20.25" [514]
G6C ANSI 250	5"	125	16.62" [422]	7.87" [200]	20.87" [530]
G6C ANSI 250	6"	150	18.62" [473]	8.50" [216]	21.50" [546]

Dimensions with G7 and G7D ANSI 125/250 Series 3-Way Valve



Valve Body	Valve Nominal Size Inches	DN [mm]	Dimensions (Inches [mm]) A	B	C
G7 & G7D ANSI 125	2½"	65	9.00" [229]	7.12" [181]	13.87" [352]
G7 & G7D ANSI 125	3"	80	10.00" [254]	8.00" [203]	14.43" [367]
G7D ANSI 125	4"	100	13.00" [330]	9.87" [251]	15.25" [387]
G7 & G7D ANSI 250	2½"	65	9.62" [244]	7.37" [187]	14.00" [356]
G7 & G7D ANSI 250	3"	80	10.75" [273]	8.37" [213]	14.62" [371]
G7D ANSI 250	4"	100	13.62" [346]	10.25" [260]	15.25" [387]

Valve Body	Valve Nominal Size Inches	DN [mm]	Dimensions (Inches [mm]) A	B	C-2x
G7 ANSI 125	2½"	65	9.00" [229]	7.12" [181]	18.25" [464]
G7 ANSI 125	3"	80	10.00" [254]	8.00" [203]	19.18" [487]
G7 ANSI 125	4"	100	13.00" [330.2]	9.87" [251]	20.00" [508]
G7D ANSI 125	5"	125	12.00" [305]	10.50" [267]	18.37" [467]
G7D ANSI 125	6"	150	14.12" [359]	11.12" [282]	19.18" [487]
G7 ANSI 250	2½"	65	9.62" [244]	7.37" [187]	18.75" [476]
G7 ANSI 250	3"	80	10.75" [273]	8.37" [213]	19.37" [492]
G7 ANSI 250	4"	100	13.62" [346]	10.25" [260]	20.37" [517]
G7D ANSI 250	5"	125	12.87" [327]	11.00" [279]	20.56" [522]
G7D ANSI 250	6"	150	14.50" [368]	11.50" [292]	21.25" [540]

Wiring Diagrams

INSTALLATION NOTES

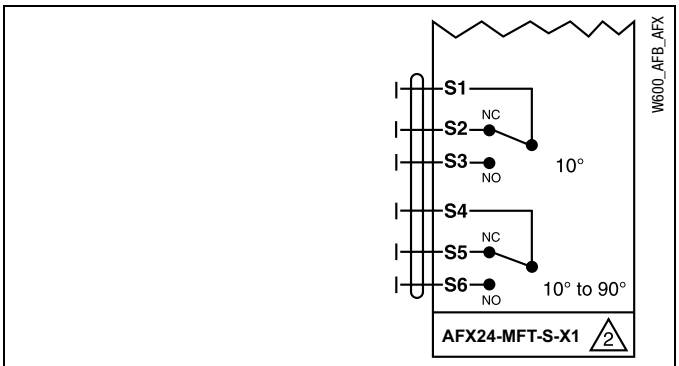
1. Provide overload protection and disconnect as required.
2. ***CAUTION*** *Equipment Damage!*
   Actuators may be connected in parallel if not mechanically mounted to the same shaft. Power consumption and input impedance must be observed.
3. Actuators may also be powered by 24 VDC.
4. Position feedback cannot be used with Triac sink controller.
   The actuator internal common reference is not compatible.
5. Control signal may be pulsed from either the Hot (source) or the Common (sink) 24 VAC line.
8. Contact closures A & B also can be triacs.
   A & B should both be closed for triac source and open for triac sink.
9. For triac sink the common connection from the actuator must be connected to the hot connection of the controller.

APPLICATION NOTES

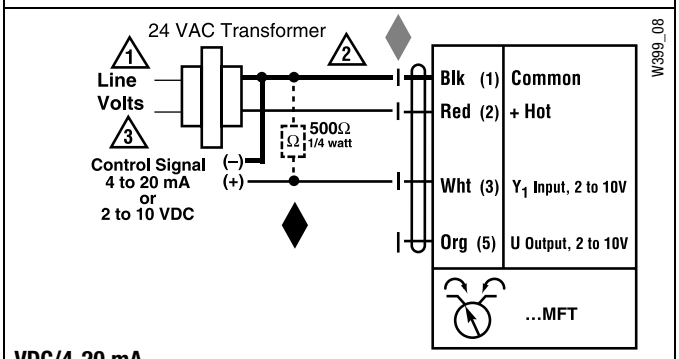
◆ Meets UL requirements without the need of an electrical ground connection.

◆ The ZG-R01 500 Ω resistor may be used.

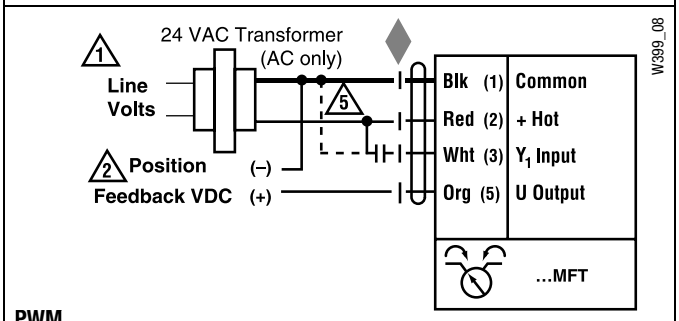
WARNING *Live Electrical Components!*
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components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



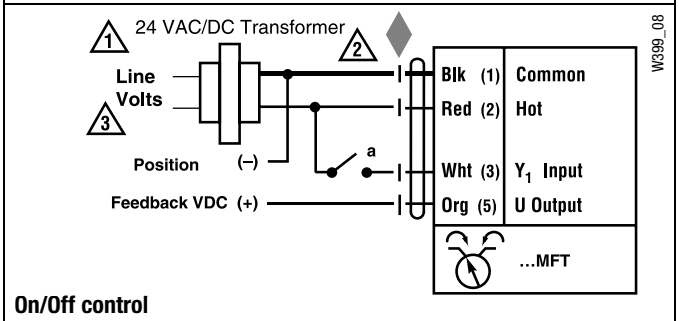
Auxiliary Switches for AFX24-MFT-S-X1



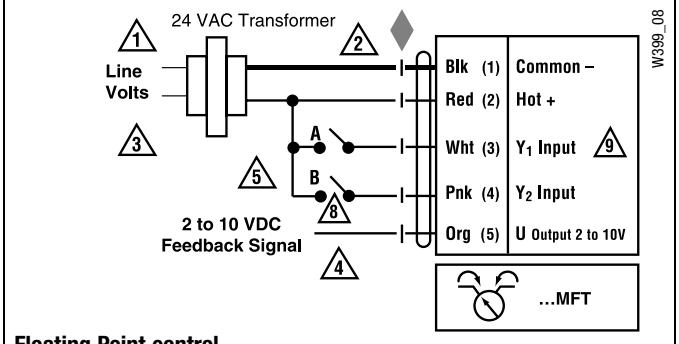
VDC/4-20 mA



PWM



On/Off control



Floating Point control

Wiring Diagrams for Multiple MFT Actuators

INSTALLATION NOTES

△3 Actuators may also be powered by 24 VDC

△5 Actuators with plenum rated cable do not have numbers on wires; use color codes instead. Actuators with appliance cable are numbered.

***WARNING** Live Electrical Components!*

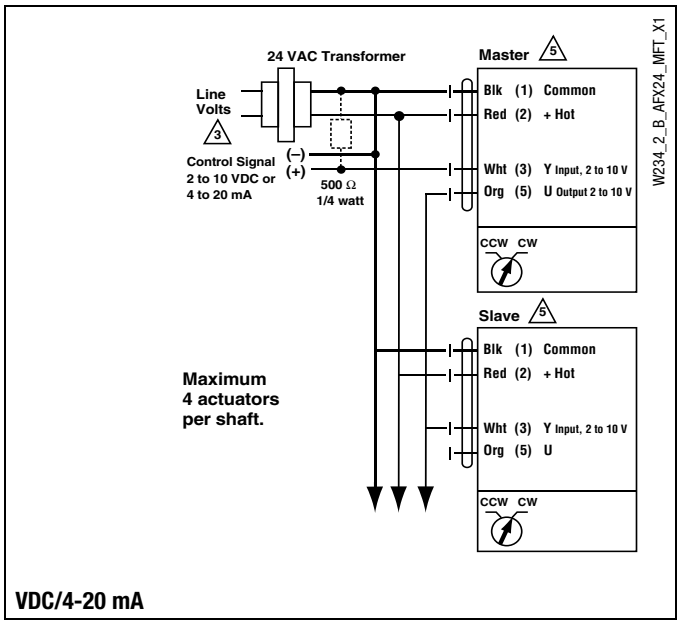
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow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

Wiring multiple ...MFT actuators to a single shaft and/or on valves. All MFT actuators are wired in master-slave configuration.

MFT actuator configurations should also coordinate with each other. Meaning the master input = controllers output. Master output = slave output. Slave output = controller input.

Example

Controller Output	Master Feedback	Slave Input	Slave Feedback
2 to 10 VDC	2 to 10 VDC	2 to 10 VDC	0 to 5 VDC



VDC/4-20 mA

MFT

5 YEAR WARRANTY

Models

AFX24-MFT95-X1

CE LISTED 94 D5 TEMP.IND. & REG. EQUIP. c UL us BRUSHLESS DC MOTOR

Technical Data	
Power supply	24 VAC, +/- 20%, 50/60 Hz 24 VDC, +20% / -10%
Power consumption♦ running	7.5 W
Power consumption♦ holding	3 W
Transformer sizing♦	10 VA (Class 2 power source)
Electrical connection	3 ft [1m], 18 GA plenum cable, with or without ½" conduit connector
Overload protection	electronic throughout 0 to 95° rotation
Operating range Y	0 to 135 Ω Honeywell Electronic Series 90, 0 to 135 Ω input
Feedback output U*	2 to 10 VDC, 0.5 mA max
Torque	minimum 180 in-lb (20 Nm)
Direction of rotation* spring	reversible with CW/CCW mounting
Direction of rotation* motor	reversible with built-in switch
Mechanical angle of rotation*	95° (adjustable with mechanical end stop, 35° to 95°)
Running time spring	<20 sec @ -4°F to 122°F [-20° C to 50° C]; <60 sec @ -22°F [-30° C]
Running time motor*	150 seconds (default), variable (70 to 220 seconds)
Angle of rotation adaptation	off (default)
Position indication	visual indicator, 0° to 95° (0° is spring return position)
Manual override	5 mm hex crank (3/16" Allen), supplied
Humidity	max. 95% RH, non-condensing
Ambient temperature	-22 to 122° F (-30 to 50° C)
Housing	NEMA 2, IP54, Enclosure Type 2
Housing material	zinc coated metal and plastic casing
Noise level	≤40dB(A) motor @ 150 seconds, run time dependant ≤62dB(A) spring return
Agency listings †	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC & 2006/95/EC
Quality standard	ISO 9001
Weight	4.2 lbs. (1.9 kg)

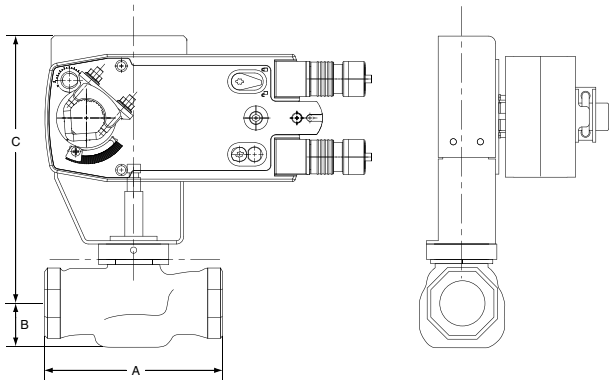
* Variable when configured with MFT options

† Rated Impulse Voltage 800V, Type of action 1.AA (1.AA.B for -S version), Control Pollution Degree 3.

♦ Programmed for 70 sec motor run time. At 150 sec motor run time, transformer sizing is 8.5 VA and power consumption is 6 W running / 3 W holding.

