

Rotary Servo Actuator

Ordering Information

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The Preferred Servo Actuator provides directly connected and precise modulating control of fuel valves and combustion air & flue gas control dampers. The actuator opens, modulates, and closes the valves and/or dampers in accordance with the integrated combustion control and burner management system programs. An integral interlock switch provides proof of open or closed position for safe burner operation.

Common Applications

- Natural gas, fuel oil and/ or “other gas” flow control valve(s)
- FD fan damper
- Auxiliary final control element (second FD fan damper, atomizing steam/ air valve or ...)
- FGR damper
- Jackshaft actuator
- Boiler outlet (stack) damper
- Feedwater control valve
- Auxiliary servo for air sleeve, second gas FCV, etc.

Features

- 90° rotary electric actuator
- 3, 15, 37, 72, 140, 280, 430 or 720 ft-lb. torque output
- Designed for modulation service
- Self-locking drive system to hold in last position
- Electrically isolated feedback potentiometer provides indication of shaft position
- Two (2) auxiliary limit switch position output

For the larger “UM” Actuators a floor stand is included as a standard. Servo mounting needs to be as solid as possible to minimize hysteresis and ensure consistent burner settings. Damper/actuator interconnecting linkage rod, linkage rod ends and drive arms must also be purchased.

Three Different Types

BMU Digital Actuators

BMU servos are available in output torques from 3 ft-lb to 720 ft-lbs. Each includes an actuator positioner board, and integral feedback potentiometer. The feedback potentiometer is used to prove servo position thereby eliminating the need for auxiliary proof of position switches.

4-20 mADC Digital Actuators

4-20 mADC Actuators are available in output torques from 15 ft-lb to 720 ft-lbs. and take a 4-20 mDCA signal to actuate. Each includes an actuator positioner board, and integral feedback potentiometer. The feedback potentiometer is used to prove servo position thereby eliminating the need for auxiliary proof of position switches.

Triac 120 VAC Actuators Servos

Triac 120 VAC Actuators are available in output torques from 15 ft-lb to 720 ft-lbs. and take a 120 VAC signal from a controller like a PCC-IV or JC-22D to actuate. This servos main use is for fully open and fully closed applications.

Specifications

Electrical

BMU Servos

Motor: 120 VAC (+/- 15%),
60 Hz, single phase

BMU-SM < 0.2 A

BMU-UM < 2 A

BMU-UM-720 3.4 A

Positioner 24 VDC, 23 mA

Other

Motor: 120 VAC (+/- 15%),
60 Hz, single phase

SM-15 11 VA

SM-37 21 VA

UM-072 20 VA

UM-140 30 VA

UM-250 90 VA

UM-430 95 VA

UM-720 100 VA

Positioner 24 VDC, 23 mA

Servo Performance

Speed: 25 sec/90°

Rotation: 15° to 180° (SM)
0° to 90° (UM)

Duty Cycle: 100%

Accuracy: +/- 0.1° (SM)
+/- 0.4° (UM)

BMU Servo

Torque: 3, 15, 37, 72, 140, 280, 430,
720 ft-lbs

Other Servos

Torque: 15, 37, 72, 140, 280, 430,
720 ft-lb

Specs found here



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Ordering Information

Environmental

Operating Temperature 32° to 140° F

BMU Servos

NEMA Rating:

BMU-SM NEMA 12

BMU-UM NEMA 4

Other Servos

NEMA Rating:

SM-3 NEMA 2

SM-15 & SM-37 NEMA 4

UM-072, 140, 280, 430, & 720 NEMA 4/4X Watertight

Mechanical

BMU-SM-3 4" W x 5.8" H x 5.5" D
8 mm "D" shaft

BMU-SM-15 & SM-15 5" W x 5.8" H x 5.5" D
12 mm "D" shaft

BMU-SM-37 & SM-37 5" W x 6.7" H x 5.5" D
12 mm "D" shaft

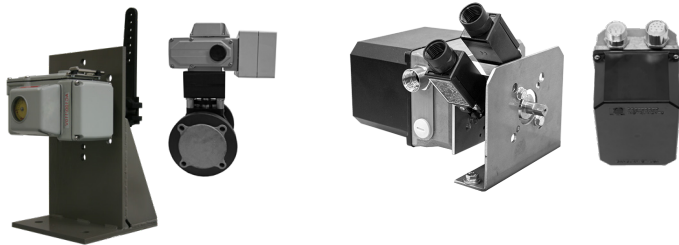
BMU-UM-072-FS 4" W x 5.8" H x 5.5" D
8 mm "D" shaft

