Honeywell Modutrol IV motors, your reliable replacement business solution. Built for decades, with proven durability bringing exceptional performance and technology to meet demanding applications everywhere.

Features and benefits:

1. **Dual shafts.** Slotted and tapped at both ends. Both drive and auxiliary shafts have equal torque ratings, allowing auxiliary shaft to drive full torque loads. This provides a more flexible motor. For example, a spring-return, normally closed motor will provide normally open operation simply by using the auxiliary shaft.

2. **NEMA 3 housing.** Modutrol IV™ motor housings protect the motor from driving rain if motor is mounted in the upright position (as shown in above photo). May be mounted outdoors without a weatherproofing kit.

3. **Brushless DC sub motor** provides a fixed torque over the entire voltage range.

4. **Reduced power consumption.** Motor power needs can always be satisfied with a 20 VA transformer.

5. **Internal design.** Results in improved performance and longer life. • Microprocessor based technology eliminates the need for mechanical end stops. • Brushless DC sub motor eliminates the need for oil.

6. **Auxiliary Switch cams.** All models have auxiliary switch cams that permit acceptance of 220736A, B Internal Auxiliary Switch Kits.

7. **Field Adjustable stroke.** Most models are field adjustable (i.e. 90 to 160 degrees).

TRADELINE motors and appropriate accessories can be configured to replace all previous Honeywell Modutrol motors, as well as most OEM Modutrol motors. The appropriate accessories are listed with the different models and in tables near the end of this section.
Modutrol IV™ Family of Motors

The following Modutrol IV™ motors can replace the old style Modutrol motors as shown below.

<table>
<thead>
<tr>
<th>Mod IV Replacement</th>
<th>Old Motors Replaced</th>
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<tbody>
<tr>
<td><strong>Non-Spring Return</strong></td>
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<tr>
<td>M6184</td>
<td>M9164</td>
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<td>M6194</td>
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<td>M734 M934</td>
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<td><strong>Spring Return</strong></td>
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<td>M4185</td>
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<td>M765 M865 M965 M975</td>
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## The Honeywell Family of Modutrol IV™ Motors

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Voltage Vac 24*</th>
<th>Stroke 120</th>
<th>Stroke 230</th>
<th>Timing 30</th>
<th>Control Input On/Off Floating</th>
<th>Torque (lb-in.) 35 60 75 150 300</th>
<th>Spring Return</th>
<th>Recommended Controller</th>
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<tbody>
<tr>
<td>M4185A1001/U</td>
<td>●</td>
<td>90-160</td>
<td>30-60</td>
<td>●</td>
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</table>

* All 24 Vac Modutrol motors have CE approval.
* Available only through Honeywell Authorized Distributors.
* Includes minimum position potentiometer.
<table>
<thead>
<tr>
<th>Actuator Voltage</th>
<th>Stroke</th>
<th>Timing</th>
<th>Control Input</th>
<th>Torque (lb-in.)</th>
<th>Spring Return</th>
<th>Recommended Controller</th>
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*TRADELINE models.

- M9164A1013/U
- M9164A1070/U
- M9164C1001/U
- M9164C1068/U
- M9174B1027/U
- M9174C1025/U
- M9174C1033/U
- M9174D1009/U
- M9174D1007/U
- M9184A1019/U
- M9184C1031/U
- M9184D1005/U
- M9184D1021/U
- M9184F1034/U
- M9185A1018/U
- M9185C1006/U
- M9185D1004/U
- M9185E1019/U
- M9194D1003/U
- M9194E1000/U

- All 24 Vac Modutrol motors have CE approval.
- Available only through Honeywell Authorized Distributors.
- Includes minimum position potentiometer.

Modutrol IV™ Motor Order Number Guide

- **OUTPUT DRIVE**: 4 = NON-SPRING RETURN, 5 = N.O., 6 = N.O., 1 = NON-SPRING RETURN, 2 = N.O.
- **SHAFT**: DUAL-ENDED SHAFT
- **CONTROL SERIES (FIRST TWO DIGITS)**:
  - 1 = SERIES 40, TWO-POSITION, LINE VOLTAGE
  - 2 = SERIES 60, FLOATING CONTROL
  - 3 = SERIES 60, FLOATING WITH FEEDBACK POTENTIOMETER
  - 4 = 4-7, 6-9, 10.5-13.5 VDC CONTROL
  - 5 = 4-20 mA OR 2-10 VDC CONTROL
  - 6 = 14-17 VDC WITH MINIMUM POSITION
  - 7 = SERIES 80, TWO-POSITION, LOW VOLTAGE
  - 8 = SERIES 90, PROPORTIONING CONTROL
  - 9 = PROPORTIONAL FLAME SAFEGUARD FIRING RATE MOTOR

- **TORQUE DESIGNATION**:
  - SPRING RETURN: 35 LB-IN.
  - NON-SPRING RETURN: 75 LB-IN.
  - 60 LB-IN.: 150 LB-IN.
  - 300 LB-IN.