Dimensions with G2...(S) Series 2-Way Valve

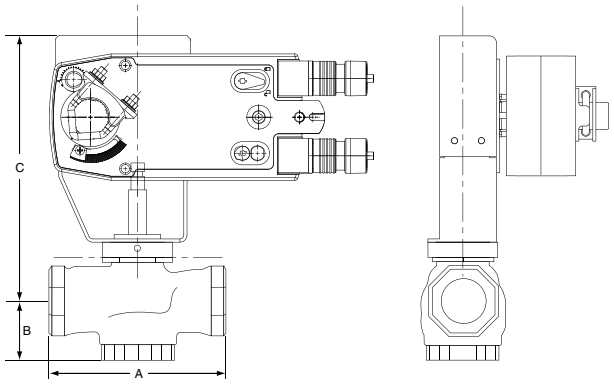
D180



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G2(S)	1½"	40	5.37" [137]	1.50" [38]	8.50" [216]
G2(S)	2"	50	6.12" [156]	1.56" [40]	8.56" [217]

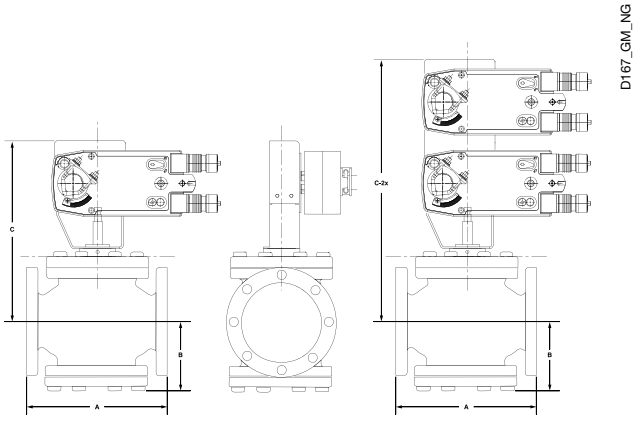
Dimensions with G3...(D) Series 3-Way Valve

D185



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G3(D)	1½"	40	5.37" [137]	1.62" [41]	8.62" [219]
G3(D)	2"	50	6.12" [156]	1.87" [48]	8.87" [225]

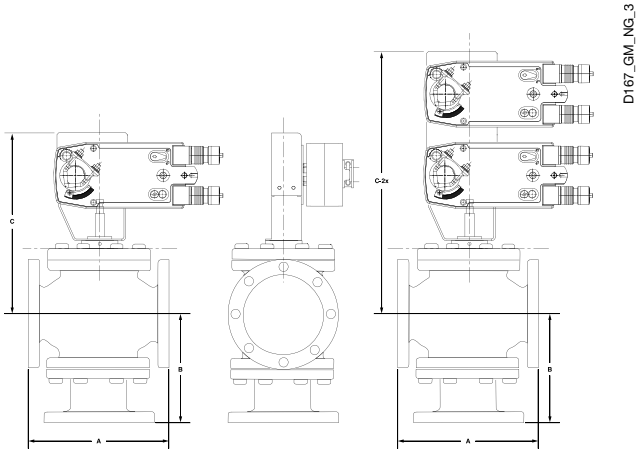
Dimensions with G6/G6C ANSI 125 and G6 ANSI 250 Series 2-Way Valve



Valve Body	Valve Nominal Size Inches	Valve Nominal Size DN [mm]	Dimensions (Inches [mm]) A	B	C
G6 ANSI 125	2½"	65	9.00" [229]	4.75" [121]	13.50" [343]
G6 ANSI 125	3"	80	10.00" [254]	5.37" [136]	13.94" [354]
G6 ANSI 250	2½"	65	9.62" [244]	4.75" [121]	14.00" [356]
G6 ANSI 250	3"	80	10.75" [273]	5.37" [136]	14.12" [359]
G6C ANSI 125	2½"	65	9.00" [229]	4.75" [121]	13.50" [343]
G6C ANSI 125	3"	80	10.00" [254]	5.37" [136]	13.94" [354]

Valve Body	Valve Nominal Size Inches	Valve Nominal Size DN [mm]	Dimensions (Inches [mm]) A	B	C-2x
G6 ANSI 125	2½"	65	9.00" [229]	4.75" [121]	18.25" [464]
G6 ANSI 125	3"	80	10.00" [254]	5.37" [136]	19.18" [487]
G6 ANSI 250	2½"	65	9.62" [244]	4.75" [121]	18.25" [464]
G6 ANSI 250	3"	80	10.75" [273]	5.37" [136]	19.18" [487]
G6C ANSI 125	4"	100	13.00" [330.2]	6.87" [175]	20.25" [514]
G6C ANSI 125	5"	125	15.75" [400]	7.87" [200]	20.87" [530]
G6C ANSI 125	6"	150	17.75" [451]	8.50" [216]	21.50" [546]

Dimensions with G7 and G7D ANSI 125/250 Series 3-Way Valve



Valve Body	Valve Nominal Size Inches	Valve Nominal Size DN [mm]	Dimensions (Inches [mm]) A	B	C
G7 & G7D ANSI 125	2½"	65	9.00" [229]	7.12" [181]	13.87" [352]
G7 & G7D ANSI 125	3"	80	10.00" [254]	8.00" [203]	14.43" [367]
G7D ANSI 125	4"	100	13.00" [330]	9.87" [251]	15.25" [387]
G7 & G7D ANSI 250	2½"	65	9.62" [244]	7.37" [187]	14.00" [356]
G7 & G7D ANSI 250	3"	80	10.75" [273]	8.37" [213]	14.62" [371]
G7D ANSI 250	4"	100	13.62" [346]	10.25" [260]	15.25" [387]

Valve Body	Valve Nominal Size Inches	Valve Nominal Size DN [mm]	Dimensions (Inches [mm]) A	B	C-2x
G7 ANSI 125	2½"	65	9.00" [229]	7.12" [181]	18.25" [464]
G7 ANSI 125	3"	80	10.00" [254]	8.00" [203]	19.18" [487]
G7 ANSI 125	4"	100	13.00" [330.2]	9.87" [251]	20.00" [508]
G7D ANSI 125	5"	125	12.00" [305]	10.50" [267]	18.37" [467]
G7D ANSI 125	6"	150	14.12" [359]	11.12" [282]	19.18" [487]
G7 ANSI 250	2½"	65	9.62" [244]	7.37" [187]	18.75" [476]
G7 ANSI 250	3"	80	10.75" [273]	8.37" [213]	19.37" [492]
G7 ANSI 250	4"	100	13.62" [346]	10.25" [260]	20.37" [517]
G7D ANSI 250	5"	125	12.87" [327]	11.00" [279]	20.56" [522]
G7D ANSI 250	6"	150	14.50" [368]	11.50" [292]	21.25" [540]

Proportional Potentiometric Control - Wiring Diagrams

INSTALLATION NOTES

5 Actuators with plenum rated cable do not have numbers on wires; use color codes instead. Actuators with appliance cables are numbered.

21 Provide overload protection and disconnect as required.

22 Actuators and controller must have separate transformers.

23 Consult controller instruction data for more detailed information.

24 Resistor value depends on the type of controller and the number of actuators. No resistor is used for one actuator. Honeywell® resistor kits may also be used.

25 To reverse control rotation, use the reversing switch.

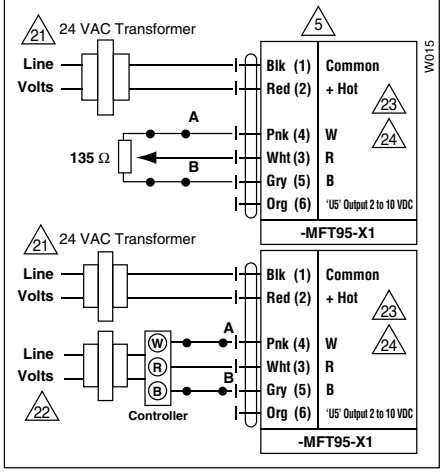
Wire Colors

1 = Black	3 = White	5 = Gray
2 = Red	4 = Pink	6 = Orange

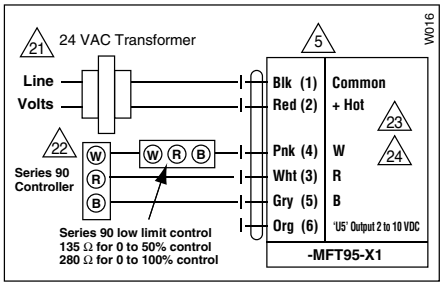
Override

Switch A	Switch B	Damper Position
		Damper Open
		Damper Closed

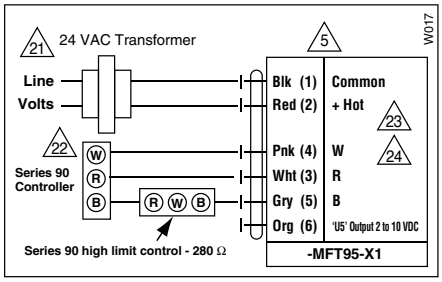
The direction of rotation switch is set so that the fail safe position and the position of the damper is closed with no signal at wire R.



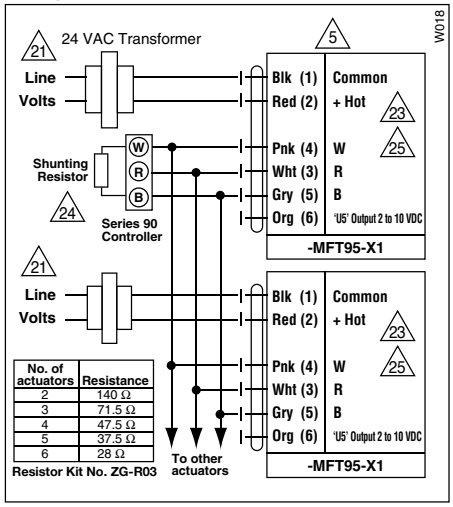
Low Limit Control



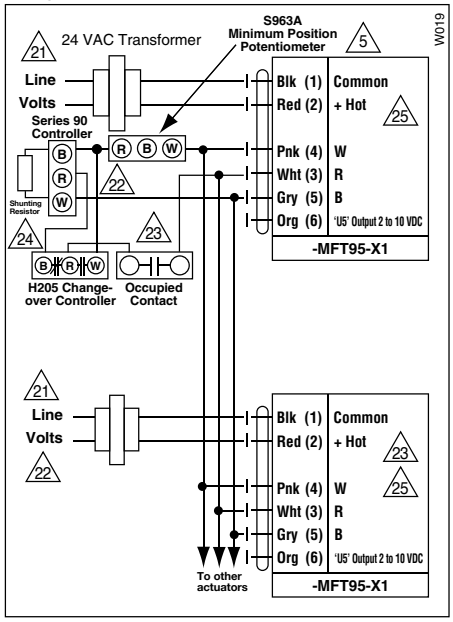
High Limit Control



Wiring Multiple Actuators to a Series 90 Controller



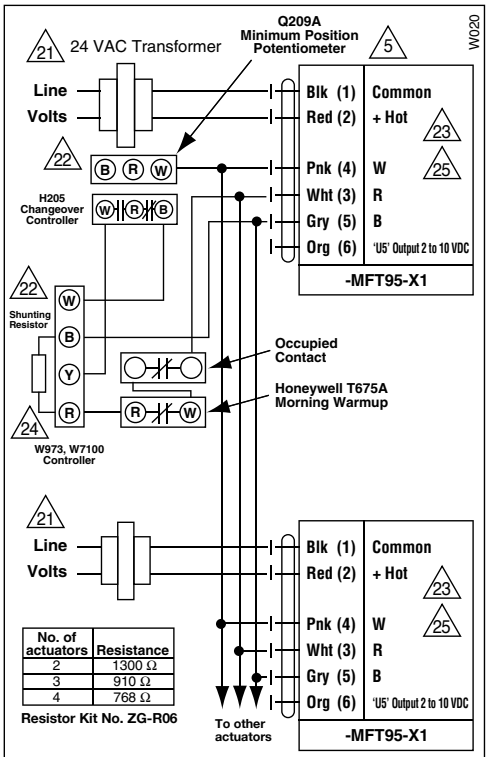
Wiring Multiple Actuators to a Series 90 Controller using a Minimum Position Potentiometer



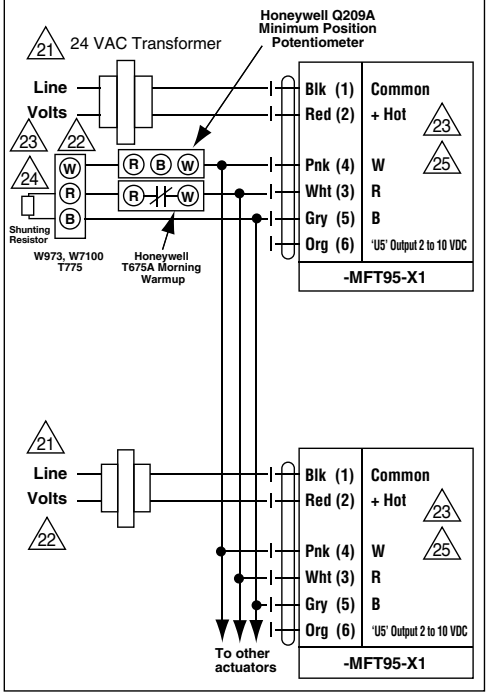
WARNING *Live Electrical Components!*

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.

