

## VA7800 Series Electric Valve Actuators

### Description

The VA7800 Series of electric valve actuators control VG7000 Series Bronze Globe Valves in HVAC systems. The VA7800 Series produces a minimum linear output force of 180 lb (800 N) and is ordered field mounted or factory coupled to 1 in. and 2 in. VG7000 Series Bronze Globe Valves with brass trim and to 1/2 in. through 2 in. VG7000 Series Bronze Globe Valves with stainless steel trim. All actuators are direct mount and available in both Spring Return and Non-Spring Return models.

Spring-return models ship from the factory set for DC 0 to 10 V Proportional Control. With a change of DIP switch settings, this model can be field configured to On/Off or Floating Control. In addition to these settings, optional auxiliary switches are also available.

Non-spring-return models are available in AC 24 V On/Off (Floating) Control, or DC 0 to 10 V Proportional Control. Models are available with or without optional auxiliary switches.

Refer to the *VA7800 Series Electric Valve*

*Actuators Product Bulletin (LIT-12011474)* for important product application information.

### Features

- Automatic Stroke Adjustment — provides easy, quick, and precise commissioning.
- Manual Override as Standard — allows manual positioning of valve for easy commissioning and servicing.
- NEMA 2 (IP54) Enclosure Protection — allows installation in a wide range of environments.
- Unique Swing-Gate Yoke — offers fast and secure attachment to the valve.
- Brushless Motor — ensures low energy consumption and long life.
- Proportional Model — enables one model to be used for various control types.
- Force-Controlled Motor Shutoff — reduces energy consumption, wear of the actuator, and protects the valve from excessive forces.
- Stroke Position Indicator — gives visual indication of valve operation, provides automatic adjustment of stroke indicators during first cycle of operation.
- Status Light-Emitting Diode (LED) — gives visual indication of actuator status and assists with diagnostic.
- Optional Integrated Auxiliary Switches — provides adjustable switch points with line



VA7800 Valve Actuator

voltage capability.

- Integral Cable with Colored Conductors — simplifies installation and field wiring.
- Integral Connector for 3/8 in. (10mm) Flexible Metal Conduit (FMC) — simplifies installation and field wiring.
- Underwriters Laboratories Inc.® (UL) and CE Compliant — provides internationally recognized regulatory agency approval.

### Repair Information

If the VA7800 Series Electric Actuator fails to operate within specifications, replace the unit.

### Selection Chart

Code Number	Input Signal			Power Requirements			Action on Power Failure			Feedback	Auxiliary Switches	Nominal Stroke Time <sup>1</sup> (Seconds)		
	On/Off	Floating Point	Proportional 0 (2) to 10 VDC 0 (4) to 20 mA	24 VAC 50/60 Hz ± 15%	230 VAC 50/60 Hz ± 15%	VA Rating	Non-Spring Return	Spring-Return Actuator Retracted Valve Stem Full Up	Spring-Return Actuator Extended Valve Stem Full Down	0 (2) to 10 VDC	2 SPDT, 1A, 3A Resistive, 1/4 HP	1/2 and 3/4 in. VG7000 (5/16 in. valve stroke)	1 and 1-1/4 in. VG7000 (1/2 in. valve stroke)	1-1/2 and 2 in. VG7000 (3/4 in. valve stroke)
VA7810-ADC-2	■	■	—	—	■	8	■	—	—	—	■	48	76	114
VA7810-AGA-2	■	■	—	■	—	3	■	—	—	—	—	48	76	114
VA7810-AGC-2	■	■	—	■	—	3	■	—	—	—	■	48	76	114
VA7810-HGA-2	■	■	■	■	—	6	■	—	—	■	—	24/48	38/76	57/114
VA7810-HGC-2	■	■	■	■	—	6	■	—	—	■	■	24/48	38/76	57/114
VA7820-HGA-2	■	■	■	■	—	11	—	■	—	■	—	24/48	38/76	57/114
VA7820-HGC-2	■	■	■	■	—	11	—	■	—	■	■	24/48	38/76	57/114
VA7830-HGA-2	■	■	■	■	—	11	—	—	■	■	—	24/48	38/76	57/114
VA7830-HGC-2	■	■	■	■	—	11	—	—	■	■	■	24/48	38/76	57/114