- **SUFFIX LETTER APPLIES TO ALL MODELS**:
  - A = SPECIAL FUNCTION
  - B = STANDARD
  - C = ADJUSTABLE
  - Q = MINIMUM POSITION
  - E = STANDARD
  - F = ADJUSTABLE
  - G = N.O.

- **FURTHER IDENTIFIES MOTOR**
- **SPECIFICATION NUMBER**
- **MODEL NUMBERS IN SHAPED AREAS ARE AVAILABLE SPECIAL ORDER ONLY. CONTACT YOUR HONEYWELL SALES REPRESENTATIVE.**
- **SUFFIX LETTERS IN BOLD ARE OBSOLETE.**

M13690A
Series 41 and Series 81 Modutrol IV motors are 2-position (line- and low-voltage per motor control) spring-return motors. They are used to operate dampers or valves in applications where it is necessary or desirable to have the controlled element return to the starting position in the event of power failure or interruption.

- Fixed torque throughout the entire voltage range
- Integral spring return returns motor to normal position in the event of power failure
- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position
- Motor and circuitry operate from 24 Vac
- Quick-connect terminals are standard – screw terminal adapter is available
- Adapter bracket for matching shaft height of older motors is available
- Motors are designed for either normally open or normally closed valves and damper
- Integral auxiliary switches are available factory mounted, or can be field added
- Motors can operate valve linkages from the power end or auxiliary end shafts for normally closed or normally open valve applications
- All models have dual shafts (slotted and tapped on both ends)

Application: Electric

Control Signal: Two position, SPST

Frequency: 50 Hz; 60 Hz

Fail Safe Mode: Spring Return

Auxiliary Switch Ratings: AFL - 120 Vac – 7.2A; ALR - 120 Vac – 43.2A; AFL - 240 Vac – 3.6A; ALR - 240 Vac – 21.6A
Dimensions in inches (millimeters)

**TOP VIEW**

- 4-7/8 (124)
- 5-1/2 (140)
- 13/16 (20)
- 4-1/16 (103)
- 1/4 (7)
- 5-9/16 (141)
- 1-1/2 (37)

**TOP VIEW OF BRACKET**

- 4-1/4 (107)
- 5-13/16 (148)
- 11/16 (17)
- 4-7/8 (124)
- 1/4 (7)

**JUNCTION BOX**

- 1/4 (7)
- 3/4 (19)
- 6-7/16 (164)
- 5-3/8 (137)
- 2-5/16 (58)

**MOTOR**

- 2-9/16 (66)
- 1 (25)

**AUXILIARY END**

- 9/16 (15)

**POWER END**

- 3/4 (19)

**ADAPTER BRACKET**

FOR 60 LB-IN. SPRING RETURN MODELS 8-3/4 (222);
FOR 60 LB-IN. SPRING RETURN MODELS (SHOWN).

**Typical connections for Series 41 motors**

- MOTOR
- THERMOSTAT
- LIMIT CONTROL

- POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

**Typical connections for Series 81 motors**

- MOTOR
- THERMOSTAT
- LIMIT CONTROL
- TRANSFORMER

- POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
Series 61 Modutrol IV™ Motors non-spring return floating control motors are used with controllers that provide a switched SPDT or floating output to operate dampers or valves.

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position
- Motor and circuitry operate from 24 Vac
- Quick-connect terminals are standard – screw terminal adapter is available
- Adapter bracket for matching shaft height of older motors is available
- Motors have field adjustable stroke (90 to 160 degrees)
- Integral auxiliary switches are available factory mounted, or can be field added
- All models have dual shafts (slotted and tapped on both ends)
- All models have auxiliary switch cams
- Fixed torque throughout the entire voltage range
- Motors are designed for either normally open or normally closed valves and dampers

