VA7800 Series Electric Valve Actuators Catalog Page

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Description

Figure 1: VA7800 Valve Actuator



The VA7800 Series Electric Valve Actuators control VG7000 Series Bronze Globe Valves in HVAC systems. The VA7800 Series produce a minimum linear output force of 180 lb (800 N) and are ordered field mounted or factory coupled to 1/2 in. through 2 in. VG7000 Series Bronze Globe Valves. 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.
- 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 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.

Selection chart

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Table 1: 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)	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.

Repair information

If the VA7800 Series Electric Actuator fails to operate within specifications, replace the unit. For a replacement actuator, contact the nearest Johnson Controls® representative.

Accessories

Table 2: 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 in. through 1-1/4 in. 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 in. through 3 in. Single-Seated and V5013F Three-Way Valves
M9000-200	Commissioning tool

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Technical specifications

Table 3:

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 in. to 1 in. (8 mm 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°F to 131°F (-5°C 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 in. x 4.56 in. x 8.35 in. (244 mm x 116 mm 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 (2.45 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	
CE	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.	

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 VDC to 6 VDC (0 mA to 12 mA) End point: 3 VDC to 10 VDC (6 mA 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 in. to 1 in. (8 mm to 25 mm)

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VA7810-HGx-2 Series Proportional Electric Non-Spring-Return Valve Actuators			
Stroke speed (switch selectable)		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°F to 131°F (-5°C to 55°C); 10% to 90% RH noncondensing	
Ambient storage conditions		-40°F to 176°F (-40°C 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 in. x 4.56 in. x 8.35 in. (244 mm x 116 mm 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 (2.45 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	
CE	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.	

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 VDC to 6 VDC (0 mA to 12 mA) End point: 3 VDC to 10 VDC (6 mA 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 in. to 1 in. (8 mm 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°F to 131°F (-5°C to 55°C); 10% to 90% RH noncondensing	

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VA7820-HGx-2 / VA7830-HGx-2 Series Proportional Electric Spring-Return Valve Actuators		
Ambient storage conditions		-40°F to 176°F (-40°C 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 in. x 4.56 in. x 8.35 in. (244 mm x 116 mm 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
CE	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.

Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/buildingswarranty.

Single point of contact

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