Typical wiring diagrams for multiple actuators used with the W973, W7100 and T775 controllers



Used with the W973 and W7100 controllers



Wiring Diagrams for Multiple MFT95 Actuators

INSTALLATION NOTES

△3 Actuators may also be powered by 24 VDC

△5 Actuators with plenum rated cable do not have numbers on wires; use color codes instead. Actuators with appliance cable are numbered.

△21 Provide overload protection and disconnect as required.

△23 Consult controller instruction data for more detailed information.

△25 To reverse control rotation, use reversing switch.

WARNING *Live Electrical Components!*

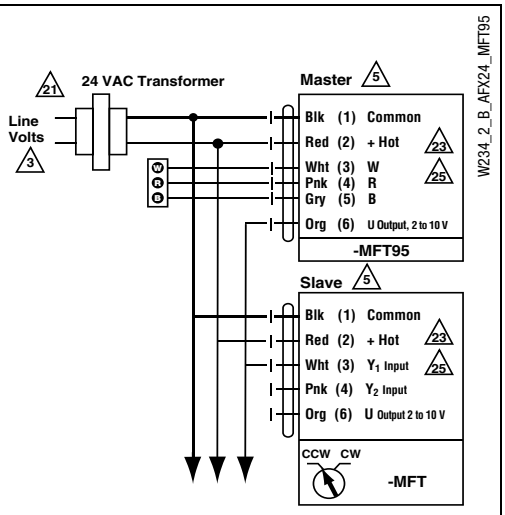
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow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

Wiring multiple ...MFT actuators to a single shaft and/or on valves. All MFT actuators are wired in master-slave configuration.

MFT actuator configurations should also coordinate with each other. Meaning the master input = controllers output. Master output = slave output. Slave output = controller input.

Example

Controller Output	Master Feedback	Slave Input	Slave Feedback
0 to 135 Ω	2 to 10 VDC	2 to 10 VDC	2 to 10 VDC



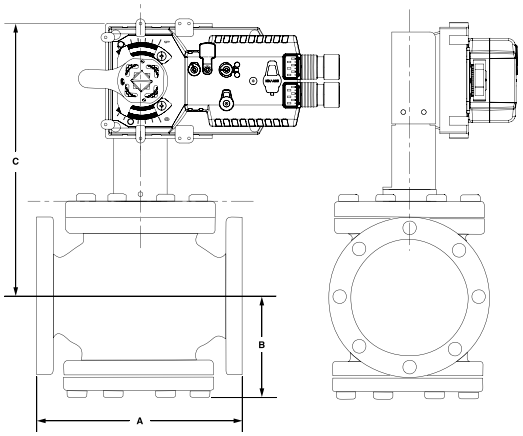
Multiple Actuators Mounted to One Control Shaft

Models

GKB24-3-X1

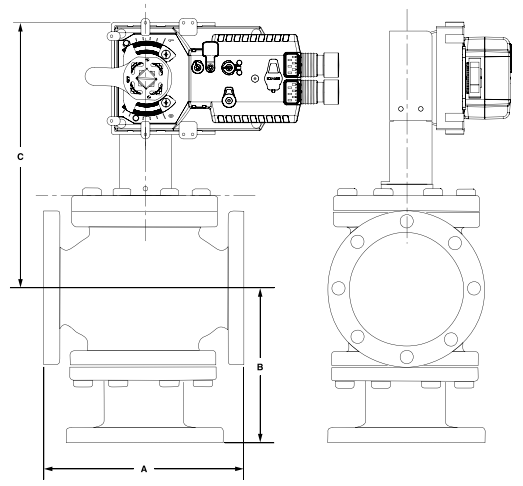
Technical Data	
Power supply	24VAC ±20% 50/60Hz 24VDC ±10%
Power consumption	12 W (3 W)
Transformer sizing	21 VA (Class 2 power source)
Electrical connection	18 GA plenum rated cable ½" conduit connector protected NEMA 2 (IP54)
Overload protection	electronic throughout 0 to 95 rotation
Operation range Y	on/off, floating point
Input impedance	100 kΩ (0.1 mA), 500 Ω 1500 Ω (PWM, floating point, on/off)
Feedback output U	2 to 10VDC, 0.5mA max VDC variable
Angle of rotation	max. 95°, adjustable with mechanical stop electronically variable
Torque	360 in-lb [40Nm]
Direction of rotation	reversible with ↷/↶ switch
Fail-safe position	adjustable with dial or tool, 0 to 100% in 10% increments
Position indication	reflective visual indicator (snap-on)
Manual override	external push button
Running time normal operation	150 seconds (default), variable 95 to 150 seconds
Running time fail-safe	35 seconds
Humidity	5 to 95% RH non-condensing (EN 60730-1)
Ambient temperature	-22°F to +122°F [-30°C to +50°C]
Storage temperature	-40°F to +176°F [-40°C to +80°C]
Housing	NEMA2, IP54, UL enclosure type 2
Housing material	UL94-5VA
Agency list	cULus acc. to UL 60730-1A/-2-14 CAN/CSA E60730-1:02 CE acc. to 2004/108/EEC and 2006/95/EC
Noise level	<45dB(A)
Quality standard	ISO 9001
Weight	3.85 lbs [1.75 kg]

Dimensions with G6/G6C ANSI 125 and G6 ANSI 250 Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G6 ANSI 125	2½"	65	9.00" [229]	4.75" [121]	13.50" [343]
G6 ANSI 125	3"	80	10.00" [254]	5.37" [136]	13.93" [355]
G6 ANSI 125	4"	100	13.00" [330]	6.37" [162]	16.00" [406]
G6 ANSI 250	2½"	65	9.62" [244]	4.75" [121]	13.50" [343]
G6 ANSI 250	3"	80	10.75" [273]	5.37" [136]	13.93" [355]
G6 ANSI 250	4"	100	13.62" [346]	6.37" [162]	16.00" [406]
G6C ANSI 125	4"	100	13.00" [330]	6.87" [175]	15.50" [394]
G6C ANSI 125	5"	125	15.75" [400]	7.87" [200]	16.12" [410]
G6C ANSI 125	6"	150	17.75" [451]	8.50" [216]	16.75" [425]

Dimensions with G7 and G7D ANSI 125/250 Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inch-es	DN [mm]	A	B	C
G7 & G7D ANSI 125	2½"	65	9.00" [229]	7.12" [181]	13.87" [352]
G7 & G7D ANSI 125	3"	80	10.00" [254]	8.00" [203]	14.43" [367]
G7 & G7D ANSI 125	4"	100	13.00" [330]	9.87" [251]	15.50" [394]
G7D ANSI 125	5"	125	12.00" [305]	10.50" [267]	14.12" [359]
G7D ANSI 125	6"	150	14.12" [359]	11.12" [283]	15.12" [505]
G7 & G7D ANSI 250	2½"	65	9.62" [244]	7.37" [187]	13.87" [352]
G7 & G7D ANSI 250	3"	80	10.75" [273]	8.37" [213]	14.43" [367]
G7 & G7D ANSI 250	4"	100	13.62" [346]	10.25" [260]	15.50" [394]
G7D ANSI 250	5"	125	12.87" [327]	11.00" [279]	14.12" [359]
G7D ANSI 250	6"	150	14.50" [368]	11.50" [292]	15.12" [505]

Wiring Diagrams

INSTALLATION NOTES

1 Provide overload protection and disconnect as required.

2 ***CAUTION*** *Equipment Damage!*
Actuators may be connected in parallel if not mechanically mounted to the same shaft. Power consumption and input impedance must be observed.

4 Position feedback cannot be used with Triac sink controller. The actuator internal common reference is not compatible.

5 Control signal may be pulsed from either the Hot (source) or the Common (sink) 24 VAC line.

8 Contact closures A & B also can be triacs. A & B should both be closed for triac source and open for triac sink.

APPLICATION NOTES

◆ Meets UL requirements without the need of an electrical ground connection.

WARNING *Live Electrical Components!*
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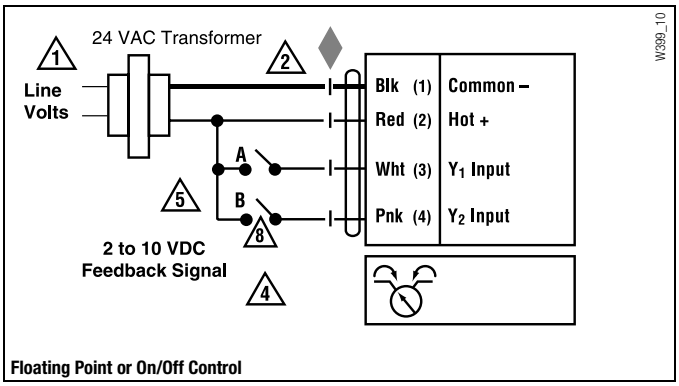
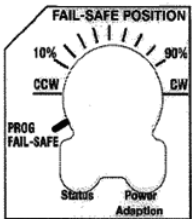


Floating Point or On/Off Control

Operations

Setting the Fail-Safe Position



Belimo's new Electronic Fail-Safe Actuators allows the user to set the fail position (0-100% in 10% increments). To set the position of the fail-safe, rotate the cover away from the fail-safe switch. Turn the switch to the desired positon. To set with PC Tool, turn the switch to PROG FAIL-SAFE. When done, rotate the cover back into position.

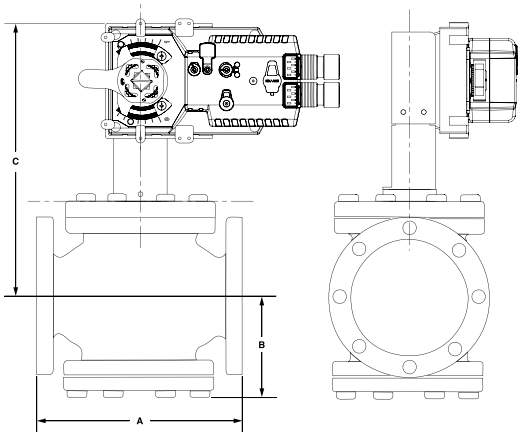
Note: If switch is left in PROG FAIL-SAFE, the PC Tool software setting is active and can set the fail-safe position. It is recommended that the switch be set on the front of the actuator. This gives a simple visual as to what the fail-safe positon is set as. If the fail-safe is programmed using the PC Tool, and the switch is then moved off the PROG FAIL-SAFE position, the new position will override the PC Tool setting. The direction switch does not affect the fail-safe position switch.