BMU-UM-140-FS 5" W x 5.8" H x 5.5" D
12 mm "D" shaft

BMU-UM-280-FS 5" W x 6.7" H x 5.5" D
12 mm "D" shaft

BMU-UM-430-FS 15.1" W x 14.5" H x 19.1" D
12 mm "D" shaft

BMU-UM-720-FS 15.1" W x 14.5" H x 19.1" D
12 mm "D" shaft



Left: Model UM Actuator with Floor Stand

Left Middle: UM-70 mounted on valve

Right Middle: BMU-SM-37-QD1MF Actuator

Right: SMP-15 Actuator

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Ordering Information

Classification

BMU
(Blank)

Type

UM
SM

Feedback

Output

P
(Blank)

Size

*03DC
**15
**37
***72
***140
***280
***430
***720

Connector Type

QD1MF
(Blank)

"UM" Model Description

Catalog Number

Actuator connected with a BurnerMate
Universal or FlexFit

BMU

Non-BMU Servos/Actuator

(Blank)

Type

03DC, 15, 37 Servos

SM

72, 140, 280, 430, 720 Actuators

UM

Positioner

P

No Positioner

(Blank)

Servo Size

| | |
|------------|------|
| 3 ft-lbs | 03DC |
| 15 ft-lbs | 15 |
| 37 ft-lbs | 37 |
| 72 ft-lbs | 72 |
| 140 ft-lbs | 140 |
| 280 ft-lbs | 280 |
| 430 ft-lbs | 430 |
| 720 ft-lbs | 720 |

Connector Type

Pre Wired Quick Disconnect Cables

QD1

Self wired

(Blank)

Rotary Servo Actuator

Mounting Brackets

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Standard Valve Mounting Bracket/Coupling Part Numbers

| Valve Manufacturer & Model | Valve Size | Servo Model | Bracket Model | Coupling Model |
|---|------------|-------------|---------------|---|
| Honeywell V51E Gas Butterfly Valves/5 PSIG rating | 1-1/2" | BMU-SM-15 | Factory | Factory |
| | 2" | BMU-SM-15 | " | " |
| | 2-1/2" | BMU-SM-15 | 26189 | B-20154 |
| | 3" | BMU-SM-15 | C-30009 | B-20154 |
| | 4" | BMU-SM-15 | C-30009 | B-20154 |
| Hauck BVA Gas & Air Butterfly Valves/5 PSIG rating | 1-1/2" | BMU-SM-15 | Factory | Factory |
| | 2" | BMU-SM-15 | " | " |
| | 2-1/2" | BMU-SM-15 | " | " |
| | 3" | BMU-SM-15 | " | " |
| Eclipse BV-A Full Port Gas Butterfly Valves (360 deg. rotation)/5 PSIG rating | 3/4" | BMU-SM-15 | Factory | Factory |
| | 1" | BMU-SM-15 | " | " |
| | 1-1/4" | BMU-SM-15 | Factory | Factory |
| | 1-1/2" | BMU-SM-15 | " | " |
| | 2" | BMU-SM-15 | " | " |
| | 2-1/2" | BMU-SM-15 | " | " |
| | 3" | BMU-SM-15 | " | " |
| Milwaukee BB Series Gas Butterfly Valves/150 PSIG rating | 3/4" | BMU-SM-37 | 26178 | (1) 26173-1B (1) 26179 (2) 5636-008A-10 |
| | 1" | | | |
| | 1-1/4" | BMU-SM-37 | 26178 | (1) 26173-1B (1) 26179 (2) 5636-008A-10 |
| | 1-1/2" | | | |
| | | BMU-SM-37 | 26178 | (1) 26173-1B (1) 26179 (2) 5636-008A-10 |
| | | BMU-SM-37 | 26178 | (1) 26173-1B (1) 26179 (2) 5636-008A-10 |
| Milwaukee "HP1L" & "HP1W" Series Gas Butterfly Valves/150 PSIG rating | 1-1/2" | BMU-SM-37 | Factory | Factory |
| | 3" | BMU-SM-37 | 20150 | 20149-1 |
| | 4" | BMU-SM-37 | 20150 | 20149-1 |