1. VA78x0-HGx-2 actuators have field-selectable stroke speed; factory setting is the slowest speed.

## VA7800 Series Electric Valve Actuators (Continued)

### Accessories


Code Number	Product Description
V-9999-BC1	Mounting Kit to Mount VA-715x, VA-720x, VA78xx, or VA-4233 Series Electric Actuators to Barber Coleman® 1/2 through 1-1/4 Inch VB-9xxx Valve Bodies
V-9999-HW1	Mounting Kit to Mount VA-715x, VA-720x, VA78xx, or VA-4233 Series Electric Actuators to Honeywell® V5011A, F, and G, 1/2 through 3 Inch Single-Seated and V5013F Three-Way Valves

### Technical Specifications


VA7810-AGx-2 and -ADx-2 Series On/Off (Floating) Electric Non-Spring-Return Valve Actuators			
Model		VA7810-AGx-2	VA7810-ADx-2
Thrust Force		180 lb (800 N) Minimum	
Power Supply		AC 24 V (AC 19 to 30 V) at 50/60 Hz, Class 2	AC 230 V (AC 195 to 265 V) at 50/60 Hz
Transformer Sizing		3 VA	8 VA
Input Signal		AC 24 V (AC 19 to 30 V) at 50/60 Hz	AC 230 V (AC 195 to 265 V) at 50/60 Hz
Feedback		N/A	N/A
Auxiliary Switch Rating		Two Single-Pole, Double-Throw (SPDT), AC 230 V, 3.0 A Resistive, 1/4 hp	
Stroke		5/16 to 1 in. (8 to 25 mm)	
Stroke Speed		5/16 in. Stroke: 48 Seconds 1/2 in. Stroke: 76 Seconds 3/4 in. Stroke: 114 Seconds	
Ambient Operating Conditions		23 to 131°F (-5 to 55°C); 10 to 90% RH Noncondensing	
Enclosure Rating		NEMA 2 (IP54)	
Electrical Connection		48 in. (1.2 m) UL 758 Type AWM Halogen-Free Cable with 18 AWG (0.85 mm <sup>2</sup> ) Conductors and 0.25 in. (6 mm) Ferrule Ends	
Dimensions		9.6 x 4.56 x 8.35 in. (244 x 116 x 212 mm)	
Materials	Gearbox and Yoke	Die Cast Aluminum	
	Cover	Resin ABS/PC - UL94-V0	
	Stem	Stainless Steel	
	Coupler	Brass	
Life Cycles		100,000 Full Stroke Cycles	
Shipping Weight		5.4 lb (2.5 kg)	
Compliance	United States	UL 60730 Listed Type 1 Enclosure, CCN XAPX, File E194024	
	Canada	UL 60730-1 Listed Type 1 Enclosure, CCD XAPX7, File E194024	
	Europe	CE Mark - Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC directive 2004/108/EC and the Low Voltage Directive 2006/95/EC.	



## VA7800 Series Electric Valve Actuators (Continued)

VA7810-HGx-2 Series Proportional Electric Non-Spring-Return Valve Actuators		
<b>Model</b>	VA7810-HGx-2	
<b>Thrust Force</b>	180 lb (800 N) Minimum	
<b>Power Supply</b>	AC 24 V (AC 19 to 30 V) at 50/60 Hz, Class 2	
<b>Transformer Sizing</b>	6 VA	
<b>Input Signal</b>	Switch Selectable: Proportional: DC 0 to 10 V, DC 2 to 10 V, 0 to 20 mA or 4 to 20 mA Programmable Proportional: Start Point: 0 to 6 VDC (0 to 12 mA) End Point: 3 to 10 VDC (6 to 20 mA) with 3 VDC (6 mA) Minimum Span On/Off (Floating): AC 24 V at 50/60 Hz Switch Selectable Direct or Reverse Action with Signal Increase Switch Selectable Preset Actuator Position on Loss of Signal	
<b>Control Input Impedance</b>	Voltage Input: 100k ohm Current Input: 120 ohm	
<b>Feedback</b>	DC 0 (2) to 10 V Corresponds to Input Range	
<b>Auxiliary Switch Rating</b>	SPDT, AC 230 V, 3.0 A Resistive, 1/4 hp	
<b>Stroke</b>	5/16 to 1 in. (8 to 25 mm)	
<b>Stroke Speed (Switch Selectable)</b>	Slow (Factory Setting)	5/16 in. Stroke: 48 Seconds 1/2 in. Stroke: 76 Seconds 3/4 in. Stroke: 114Seconds
	Fast	5/16 in. Stroke: 24 Seconds 1/2 in. Stroke: 38 Seconds 3/4 in. Stroke: 57 Seconds
<b>Ambient Operating Conditions</b>	23 to 131°F (-5 to 55°C); 10 to 90% RH Noncondensing	
<b>Ambient Storage Conditions</b>	-40 to 176°F (-40 to 80°C); 5 to 95% RH Noncondensing	
<b>Enclosure Rating</b>	NEMA 2 (IP54)	
<b>Electrical Connection</b>	48 in. (1.2 m) UL 758 Type AWM Halogen-Free Cable with 18 AWG (0.85 mm <sup>2</sup> ) Conductors and 0.25 in (6 mm) Ferrule Ends	
<b>Dimensions</b>	9.6 x 4.56 x 8.35 in. (244 x 116 x 212 mm)	
<b>Materials</b>	<b>Gearbox and Yoke</b>	Die Cast Aluminum
	<b>Cover</b>	Resin ABS/PC - UL94-V0
	<b>Stem</b>	Stainless Steel
	<b>Coupler</b>	Brass
<b>Life Cycles</b>	100,000 Full Stroke Cycles	
<b>Shipping Weight</b>	5.4 lb (2.5 kg)	
<b>Compliance</b>  	<b>United States</b>	UL 60730 Listed Type 1 Enclosure, CCN XAPX, File E194024
	<b>Canada</b>	UL 60730-1 Listed Type 1 Enclosure, CCN XAPX7, File E194024
	<b>Europe</b>	CE Mark - Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC directive 2004/108/EC and the Low Voltage Directive 2006/95/EC.