Models

GKX24-MFT-X1

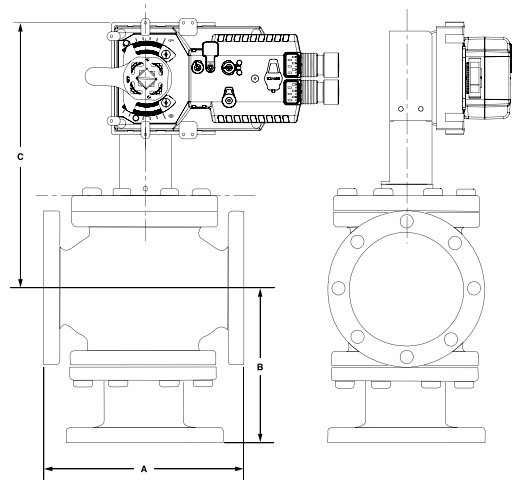
Technical Data	
Power supply	24VAC ±20% 50/60Hz 24VDC ±10%
Power consumption	12 W (3 W)
Transformer sizing	21 VA (Class 2 power source)
Electrical connection	18 GA plenum rated cable ½" conduit connector protected NEMA 2 (IP54)
Overload protection	electronic throughout 0 to 95 rotation
Operation range Y	2 to 10 VDC, 4 to 20mA (default) variable (VDC,PWM, floating point, on/off)
Input impedance	100 kΩ (0.1 mA), 500 Ω 1500 Ω (PWM, floating point, on/off)
Feedback output U	2 to 10 VDC, 0.5mA max VDC variable
Angle of rotation	max. 95°, adjustable with mechanical stop electronically variable
Torque	360 in-lb [40Nm]
Direction of rotation	reversible with ↷/↶ switch
Fail-safe position	adjustable with dial or tool, 0 to 100% in 10% increments
Position indication	reflective visual indicator (snap-on)
Manual override	external push button
Running time normal operation	150 seconds (default), variable 95 to 150 seconds
Running time fail safe	35 seconds
Humidity	5 to 95% RH non-condensing (EN 60730-1)
Ambient temperature	-22°F to +122°F [-30°C to +50°C]
Storage temperature	-40°F to +176°F [-40°C to +80°C]
Housing	NEMA2, IP54, UL enclosure type 2
Housing material	UL94-5VA
Agency list	cULus acc. to UL 60730-1A/-2-14 CAN/CSA E60730-1:02 CE acc. to 2004/108/EEC and 2006/95/EC
Noise level	<45dB(A)
Quality standard	ISO 9001
Weight	3.85 lbs [1.75 kg]

Dimensions with G6/G6C ANSI 125 and G6 ANSI 250 Series 2-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G6 ANSI 125	2½"	65	9.00" [229]	4.75" [121]	13.50" [343]
G6 ANSI 125	3"	80	10.00" [254]	5.37" [136]	13.93" [355]
G6 ANSI 125	4"	100	13.00" [330]	6.37" [162]	16.00" [406]
G6 ANSI 250	2½"	65	9.62" [244]	4.75" [121]	13.50" [343]
G6 ANSI 250	3"	80	10.75" [273]	5.37" [136]	13.93" [355]
G6 ANSI 250	4"	100	13.62" [346]	6.37" [162]	16.00" [406]
G6C ANSI 125	4"	100	13.00" [330]	6.87" [175]	15.50" [394]
G6C ANSI 125	5"	125	15.75" [400]	7.87" [200]	16.12" [410]
G6C ANSI 125	6"	150	17.75" [451]	8.50" [216]	16.75" [425]

Dimensions with G7 and G7D ANSI 125/250 Series 3-Way Valve



	Valve Nominal Size		Dimensions (Inches [mm])		
Valve Body	Inches	DN [mm]	A	B	C
G7 & G7D ANSI 125	2½"	65	9.00" [229]	7.12" [181]	13.87" [352]
G7 & G7D ANSI 125	3"	80	10.00" [254]	8.00" [203]	14.43" [367]
G7 & G7D ANSI 125	4"	100	13.00" [330]	9.87" [251]	15.50" [394]
G7D ANSI 125	5"	125	12.00" [305]	10.50" [267]	14.12" [359]
G7D ANSI 125	6"	150	14.12" [359]	11.12" [283]	15.12" [505]
G7 & G7D ANSI 250	2½"	65	9.62" [244]	7.37" [187]	13.87" [352]
G7 & G7D ANSI 250	3"	80	10.75" [273]	8.37" [213]	14.43" [367]
G7 & G7D ANSI 250	4"	100	13.62" [346]	10.25" [260]	15.50" [394]
G7D ANSI 250	5"	125	12.87" [327]	11.00" [279]	14.12" [359]
G7D ANSI 250	6"	150	14.50" [368]	11.50" [292]	15.12" [505]

Wiring Diagrams

INSTALLATION NOTES

1. Provide overload protection and disconnect as required.
2. ***CAUTION*** *Equipment Damage!*
   Actuators may be connected in parallel if not mechanically mounted to the same shaft. Power consumption and input impedance must be observed.
3. Actuators may also be powered by 24 VDC.
4. Position feedback cannot be used with Triac sink controller. The actuator internal common reference is not compatible.
5. Control signal may be pulsed from either the Hot (source) or the Common (sink) 24 VAC line.
8. Contact closures A & B also can be triacs. A & B should both be closed for triac source and open for triac sink.
9. For triac sink the common connection from the actuator must be connected to the hot connection of the controller.

APPLICATION NOTES

WARNING *Live Electrical Components!*
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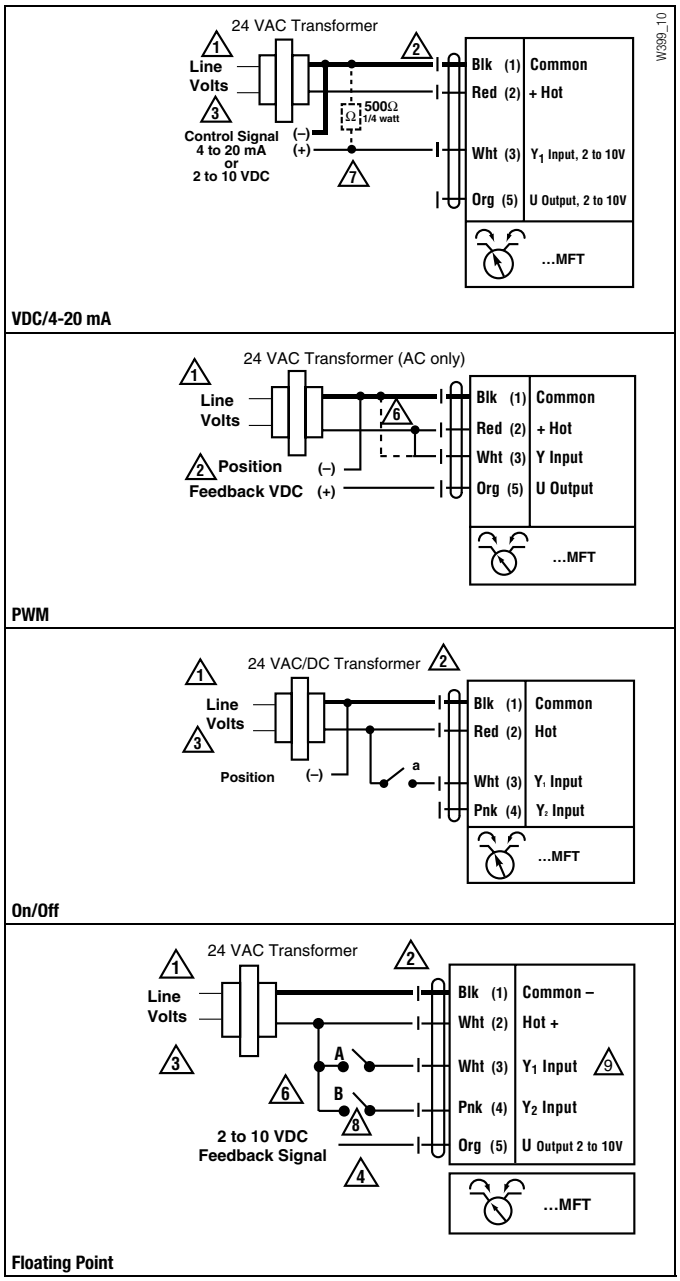
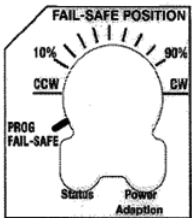


Operations

Setting the Fail-Safe Position



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Note: If switch is left in PROG FAIL-SAFE, the PC Tool software setting is active and can set the fail-safe position. It is recommended that the switch be set on the front of the actuator. This gives a simple visual as to what the fail-safe positon is set as. If the fail-safe is programmed using the PC Tool, and the switch is then moved off the PROG FAIL-SAFE position, the new position will override the PC Tool setting. The direction switch does not affect the fail-safe position switch.

G2/G3 Spring Return and Non-Spring Return

	Non-Spring Return						Spring Return					
	NVD	**NV**	**NVG**	**LM**	**NM**	**AM**	**NVFD**	**NVF**	**LF**	**NF**	**AF**	**AFX**
2-way												
G212(S)	250			250			250		250			
G213(S)	250			250			250		250			
G214(S)	250			250			250		250			
G215(S)	250			250			250		250			
G219(S)	250			242			250		185			
G220(S)	250			242			250		185			
G224(S)		250			250			207		250		
G225(S)		250			250			207		250		
G232(S)		162			158			130		158		
G240(S)		110	160			230		88			169	230
G250(S)		58	190			127		47			93	127
3-way Mixing												
G314	250			250			250		250			
G315	250			250			250		250			
G320	250			242			250		185			
G325		250			250			207		250		
G332		162			158			130		158		
G340		110				230		88			169	230
G350		58				127		47			93	127
3-way Diverting												
G315D	250			250			250		250			
G320D	250			250			250		250			
G325D	250				250		250			250		
G332D		250			250			250		250		
G340D		250				250		250			250	250
G350D		250				250		250			250	250

G6/G7 Non-Spring Return, Spring Return and Electronic Fail Safe

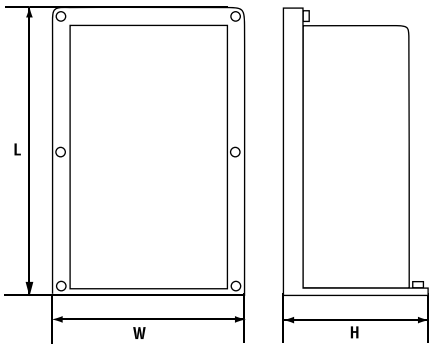
	Non-Spring Return				Spring Return					Electronic Fail-Safe
	NV	NVG	GM	2 x GM	NVF	AF	2x AF	AFX	2 x AFX	GK
2-way ANSI 125										
G665, G665S		62	113	150		36	59	51	82	113
G680, G680S		42	78	121		24	40	34	56	78
G6100, G6100S			19							19
2-way Pressure Comp ANSI 125										
G665C, G665CS, G665LCS	150				150	150		150		
G680C, G680CS, G680LCS	150				136	150		150		
G6100C, G6100CS, G6100LCS			150				132		150	150
G6125C, G6125CS, G6125LCS			150				87		150	150
G6150C, G6150C, G6150LCS			150				50		150	150
2-way Pressure Comp ANSI 250										
G665C-250, G665CS-250								250		
G680C-250, G680CS-250								250		
G6100C-250, G6100CS-250			250						212	250
G6125C-250, G6125CS-250			239						152	239
G6150C-250, G6150C-250			178						105	178
2-way ANSI 250										
G665-250, G665S-250		62	113	176		36	59	51	82	113
G680-250, G680S-250		42	78	121		24	40	34	56	78
G6100-250, G6100S-250			19							19
3-way ANSI 125 Mixing										
G765, G765S		62	113	150		36	59	51	82	114
G780, G780S		42	78	121		24	40	34	56	78
G7100, G7100S			19	31					13	19
G7125, G7125S				19						
G7150, G7150S				13						
3-way ANSI 250 Mixing										
G765-250, G765S-250		62	113	176		35	58	40	114	114
G780-250, G780S-250		42	78	121		23	40	25	77	78
G7100-250, G7100S-250				31					24	19
G7125-250, G7125S-250				19						
G7150-250, G7150S-250				13						
3-way ANSI 125/250 Diverting										
G765D, G765DS, G765DS-250		100	100			100		100		100
G780D, G780DS, G780DS-250		100	100			100		100		100
G7100D, G7100DS, G100DS-250		100	100			100		100		100
G7125D, G7125DS, G7125DS-250			100				100		100	100
G7150D, G7150DS, G7150DS-250			100				100		100	100

Weather Shield for NV Series Actuator with G2/G3, G6, G7 and G6C Globe Valves

Application

The ZS-NV-10... weather shield provides moderate protection for valves which are mounted outdoors. This product is not designed as a water tight enclosure. The smoke tinted housing offers easy mounting over the NV Series actuator while allowing easy viewing of the actuator in operation.