**Applications:**
- Electric

**Control Signal:**
- Floating

**Frequency:**
- 50 Hz; 60 Hz

**Fail Safe Mode:**
- Non-Spring Return

**Auxiliary Switch Ratings:**
- AFL - 120 Vac – 7.2A; ALR - 120 Vac – 43.2A; AFL - 240 Vac – 3.6A; ALR - 240 Vac – 21.6A

**External Auxiliary Switches Available:** Yes

**Shaft Rotation (upon control signal increase):** Dependent on wiring (normally closed)

**Electrical Connections:**
- Quick-connect terminals

**Mounting:**
- Foot-mounted

**Power Consumption:**
- Driving – 15 VA

**Feedback:**
- No

**Shaft Dimensions:** 0.375 in. Square (10 mm Square)

**Motor shafts:** 2; Dual-ended shaft

**Deadweight Load on Shaft:** Either End – 200 lbs.; Combined on both Shafts – 300 lbs.

**Approximate, Dimensions:** 6 7/16 in. high x 5 1/2 in. wide x 7 5/16 in. deep (164 mm high x 140 mm wide x 185 mm deep)

**Ambient Temperature Range:** -40°F to +150°F (-40°C to +60°C)

**Material Number** | **Torque Rating**(lb-in.) | **Torque Rating**(Nm) | **Supply Voltage** | **Timing, Nominal** | **Internal Auxiliary Switch** | **Factory Stroke Setting** | **Stroke** | **Internal Transformer** | **Weight** | **Includes** | **Comments** | **Tradeline Value** |
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>M6184A1015/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>24V</td>
<td>30 - 60 sec</td>
<td>0</td>
<td>90 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
<td>None</td>
<td>6.5 lb</td>
<td>Transformer</td>
<td>Tradeline</td>
<td></td>
</tr>
<tr>
<td>M6184A1023/U</td>
<td>75 lb-in.</td>
<td>8.5 Nm</td>
<td>120V</td>
<td>15 - 30 sec</td>
<td>0</td>
<td>160 degrees</td>
<td>Adjustable; 90 to 160 degrees, Asymmetrical</td>
<td>50004263-003</td>
<td>7.5 lb</td>
<td>Transformer</td>
<td></td>
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<tr>
<td>M6184D1001/U</td>
<td>75 lb-in.</td>
<td>8.5 Nm</td>
<td>24V</td>
<td>15 - 30 sec</td>
<td>0</td>
<td>90 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
<td>None</td>
<td>6.5 lb</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>M6184D1035/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>24V</td>
<td>30 - 60 sec</td>
<td>0</td>
<td>160 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
<td>None</td>
<td>6.5 lb</td>
<td></td>
<td>Tradeline</td>
<td></td>
</tr>
<tr>
<td>M6184D1068/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>24V</td>
<td>120 - 240 sec</td>
<td>0</td>
<td>90 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
<td>None</td>
<td>6.5 lb</td>
<td>Contains on-off pulsing circuitry to achieve timing.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M6184F1014/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>24V</td>
<td>30 - 60 sec</td>
<td>2</td>
<td>90 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
<td>None</td>
<td>6.5 lb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M6194A1005/U</td>
<td>300 lb-in.</td>
<td>34 Nm</td>
<td>120V</td>
<td>120 - 240 sec</td>
<td>0</td>
<td>90 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
<td>50004263-003</td>
<td>7.5 lb</td>
<td>Transformer</td>
<td></td>
<td></td>
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<tr>
<td>M6194B1011/U</td>
<td>300 lb-in.</td>
<td>34 Nm</td>
<td>24V</td>
<td>60 - 120 sec</td>
<td>1</td>
<td>90 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
<td>None</td>
<td>6.5 lb</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>M6194B1029/U</td>
<td>300 lb-in.</td>
<td>34 Nm</td>
<td>120V</td>
<td>120 - 240 sec</td>
<td>1</td>
<td>90 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
<td>50004263-003</td>
<td>7.5 lb</td>
<td>Transformer</td>
<td>Minimum 10° fixed differential</td>
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</tr>
<tr>
<td>M6194D1017/U</td>
<td>300 lb-in.</td>
<td>34 Nm</td>
<td>24V</td>
<td>120 - 240 sec</td>
<td>0</td>
<td>160 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
<td>None</td>
<td>6.5 lb</td>
<td></td>
<td>Tradeline</td>
<td></td>
</tr>
</tbody>
</table>
### Modutrol IV Motors