## VA7800 Series Electric Valve Actuators (Continued)

VA7820-HGx-2 / VA7830-HGx-2 Series Proportional Electric Spring-Return Valve Actuators		
<b>Model</b>		VA7820-HGx-2 / VA7830-HGx-2
<b>Thrust Force</b>		180 lb (800 N) Minimum
<b>Power Supply</b>		AC 24 V (AC 19 to 30 V) at 50/60 Hz, Class 2
<b>Transformer Sizing</b>		11 VA
<b>Input Signal</b>		Switch Selectable: Proportional: DC 0 to 10 V, DC 2 to 10 V, 0 to 20 mA or 4 to 20 mA Programmable Proportional: Start Point: 0 to 6 VDC (0 to 12 mA) End Point: 3 to 10 VDC (6 to 20 mA) with a 3 VDC (6 mA) Minimum Span On/Off (Floating): AC 24 V at 50/60 Hz Switch Selectable Direct or Reverse Action with Signal Increase Switch Selectable Reset Actuator Position on Loss of Signal
<b>Control Input Impedance</b>		Voltage Input: 100k ohm Current Input: 120 ohm
<b>Feedback</b>		DC 0 (2) to 10 V Corresponds to Input Range
<b>Auxiliary Switch Rating</b>		SPDT, AC 230 V, 3.0 A Resistive, 1/4 hp
<b>Stroke</b>		5/16 to 1 in. (8 to 25 mm)
<b>Stroke Speed</b>		Slow (Factory Setting)
		5/16 in. Stroke: 48 Seconds 1/2 in. Stroke: 76 Seconds 3/4 in. Stroke: 114 Seconds
		Fast
		5/16 in. Stroke: 24 Seconds 1/2 in. Stroke: 38 Seconds 3/4 in. Stroke: 57 Seconds
<b>Ambient Operating Conditions</b>		23 to 131°F (-5 to 55°C); 10 to 90% RH Noncondensing
<b>Ambient Storage Conditions</b>		-40 to 176°F (-40 to 80°C); 5 to 95% RH Noncondensing
<b>Enclosure Rating</b>		NEMA 2 (IP54)
<b>Electrical Connection</b>		48 in. (1.2 m) UL 758 Type AWM Halogen-Free Cable with 18 AWG (0.85 mm <sup>2</sup> ) Conductors and 0.25 in. (6 mm) Ferrule Ends
<b>Dimensions</b>		9.6 x 4.56 x 8.35 in. (244 x 116 x 212 mm)
<b>Materials</b>	<b>Gearbox and Yoke</b>	Die Cast Aluminum
	<b>Cover</b>	Resin ABS/PC - UL94-V0
	<b>Stem</b>	Stainless Steel
	<b>Coupler</b>	Brass
<b>Life Cycles</b>		100,000 Full Stroke Cycles
<b>Shipping Weight</b>		7.3 lb (3.3 kg)
<b>Compliance</b> 	<b>United States</b>	UL 60730 Listed Type 1 Enclosure, CCN XAPX, File E194024
	<b>Canada</b>	UL 60730-1 Listed Type 1 Enclosure, CCN XAPX7, File E194024
	<b>Europe</b>	CE Mark - Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC directive 2004/108/EC and the Low Voltage Directive 2006/95/EC.