Specifications	
Cover	PETG with UV resistant smoke tint
Plate	Galvaneal w/black powder coat
Gasket	PVC Closed Cell Foam
Perimeter gasket	Open Cell Foam
Screws	Stainless Steel
Fasteners	Nylatch type
Temperature limitations	-22˚F to 122˚F [-30˚C to 50˚C]



	Dimensions (Inches [mm])		
Part Number	L	W	H
ZS-NV-10	9.80" [250]	6.50" [165]	4.90" [125]

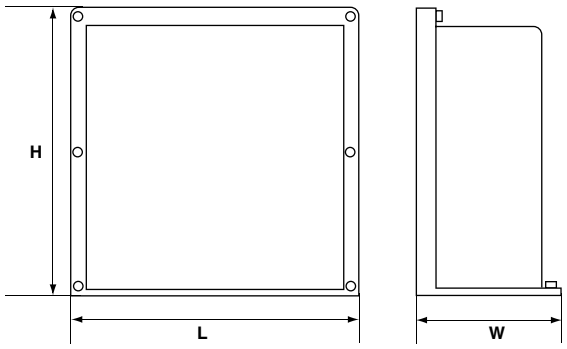
Part Number	For Actuator
ZS-NV-10	All NV Series

Weather Shield for Rotary Series Actuator with G2/G3, G6/G7 and G6C Globe Valves

Application

The ZS-SPGV Weather shields provide moderate protection for valves which are mounted outdoors. This product is not designed as a water tight enclosure. The ZS-SPGV are used with G6/G7 series valves.

Specifications	
Cover	Poly Vinyl Chloride (PVC)
Perimeter gasket	BUNA
Screws	Brass
Temperature limitations	-22°F to 122°F (-30°C to 50°C)



		Dimensions (Inches [mm])		
Part Number	For Actuator	L	W	H
ZS-SPGV-10	Dual AF series on Flanged Globe Valve	12" [305]	4" [102]	12" [305]
ZS-SPGV-20	Single AF series on Flanged Globe Valve	12" [305]	4" [102]	12" [305]
ZS-SPGV-30	Single AM Series on Screwed Globe Valve	12" [305]	4" [102]	12" [305]
ZS-SPGV-40	Single GM/GK series on Flanged Globe Valve	12" [305]	4" [102]	12" [305]
ZS-SPGV-50	Dual GM series on Flanged Globe Valve	12" [305]	4" [102]	12" [305]
ZS-SPGV-20	NF/AF Series on Screwed Globe Valve	12" [305]	4" [102]	12" [305]
ZS-SPGV-60	LF Series on Screwed Globe Valve	8" [203]	4" [102]	8" [203]
ZS-SPGV-70	LM Series on Screwed Globe Valve	8" [203]	4" [102]	8" [203]
ZS-SPGV-80	NM Series on Screwed Globe Valve	8" [203]	4" [102]	8" [203]

Battery Back-up Module NSV24

Application

Several Belimo damper actuators can be used either with 24 VAC or 24 VDC.

In case of a power failure, the NSV24 battery back-up unit switches the damper actuator from its main AC power supply over to the 24 VDC battery to drive the actuators to their safety position.

For easy maintenance, the battery back-up system is placed in the control panel, not in the actuator. Several actuators may be powered by one back-up module. The batteries are separate from the NSV24.

Operation

The NSV24 is connected to the same 24 VAC power source as the damper actuators. It also charges the 24 V (2-12 volt batteries) storage battery. Its charge current is limited to 150 mA maximum, and the maximum charge voltage is temperature compensated.

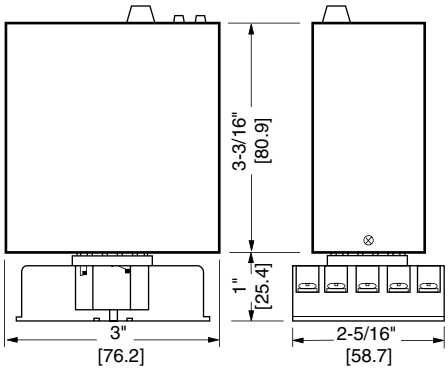
In case of a power failure, the NSV24 switches immediately over to the battery power source, and according to the control function, the actuators will move to their safety position. After 250 seconds, the batteries are disconnected from the actuators to prolong battery life. Because of this, a safe battery back-up can be provided for several short-term failures. The main power source operation is indicated by a green LED, and the battery power source by a red LED.

Technical Data	
Power supply	24 VAC ± 20% 50/60 Hz
Fusing	4A slow blow fuse
Power consumption	min. 5W (without actuator load)
Transformer	8 VA
Batteries	24 V nominal 1.2 Ah (2-12 volt lead-acid batteries; batteries not supplied with module)
Maintenance	The batteries should be checked annually (approximate life is 6 years)
Charging circuit	charge current max. 150 mA charge voltage 24-27 V, temperature compensated
Battery back-up operation	24 V nominal 1.2 Ah, max. 60 W auto shut off after 250 seconds
Indication LED	green - main power source operation (battery will be charged) Red - battery back-up operation
Mounting	mounted in the control panel with an 11 terminal plug-in base (not supplied with module)
Ambient temperature	14°F to 122°F [-10°C . . . 50°C]

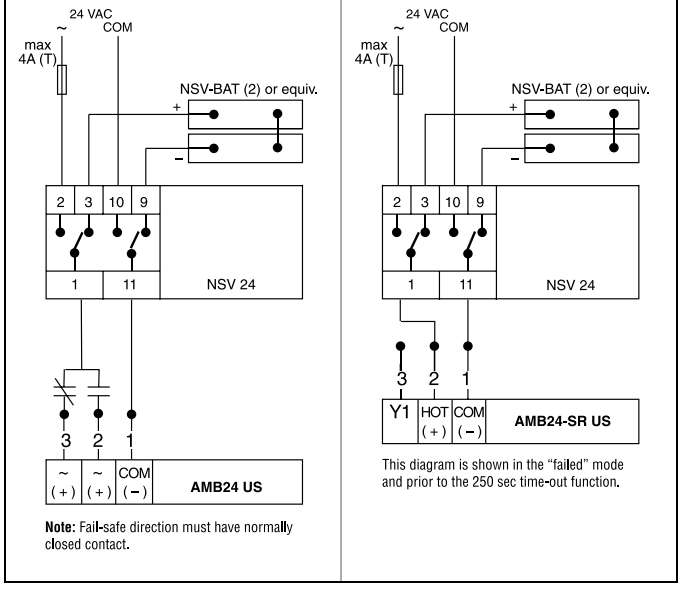
Connectable Actuator Models	Maximum per module
GMB24-3X1	20
GMX24-3	15
GMX24-MFTX1	15
GMB24-SR	15
AMB24-3	30
AMX24-MFT	30
AMB24-SR	30
NMB24-3	30
NMX24-MFT	30
NMB24-SR	30
LMB24-3	30
LMX24-MFT	30
LMB24-SR	30

Accessories	
NSV-BAT	12 VDC 1.2 Ah battery (2 required)

Dimensions (Inches [mm])



Wiring Diagram



Set-Up of NV24-3 US Actuators during Installation

General

Beneath the cover of the actuator are the terminals for the cable connection and the S1 switch. The floating point signal is processed in the microprocessor and conveyed to the motor. Supply voltage is created by the rectifier. The stroke direction can be reversed with the switch S1.2 (On/Off is indicated on switch). This defines if the valve closes with the plunger up or down. The direction of the plunger can also be inverted by exchanging the wires Y1 and Y2.

Note: Switch S1.2 must be set based on the valve closing point.

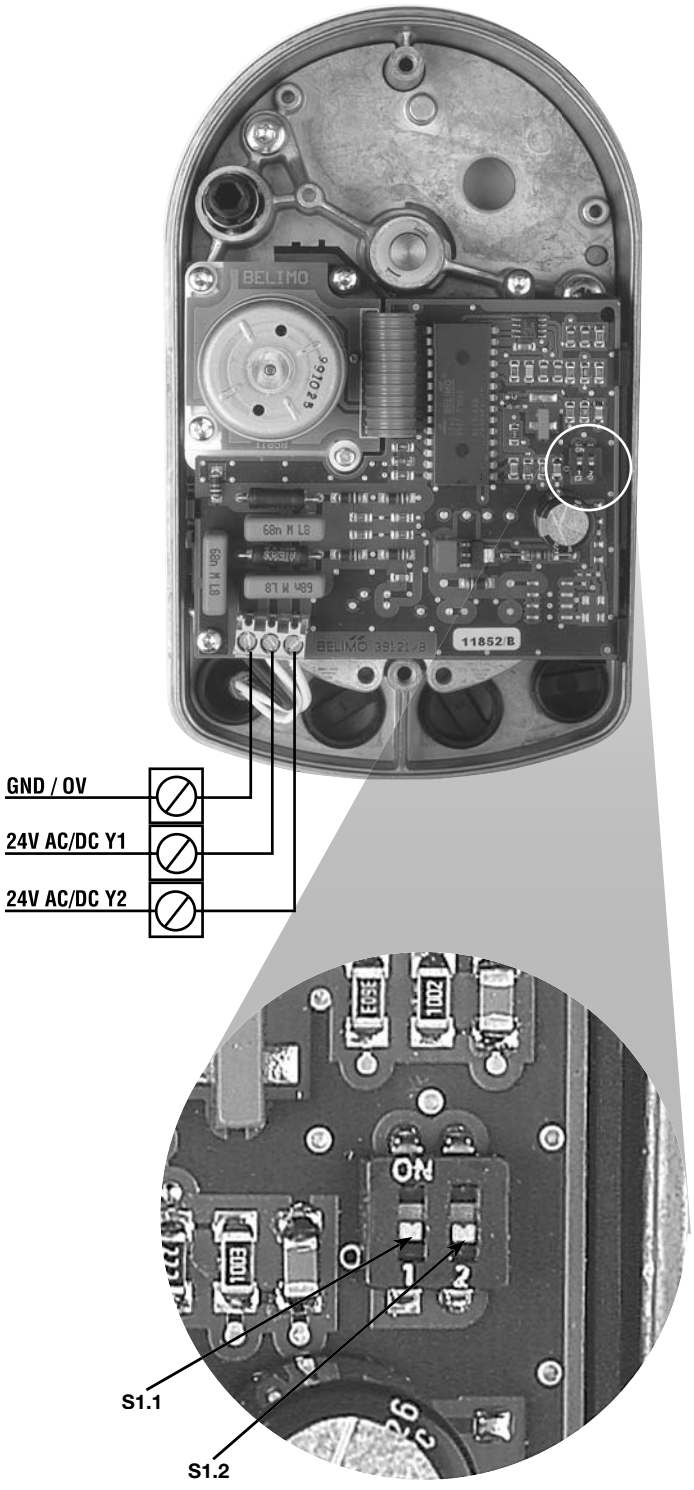
Functional description

Use Switches S1.1 and S1.2 to set the run time and select the valve closing point.

S1.1	**Actuating time**	
	Off position	50s/.25" [7.5s/mm] (Default)
	On position	Deactivated not used
S1.2	**Selecting the closing point**	Valve closing point is with the closing point actuator plunger extended or retracted
	Off position	Valve closing point is with the actuator plunger retracted
	On position	Valve closing point is with the actuator plunger extended

Note: NV24-3 US and NVD24-3 US do not contain test or adaptation functional switches. Adaptation is not necessary for the NV24-3 US and NVD24-3 US actuators.

NV24-3 US



Set-Up of NV Series MFT Actuators during Installation

General

Beneath the cover of the actuator are the terminals for the cable connection, the S1 and S2 buttons, S3 switch, and the LED status display H1. The setting signal is processed in the microprocessor, and conveyed to the motor via drivers. By setting the slide switch S3 or pressing the buttons S1 and S2, the actuator can easily be configured on site to the requirements, if there are changes from the factory settings.

