

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



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- 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 ¹ (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)
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 ²) 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		
Model	VA7810-HGx-2	
Thrust Force	180 lb (800 N) Minimum	
Power Supply	AC 24 V (AC 19 to 30 V) at 50/60 Hz, Class 2	
Transformer Sizing	6 VA	
Input Signal	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	
Control Input Impedance	Voltage Input: 100k ohm Current Input: 120 ohm	
Feedback	DC 0 (2) to 10 V Corresponds to Input Range	
Auxiliary Switch Rating	SPDT, AC 230 V, 3.0 A Resistive, 1/4 hp	
Stroke	5/16 to 1 in. (8 to 25 mm)	
Stroke Speed (Switch Selectable)	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
Ambient Operating Conditions	23 to 131°F (-5 to 55°C); 10 to 90% RH Noncondensing	
Ambient Storage Conditions	-40 to 176°F (-40 to 80°C); 5 to 95% 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 ²) 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, CCN 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)

VA7820-HGx-2 / VA7830-HGx-2 Series Proportional Electric Spring-Return Valve Actuators		
Model	VA7820-HGx-2 / VA7830-HGx-2	
Thrust Force	180 lb (800 N) Minimum	
Power Supply	AC 24 V (AC 19 to 30 V) at 50/60 Hz, Class 2	
Transformer Sizing	11 VA	
Input Signal	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	
Control Input Impedance	Voltage Input: 100k ohm Current Input: 120 ohm	
Feedback	DC 0 (2) to 10 V Corresponds to Input Range	
Auxiliary Switch Rating	SPDT, AC 230 V, 3.0 A Resistive, 1/4 hp	
Stroke	5/16 to 1 in. (8 to 25 mm)	
Stroke Speed	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
Ambient Operating Conditions	23 to 131°F (-5 to 55°C); 10 to 90% RH Noncondensing	
Ambient Storage Conditions	-40 to 176°F (-40 to 80°C); 5 to 95% 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 ²) 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	7.3 lb (3.3 kg)	
Compliance 	United States	UL 60730 Listed Type 1 Enclosure, CCN XAPX, File E194024
	Canada	UL 60730-1 Listed Type 1 Enclosure, CCN 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.