#### Commercial Components

<table>
<thead>
<tr>
<th>Material Number</th>
<th>Torque Rating (lb-in.)</th>
<th>Supply Voltage</th>
<th>Timing, Nominal</th>
<th>Internal Auxiliary Switch</th>
<th>Factory Stroke Setting</th>
<th>Internal Transformer</th>
<th>Weight Includes</th>
<th>Comments</th>
<th>Tradeline Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6194D4003/U</td>
<td>300 lb-in.</td>
<td>24V</td>
<td>120 - 240 sec</td>
<td>0</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
<td>None</td>
<td>6.5 lb</td>
<td>Tradeline</td>
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<tr>
<td>M6194E1006/U</td>
<td>300 lb-in.</td>
<td>24V</td>
<td>120 - 240 sec</td>
<td>1</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
<td>None</td>
<td>6.5 lb</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dimensions in inches (millimeters)

![Top View](image1)

**TOP VIEW OF BRACKET**

![Top View of Bracket](image2)

**TOP VIEW**

![Typical Wiring](image3)

**Typical wiring for Series 61 motors**

- SERIES 60 CONTROLLER
- SERIES 61 MOTOR

- **POWER SUPPLY** PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- **TRANSFORMER MAY BE INTERNAL OR EXTERNAL TO MOTOR.**
Modutrol IV Motors

M6284; M6294 Floating Modutrol IV™ Motors, for Slaving Applications only

These Series 62 Modutrol IV™ Motors non-spring return floating control motors are used with controllers that provide a switched SPDT or floating output to operate dampers or valves. These motors also have an internal electrically isolated feedback potentiometer that provides indication of the motor shaft position. Some models can be used for slaving Series 90 Motors.

Application: Electric
Control Signal: Floating
Frequency: 50 Hz; 60 Hz
Fail Safe Mode: Non-Spring Return
Auxiliary Switch Ratings: AFL - 120 Vac – 7.2A; ALR - 120 Vac – 43.2A; AFL - 240 Vac – 3.6A; ALR - 240 Vac – 21.6A
Shaft Rotation (upon control signal increase): Dependent on wiring (normally closed)
External Auxiliary Switches Available: Yes
Mounting: Foot-mounted
Power Consumption: Driving – 15 VA
Feedback: Yes
Shaft Dimensions: 0.375 in. Square (10 mm Square)
Motor Shafts: 2; Dual-ended shaft
Deadweight Load on Shaft: Either End – 200 lbs.; Combined on both Shafts – 300 lbs.
Approximate, Dimensions: 6 7/16 in. high x 5 1/2 in. wide x 7 5/16 in. deep (164 mm high x 140 mm wide x 185 mm deep)
Ambient Temperature Range: -40°F to +150°F (-40°C to +60°C)
Approvals, Underwriters Laboratories Inc.: File No. E4436, Guide No. XAPX for USA and Canada
Approvals, CE:
Class: EN55011 (Emission) EN50082-2 (Immunity)
2011/65/ES
Approvals, RoHS: 2011/65/ES
Comments: non-linear feedback, for slaving applications only

Accessories:
220736A/U – Internal Auxiliary Switch Assembly - 1 Switch
220736B/U – Internal Auxiliary Switch Assembly - 2 Switches
220738A/U – Adapter Bracket. Adjusts shaft height to match Modutrol II motors
220741A2-62/U – Screw Terminal Adapter Kit for Series 62 Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals
221455A/U – Infinitely adjustable Motor Crank Arm
4074ERU/U – Weatherproofing kit. Protects motor from driving rain when mounted in any position. Not needed if motor is mounted upright.
50017460-001/U – 24/120/230 Vac Internal Transformers for Series 2 Motors
50017460-003/U – 120 Vac Internal Transformers for Series 2 Motors