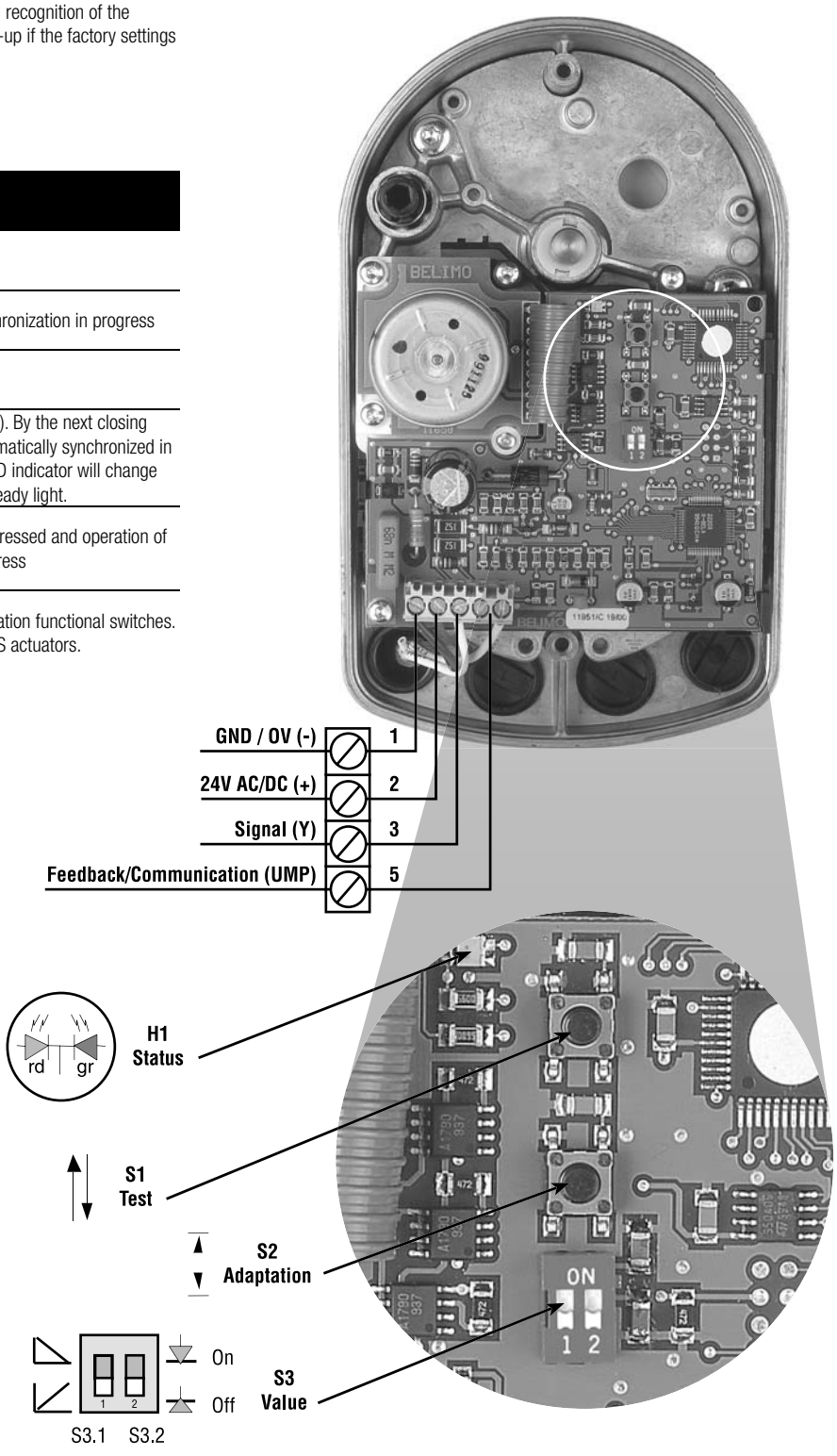
The NV and NVF actuators are maintenance-free. The two-color LED display is located beneath the cover of the actuator. This display allows immediate recognition of the functional state of the actuator. In addition, it permits simple set-up if the factory settings need to be changed.

MFT and Spring Return Actuators
Operation of Switches/LED

LED operating display H1	
Green steady light	Actuator working properly
Green flashing light	Test run or adaptation with synchronization in progress
Red steady light	Fault; repeat adaptation
Red flashing light	After power interruption (>2 sec.). By the next closing movement the valve will be automatically synchronized in the chosen closing point. The LED indicator will change from a red flashing into green steady light.
Alternating red/green light	Master control system being addressed and operation of the adaptation button S2 in progress

Note: NV24-3 US and NVD24-3 US do not contain test or adaptation functional switches. Adaptation is not necessary for the NV24-3 US and NVD24-3 US actuators.

NV(G)…MFT US
NVF…MFT US
NVF…US



Manual Override

NV…US Non-Spring Return

The valve coupling can be adjusted by inserting a 3/16" or 5 mm hex in the housing cover **(Figure 3)**.

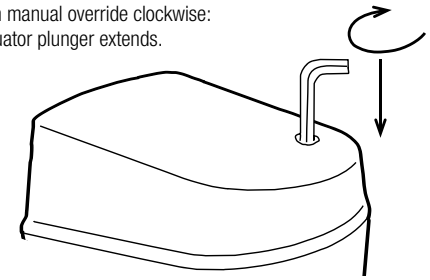
If the hex is turned clockwise, the coupling moves down; counterclockwise turning moves it up. The manual override is protected against overload. The coupling remains in the manual position as long as the actuator is not connected to the nominal voltage. With the nominal voltage applied to the actuator, the coupling follows the positioning signal.

NVF…US Spring Return

Figure 3

Turn manual override counter-clockwise:
Actuator plunger retracts.

Turn manual override clockwise:
Actuator plunger extends.



Over-torquing manual override will not damage actuator.

The valve coupling can be adjusted by inserting a 3/16" or 5 mm hex in the housing cover **(Figure 3)**.

The spring return function in the actuator is pre-tensioned when delivered.
The manual operating mechanism is overload-proof. The plunger will remain at the manual setting until the power supply to the actuator is turned on or, the next time the power supply is interrupted, it moves to whichever end position has been selected.

NVF…US Retracting, Spring Up

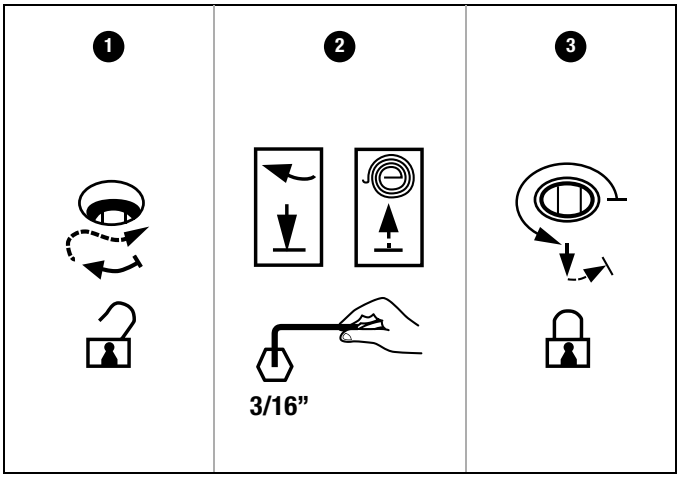
NOTE:
1. Do not override the NVF while power is applied to the actuator.
2. If the actuator is overridden while power is applied, remove cover and perform manual adaptation function by pressing S2 button.
3. **When overriding the actuator turn the hex 3/4 turn and then press down to lock after the desired position is found. This prevents the gear from over-tightening into an end-position which would prevent the override mechanism from unlocking automatically during power up. If the manual override does not unlock automatically during power-up you must unlock the actuator manually with the hex.**
4. Use the NV… MFT US in only closed control loops.

1 **Disengaging manual operation**
Turn the hex clockwise 45° until resistance is encountered. Then lift the key approx. 1/4" [7 mm] until the black socket for the key is level with the top of the housing cover. The spring mechanism will now rotate the key counter-clockwise and the plunger will retract.

2 **Manual operation**
Turning the hex clockwise causes the plunger to extend to the required position.

3 **Locking manual operation**
Turn the hex 3/4 turn counter-clockwise and then press it down into the cover of the housing (the black socket will move inwards approx. 1/4" [7 mm]). Slight counter-clockwise rotation of the key will then lock the manual operating mechanism in position.

Note: Do not trigger the spring mechanism and turn the manual operating mechanism clockwise to the "spring-up" end position at the same time.

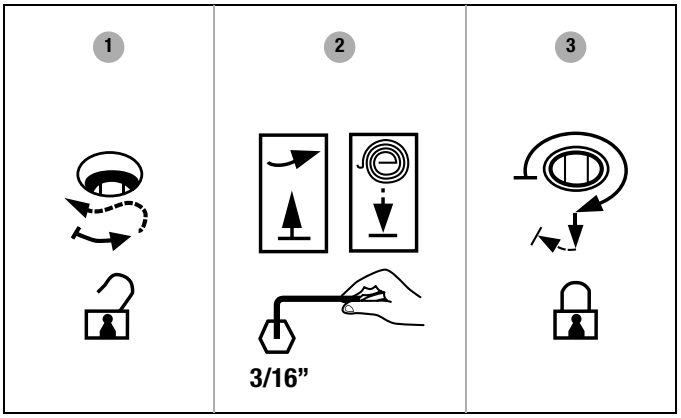


NVF…-E US Extending, Spring Down

1 **Disengaging manual operation**
Turn the hex counter-clockwise 45° until resistance is encountered. Then lift the key approx. 1/4" [7 mm] until the black socket for the key is level with the top of the housing cover. The spring mechanism will now rotate the key clockwise, the plunger will extend.

2 **Manual operation**
Turning the hex counter-clockwise causes the plunger to retract to the required position.

3 **Locking manual operation**
Turn the hex back clockwise 3/4 turn and then press it down into the cover of the housing (the black socket will move inwards approx. 1/4" [7 mm]). Slight clockwise rotation of the key will then lock the manual operating mechanism in position.



Functional description NV24-MFT US, NVF… US

The S1 button makes it simple to check the wiring and overall functioning of the actuator. The first time voltage is applied, the stroke is adapted automatically. Independently of this, an adaptation can be repeated as necessary by pressing button S2. Actuator will not do an adaptation after each power loss.

S1	**Test**	The valve performs full stroke at minimum running time and checks the adapted stroke.
S2	**Adaptation**	The stroke effected (between the two mechanical end-stops of the valve) is acquired as 100% stroke and stored in the microprocessor. The control signal and running time are then matched to this 100% stroke.

EXAMPLES

S3.1	**OFF**	At 2 Volts, the valve is closed.
S3.2	**OFF**	The valve closing point is STEM UP CLOSED.

Result of Input Signal and Feedback Signal: The valve will be closed at 2 Volts and will open as the actuator drives down. The control signal will read 2 Volts at the closed point and 10 Volts at the fully open point. The feedback will read 2 Volts at the closed point and 10 Volts at the fully open point.

S3.1	**ON**	At 2 Volts, the valve is open.
S3.2	**OFF**	The valve closing point is STEM UP CLOSED.

Result of Input Signal and Feedback Signal: The valve will be fully open at 2 Volts and will close as the actuator retracts. The control signal will read 10 Volts at the closed point and 2 Volts at the fully open point. The feedback will read 2 Volts at the closed point and 10 Volts at the fully open point.

S3.1	**OFF**	At 2 Volts, the valve is closed.
S3.2	**ON**	The valve closing point is STEM DOWN CLOSED.

Result of Input Signal and Feedback Signal: The valve will be closed at 2 Volts and will open as the actuator retracts. The control signal will read 2 Volts at the closed point and 10 Volts at the fully open point. The feedback will read 2 Volts at the closed point and 10 Volts at the fully open point.

S3.1	**ON**	At 2 Volts, the valve is open.
S3.2	**ON**	The valve closing point is STEM DOWN CLOSED.

Result of Input Signal and Feedback Signal: The valve will be open at 2 Volts and will close as the actuator drives down. The control signal will read 10 Volts at the closed point and 2 Volts at the fully open point. The feedback will read 2 Volts at the closed point and 10 Volts at the fully open point.

Set-Up of S3 switches

Note: It is very important to set Switches S3.1 and S3.2 to ensure proper valve operation.

1. Determine if the valve body is STEM UP CLOSED or STEM UP OPEN. In other words, when is the valve closed from Ports A to AB– when the stem is up or down?

