

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 produce a minimum linear output force of 180 lb (800 N) and are ordered field mounted or factory coupled to 1/2 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.



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- 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. For a replacement actuator, contact the nearest Johnson Controls® representative.

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 |
| M9000-200 | Commissioning Tool |


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 (2.45 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 |
| | Europe | CE Mark - Johnson Controls, Inc. 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: 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 | 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 |
| | Europe | CE Mark - Johnson Controls, Inc. 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, Inc. 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. |