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Standard Valve Mounting Bracket/Coupling Part Numbers

| Valve Manufacturer & Model | Valve Size | Servo Model | Bracket Model | Coupling Model |
|--|------------|-------------|---------------|---|
| Hauck MOV & MCOV Oil Valves/ 300 PSIG rating | 3/8" | BMU-SM-15 | Factory | Factory |
| | 1/2" | BMU-SM-15 | 26177 | 26180-1 |
| Worcester CPT Characterized Seat Ball Valves/300 PSIG rating (gas, water, or steam) | 1/2" | BMU-SM-15 | Factory | Factory |
| | 3/4" | BMU-SM-15 | Factory | Factory |
| | 1" | BMU-SM-37 | 26187 | 26186 |
| | 1-1/2" | BMU-SM-37 | 20136 | 26186 |
| FlowTek Series 8000 Characterized Seat Ball Valves. 300 PSIG rating (gas, water, or steam) | 1/2" | BMU-SM-15 | 20135 | (2) 26173 (1) 20152 (2) 5636-008-10 |
| | 3/4" | BMU-SM-15 | 20135 | 20152 |
| | 1" | BMU-SM-15 | 20135 | 20138 |
| | 1-1/4" | BMU-SM-37 | 20136 | 20138 |
| | 1-1/2" | BMU-SM-37 | 20136 | (2) 26173 (1) 20152 (2) 5636-008-10 |
| | 2" | BMU-UM-72 | 20143 | 20146 |
| | 3/4" | BMU-SM-37 | 26178 | (1) 26173-1B (1) 26179 (2) 5636-008A-10 |
| Milwaukee BB Series Gas Butterfly Valves/150 PSIG rating | 1" | BMU-SM-37 | 26178 | (1) 26173-1B (1) 26179 (2) 5636-008A-10 |
| | 1-1/4" | BMU-SM-37 | 26178 | (1) 26173-1B (1) 26179 (2) 5636-008A-10 |
| | 1-1/2" | BMU-SM-37 | 26178 | (1) 26173-1B (1) 26179 (2) 5636-008A-10 |
| | 2" | BMU-SM-37 | 26178 | (1) 26173-1B (1) 26179 (2) 5636-008A-10 |
| | 2" | BMU-SM-37 | 26178 | (1) 26173-1B (1) 26179 (2) 5636-008A-10 |

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| Valve Manufacturer & Model | Valve Size | Servo Model | Bracket Model | Coupling Model |
|--|------------|-------------|---------------|----------------|
| | 2" | BMU-UM-72 | 20143 | 20146 |
| FlowTek Series "F15" & "RF15" Characterized Seat Ball Valves. 150 PSIG rating (gas, water, or steam) | 2-1/2" | BMU-UM-72 | 20144 | B-20009 |
| | 3" | BMU-UM-140 | 20144 | 20163 |
| | 4" | BMU-UM-140 | 20167 | B-20016 |
| Worcester CPT Characterized Seat Ball Valves/300 PSIG rating (gas, water, or steam) | 1/2" | BMU-SM-15 | Factory | Factory |
| | 3/4" | BMU-SM-15 | Factory | Factory |
| | 1" | BMU-SM-37 | 26187 | 26186 |
| | 1-1/2" | BMU-SM-37 | 20136 | 26186 |

| Description | Catalog Number |
|--|------------------|
| Model UM Optional Hardware | |
| Pipe Linkage Kit, 1" NPT with Ball and Socket | 107372 |
| Pipe Linkage Kit, 1½" NPT with Ball and Socket | 107373 |
| Damper Lever Arm | 20054 |
| Quick Disconnect Cable, Male & Female ends | QD1-CABLE-MF-XX* |
| Quick Disconnect Cable, Female end only | QD1-CABLE-F-XX** |

*Specify cable length: 3.3ft, 6.2ft, 12.1ft, 24ft, or 48ft

**Specify cable length: 13ft, 26ft, or 65ft