   If the valve is STEM UP OPEN – set Switch S3.2 to the ON position

   If the valve is STEM UP CLOSED – set Switch S3.2 to the OFF position

   By setting this switch, the actuator will be able to recognize its closing point during the ADAPTATION process.

2. Determine if you would like to valve to be Reverse or Direct Acting.

   Direct Acting: if the valve should be CLOSED at minimum control signal – set Switch 3.1 to the OFF position.

   Using this setting, the valve will be CLOSED at minimum control signal and will OPEN as the control signal increases. EX: Closed at 0 Volt signal and Open at 10 Volt signal.

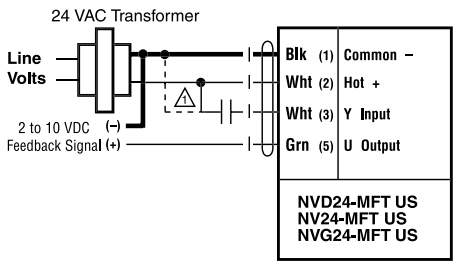
   Reverse Acting: if the valve should be OPEN at 2 Volts (or minimum control signal) – set Switch 3.1 to the ON position.

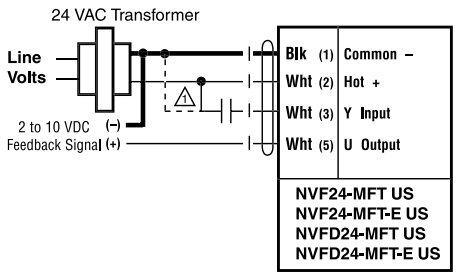
   Using this setting, the valve will be OPEN at minimum control signal and will CLOSE as the control signal increases. EX: Closed at 10 Volt signal and Open at 2 Volt signal.

NOTE: The Feedback signal (Wire 5) of the NV Series actuator will follow the closing point of the valve- not the input control signal. In other words, the feedback will always read 2 Volts when the valve is closed regardless if the input control signal is set for Reverse or Direct Acting.

S3	**Setting the direction of stroke and selecting the closing point.**	
	The stroke direction can be adjusted to be reverse or direct acting. Under the factory setting, the stroke increases as the setting signal increases. Depending upon the type of valve (NO/NC), the closing point (stroke = 0%) can be chosen with the valve stem retracted or extended.	
S3.1	**Direction of stroke**	The direction of stroke is inverted in relation to the control signal.
	Off position	Control signal = 0% corresponding to 0% stroke
	On position	Control signal = 100% corresponding to 0% stroke
S3.2	**Selecting the closing point**	This is the closing point of the valve. This closing point is dependent on the valve body-not the actuator. This setting must be correct for proper operation of the actuator.
	Off position	Valve is stem up closed (Flow from A to AB).
	On position	Valve is stem down closed (Flow from A to AB).

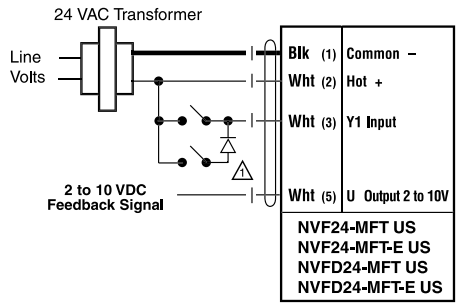
Additional Wiring Configurations for NV.../NVF... Series Actuators





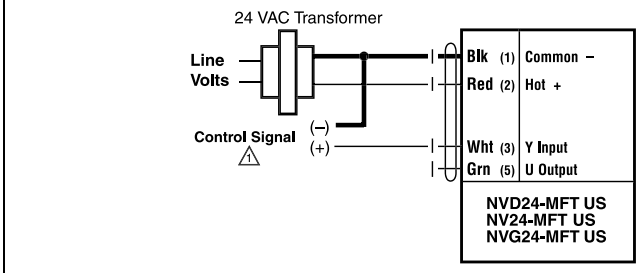
1 Control signal may be pulsed from either the Hot or Common 24 VAC line.

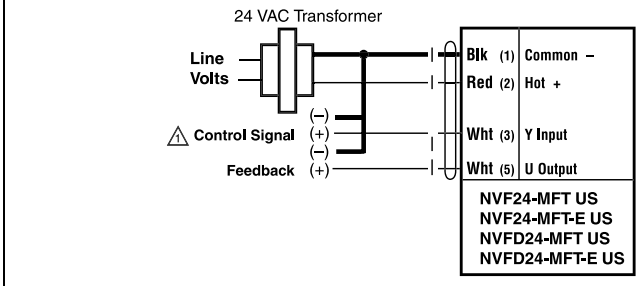
Pulse width modulation (PWM) control wiring		
Range Available:	**20 ms to 50 sec.**	
Typical:	**0.59 to 2.93**	**V-20001**
	0.02 to 5.00	**V-20002**
	0.10 to 25.5	**V-20003**
	Custom configurations available	



1 Requires IN4004 or IN4007diode

Floating point control: P-30… configurations		
Range Available:	**20 ms to 50 sec.**	
Typical:	**0.59 to 2.93**	**V-20001**
	0.02 to 5.00	**V-20002**
	0.10 to 25.5	**V-20003**
	Custom configurations available	





1 The start point and end point can be adjusted to sequence multiple actuators from one control signal.

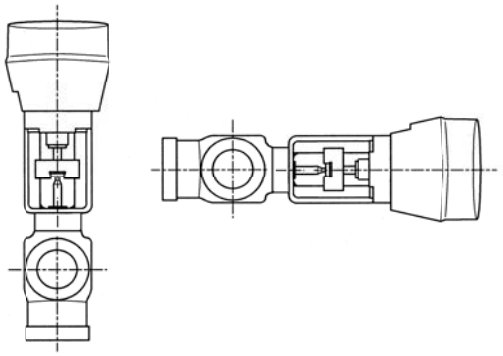
Start point and stop adjustable wiring		
Range Available:	**Start 0.5 to 30 VDC**	
	Stop 2.5 to 32 VDC	
Typical:	**2 - 10 VDC**	**V-10001**
	0 - 10 VDC	**V-10002**
	4 - 7 VDC	**V-10004**
	6 - 9 VDC	**V-10005**
	Custom configurations available	

Piping for G2/G3 NPT Globe Valves with NV Series Actuator

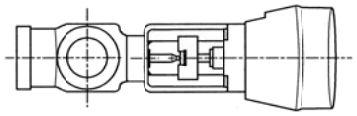
The valve should be mounted in a weather-protected area in a location that is within the ambient limits of the actuator. Allow sufficient room for valve with actuator and for service. For the NV Series, allow 6" for cover removal and 12" for complete actuator removal. The G2(S) and G3(D) preferred mounting 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.

For NV and Rotary Actuators

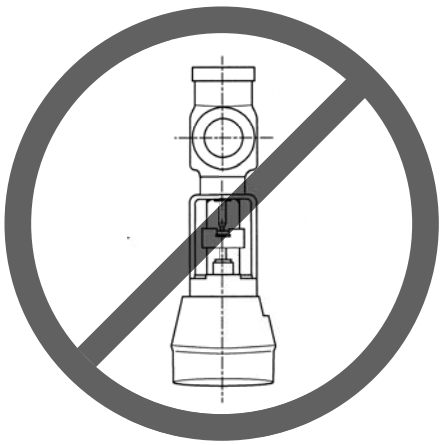
Preferred mounting valve stem vertical above valve body



Optional mounting valve stem 90°



DO NOT INSTALL WITH ACTUATOR BELOW PIPE.

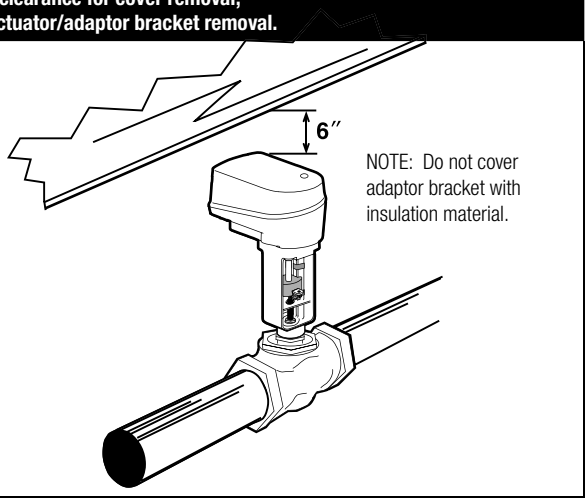


Piping for G2/G3 NPT Globe Valves with Rotary Actuator

The valve 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.

For NV Actuators ONLY

Allow 6" clearance for cover removal, 12" for actuator/adaptor bracket removal.

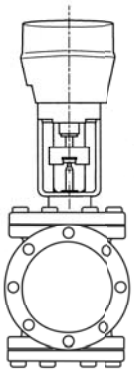


Piping for G6/G7 Flanged Globe Valves with NV Series Actuator

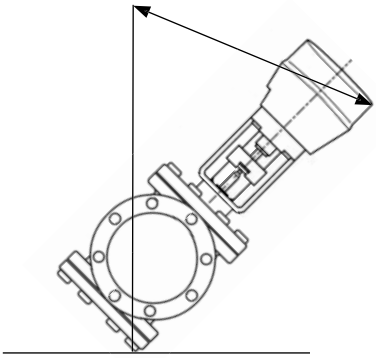
The valves should be mounted in a weather-protected area in a location that is within the ambient limits of the actuator. Allow sufficient room for valve with actuator and for service. For the NV Series, allow 6" for cover removal and 12" for complete actuator removal. The G6/G7 preferred mounting position of the valve is with the valve stem vertical above the valve body, for maximum life. However, the assemblies can be mounted with valve stem vertical above the valve or up to 45 degrees in relation to the horizontal 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.

For NV and Rotary Actuators

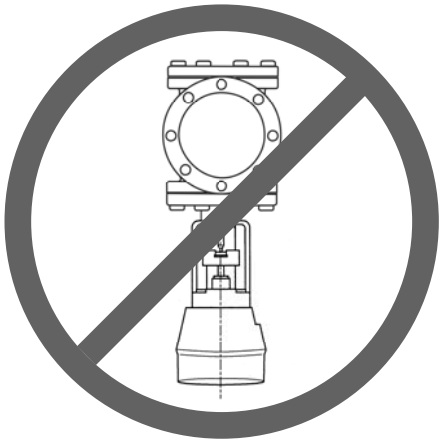
Preferred mounting valve stem vertical above valve body



Optional mounting valve stem 45°



DO NOT INSTALL WITH ACTUATOR BELOW PIPE.

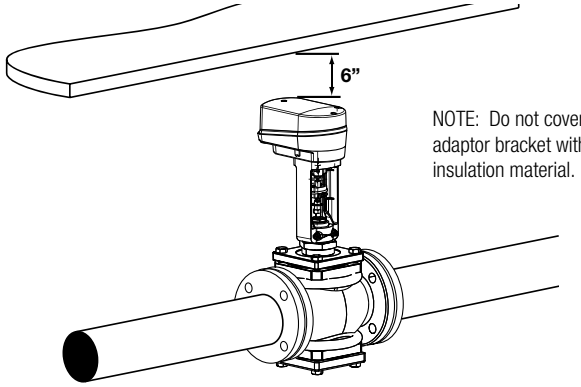


Piping for G6/G7 Flanged Globe Valves with Rotary Actuator

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 G6/G7 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 valve stem vertical above the valve or up to 45 degrees in relation to the horizontal 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.

For NV Actuators ONLY

Allow 6" clearance for cover removal, 12" for actuator/adaptor bracket removal.

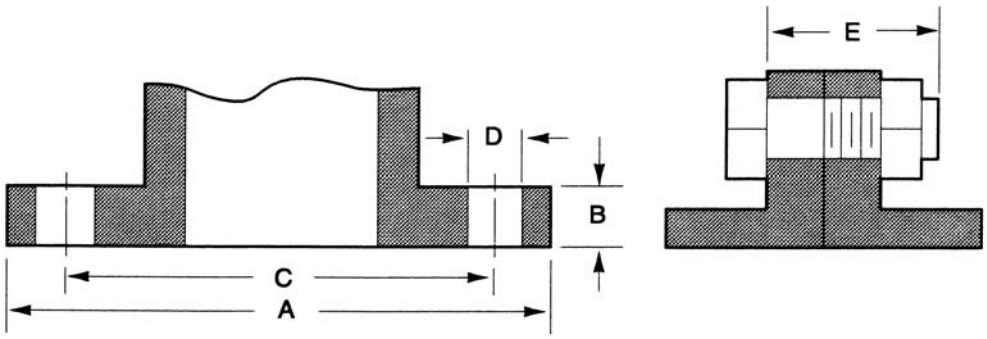


Electronic Flanged Globe Valves

ANSI 125

Flange Detail for American Standard 125 lb. Cast Iron Pipe Flanges

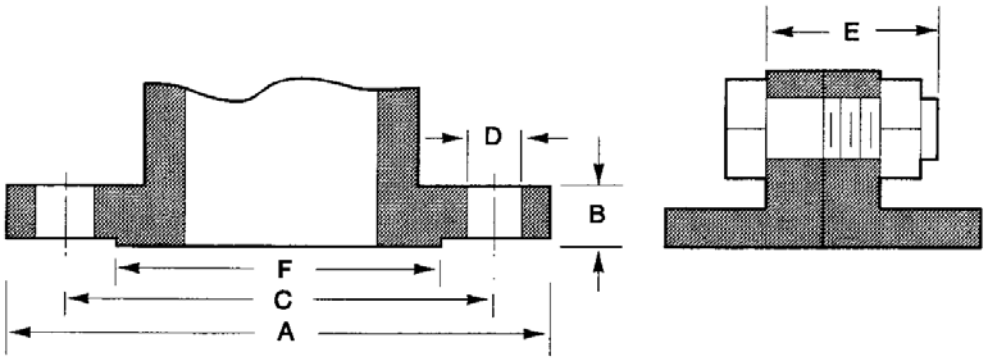
	FLANGES			DRILLING		BOLTING		
Nominal Pipe Size	A Flange Diameter	B Flange Thickness	C Diameter of Bolt Circle	D Diameter of Bolt Holes	Number of Bolts	Diameter of Bolts	E Length of Machine Bolts
2-1/2"	7-5/16"	11/16"	5-1/2"	3/4"	4	5/8"	2-1/2"
3"	7-7/8"	3/4"	6"	3/4"	4	5/8"	2-1/2"
4"	9"	15/16"	7-1/2"	3/4"	8	5/8"	3"
5"	10"	15/16"	8-1/2"	7/8"	8	3/4"	3"
6"	11-1/4"	1"	9-1/2"	7/8"	8	3/4"	3-1/4"



ANSI 250

Flange Detail for American Standard 250 lb. Cast Iron Pipe Flanges

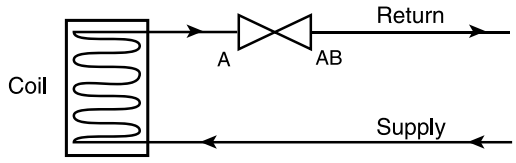
	FLANGES			DRILLING		BOLTING		
Nominal Pipe Size	A Flange Diameter	B Flange Thickness	F Diameter of Raised Face	C Diameter of Bolt Circle	D Diameter of Bolt Holes	Number of Bolts	Diameter of Bolts	E Length of Machine Bolts
2-1/2"	7-1/2"	1"	4-15/16"	5-7/8"	7/8"	8	3/4"	3-1/2"
3"	8-1/4"	1-1/8"	5-11/16"	6-5/8"	7/8"	8	3/4"	3-1/2"
4"	10"	1-1/4"	6-15/16"	7-7/8"	7/8"	8	3/4"	4"
5"	11"	1-3/8"	8-5/16"	9-1/4"	7/8"	8	3/4"	4"
6"	12-1/2"	1-7/16"	9-11/16	10-5/8"	7/8"	12	3/4"	4"



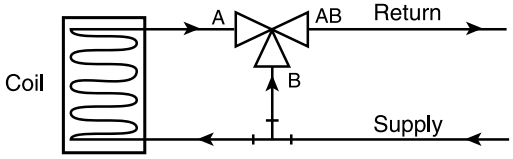
Piping (Screwed and Flanged)

Piping Diagrams

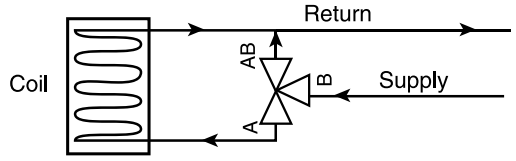
2-way Valve Piping Diagram
(1 Input, 1 Output)



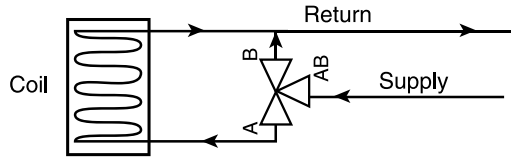
3-way Mixing Valve Piping Diagram
(2 Inputs, 1 Output)



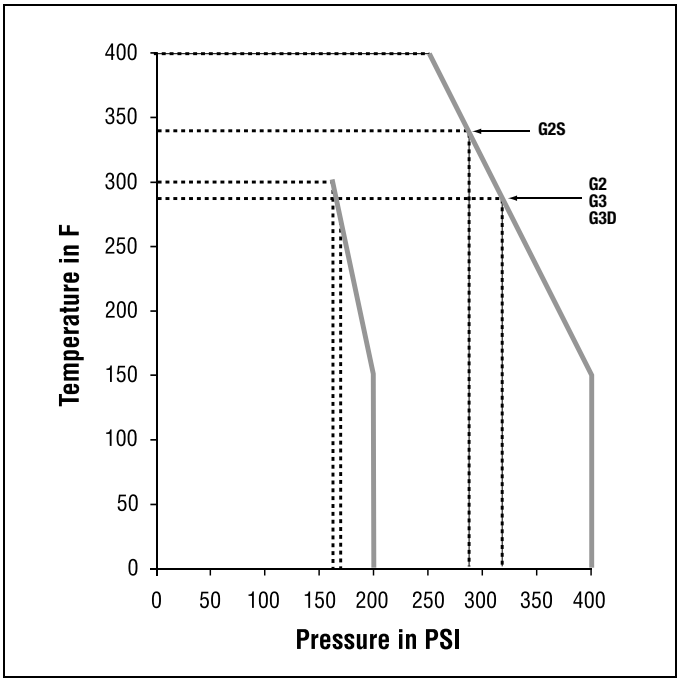
G3D Screwed
3-way Diverting Valve Piping Diagram
(1 Input, 2 Outputs)



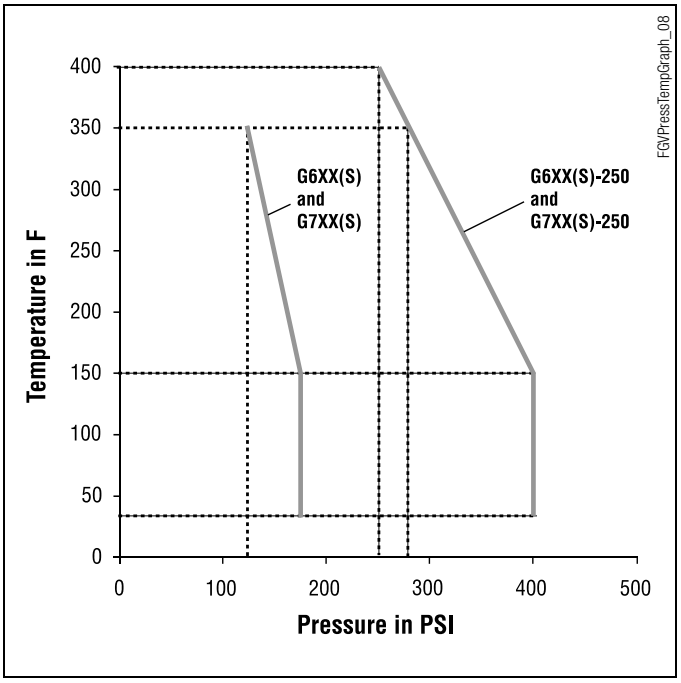
G7D Flanged
3-way Diverting Valve Piping Diagram
(1 Input, 2 Outputs)



Maximum Temperature and Pressure Ratings for Screwed Globe Valve Bodies



Maximum Temperature and Pressure Ratings for Flanged Globe Valve Bodies



Custom MFT Configuration Order Form

FAX: USA Toll Free 1-800-228-8283

BELIMO

#1 Select an Actuator

(use one sheet for each unique actuator/configuration)

	Quantity		Quantity
❑ AFX24-MFT	_____	❑ NMX24-MFT95	_____
❑ AFX24-MFT-S	_____	❑ NMQX24-MFT	_____
❑ AFX24-MFT95	_____	❑ LMX24-MFT	_____
❑ NFX24-MFT	_____	❑ LMX24-MFTX1	_____
❑ NFX24-MFT-S	_____	❑ LMX24-MFT95	_____
❑ LF24-MFT US	_____	❑ LMQX24-MFT	_____
❑ LF24-MFT-S US	_____	❑ AHKX24-MFT	_____
❑ TF24-MFT US	_____	❑ AHX24-MFT	_____
❑ GKX24-MFT	_____	❑ LHX24-MFT	_____
❑ GMX24-MFT	_____	❑ LRX24-MFT	_____
❑ GMX24-MFTX1	_____	❑ LUX24-MFT	_____
❑ GMX24-MFT95	_____	❑ NV24-MFT US	_____
❑ AMX24-MFT	_____	❑ NVF24-MFT US	_____
❑ AMX24-MFTX1	_____	❑ NVF24-MFT-E US	_____
❑ AMX24-MFT95	_____	❑ NVFD24-MFT US	_____
❑ AMQX24-MFT	_____	❑ NVFD24-MFT-E US	_____
❑ NMX24-MFT	_____	❑ LUX24-MFT (-S=Auxiliary Switch)	_____
❑ NMX24-MFTX1	_____		

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

Phone _____ Fax _____

Email _____

#2 Create a Custom Configuration

1 Angle of rotation setting

☐ **Deactivated** (Default) — The following settings 2 - 5 refer to the full angle of rotation of 95°.

☐ **Activated** — The following settings 2 - 5 are automatically adapted to the effective mechanical angle of rotation.

- ☐ **Manual** triggering by pressing the push button twice.
- ☐ **Automatic** triggering each time the unit is powered up or by pressing the push button twice.

2 Control Types

VDC	PWM	Floating Point	On/Off
☐ 2 – 10	☐ 0.2 to 5.0 seconds	☐	☐
☐ 0 – 10	☐ 0.1 to 25.5 seconds		
☐ Variable	☐ 0.59 to 2.93 seconds		
Start ☐☐.☐	☐ Variable		
Stop ☐☐.☐	Start ☐☐.☐		
	Stop ☐☐.☐		

3 Feedback Signals U_5

☐ **Position Feedback U** DC 2...10 V (Default)

☐ **Position Feedback U** DC 0...10 V

☐ **Position Feedback U** Start DC ☐.☐ V (0...8 V)

Finish DC ☐☐.☐ V (2...10 V)

The finish must be at least 2 V above the start!

4 Running Time

☐ 150 seconds (Default)

☐ Running time ☐☐☐ seconds (25...300 seconds) (in 5 second increments)

Note: The sound power level [dB(A)] increases when the running time is below 150 seconds.

❑ LM	35...150 seconds	❑ LHQ	3.5...15 seconds
❑ LMQ	2.5...10 seconds	❑ AH	75...150 seconds
❑ NM	45...170 seconds	❑ AHQ	7...30 seconds
❑ NMQ	4...15 seconds	❑ AHK	95...150 seconds
❑ AM	90...300 seconds	❑ TF	75...300 seconds
❑ AMQ	7...15 seconds	❑ LF	75...300 seconds
❑ GM	75...300 seconds	❑ NFX	40...220 seconds
❑ GK	95...150 seconds	❑ AFX	70...220 seconds
❑ LH	75...150 seconds		

5 Override control and electronic angle of rotation limiting

☐ Min. (min. position) = ☐☐☐ % (0...100%) ◁ (beginning of working range) default 0

ZS (intermediate position) = ☐☐☐ % (0...100%) (0% = Min.; 100% = Max.) default 50

Max. (max. position) = ☐☐☐ % (0...100%) ◁ (end of working range) default 100