<table>
<thead>
<tr>
<th>Material Number</th>
<th>Torque Rating (lb-in.)</th>
<th>Torque Rating (Nm)</th>
<th>Supply Voltage</th>
<th>Timing, Nominal</th>
<th>Internal Auxiliary Switch</th>
<th>Electrical Connections</th>
<th>Internal Transformer</th>
<th>Weight</th>
<th>Includes</th>
<th>Tradeline Value</th>
<th>Factory Stroke Setting</th>
<th>Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6284A1055-S/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>120V</td>
<td>30 - 60 sec</td>
<td>None</td>
<td>Quick-connect terminals</td>
<td>50004263-003</td>
<td>7.5 lb</td>
<td>Transformer</td>
<td></td>
<td>90 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
</tr>
<tr>
<td>M6284A1071-S/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>120V</td>
<td>30 - 60 sec</td>
<td>None</td>
<td>Screw terminals</td>
<td>50004263-002</td>
<td>7.5 lb</td>
<td>Transformer</td>
<td></td>
<td>90 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
</tr>
<tr>
<td>M6284A1089-S/U</td>
<td>75 lb-in.</td>
<td>8.5 Nm</td>
<td>120V</td>
<td>15 - 30 sec</td>
<td>None</td>
<td>Screw terminals</td>
<td>50004263-002</td>
<td>7.5 lb</td>
<td>Transformer</td>
<td></td>
<td>90 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
</tr>
<tr>
<td>M6284A1097-S/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>24V</td>
<td>30 - 60 sec</td>
<td>None</td>
<td>Quick-connect terminals</td>
<td></td>
<td>6.5 lb</td>
<td>Bag Assembly</td>
<td></td>
<td>90 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
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<tr>
<td>M6284C1010-S/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>24V</td>
<td>30 - 60 sec</td>
<td>2</td>
<td>Screw terminals</td>
<td></td>
<td>6.5 lb</td>
<td></td>
<td></td>
<td>160 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
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<tr>
<td>M6284D1000-S/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>24V</td>
<td>30 - 60 sec</td>
<td>None</td>
<td>Quick-connect terminals</td>
<td></td>
<td>6.5 lb</td>
<td></td>
<td>220741A2-62 Screw Terminal Adapter Kit</td>
<td>90 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
</tr>
<tr>
<td>M6284D1026-S/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>24V</td>
<td>30 - 60 sec</td>
<td>None</td>
<td>Quick-connect terminals</td>
<td></td>
<td>6.5 lb</td>
<td></td>
<td>220741A2-62 Screw Terminal Adapter Kit</td>
<td>90 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
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<tr>
<td>M6284D4004-S/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>24V</td>
<td>30 - 60 sec</td>
<td>None</td>
<td>Quick-connect terminals</td>
<td></td>
<td>6.5 lb</td>
<td></td>
<td>220741A2-62 Screw Terminal Adapter Kit</td>
<td>90 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
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<tr>
<td>M6284F1013-S/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>24V</td>
<td>30 - 60 sec</td>
<td>2</td>
<td>Quick-connect terminals</td>
<td></td>
<td>6.5 lb</td>
<td></td>
<td></td>
<td>160 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
</tr>
<tr>
<td>M6284F1062-S/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>120V; 220V</td>
<td>30 - 60 sec</td>
<td>2</td>
<td>Quick-connect terminals</td>
<td>50004263-001</td>
<td>7.5 lb</td>
<td>Transformer</td>
<td></td>
<td>90 degrees</td>
<td>Adjustable; 90 to 160 degrees, Asymmetrical</td>
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<tr>
<td>Material Number</td>
<td>Torque Rating (lb-in.)</td>
<td>Torque Rating (Nm)</td>
<td>Supply Voltage</td>
<td>Timing, Nominal</td>
<td>Internal Auxiliary Switch</td>
<td>Electrical Connections</td>
<td>Internal Transformer</td>
<td>Weight</td>
<td>Includes</td>
<td>Tradeline Value</td>
<td>Factory Stroke Setting</td>
<td>Stroke</td>
</tr>
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<tr>
<td>M6294D1008-S/U</td>
<td>300 lb-in.</td>
<td>34 Nm</td>
<td>24V</td>
<td>120 - 240 sec</td>
<td>0 Quick-connect terminals</td>
<td>None</td>
<td>None</td>
<td>6.5 lb</td>
<td>Tradeline</td>
<td>160 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
<td></td>
</tr>
</tbody>
</table>

Dimensions in inches (millimeters)

**TOP VIEW**

**TOP VIEW OF BRACKET**

**AUXILIARY END**

**POWER END**

**JUNCTION BOX**

**SPRING RETURN MODEL SHOWN**

FOR 60 LB-IN. SPRING RETURN MODELS 8-3/4 (222).
FOR NON-SPRING RETURN MODELS 7-5/16 (185).
FOR 60 LB-IN. SPRING RETURN MODELS (SHOWN).
FOR NON-SPRING RETURN MODELS.

Series 60 and Series 90 motors in slaving application

Typical wiring for Series 62 motors

**SERIES 60 CONTROLLER**

**SERIES 62 MOTOR**

**SERIES 62 CONTROLLER**

**SERIES 62 MOTOR**

POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
TRANSFORMER MAY BE INTERNAL OR EXTERNAL TO MOTOR.
FEEDBACK POTentiometer.
M6285 Floating Modutrol IV™ Motors, for Slaving Applications only

Series 62 Modutrol IV™ Motors are spring return floating control motors are used with controllers that provide a switched SPDT or floating output to operate dampers or valves. These motors also have an internal electrically isolated feedback potentiometer that provides indication of the motor shaft position and can be used for slaving Series 90 motors or rebalancing an external control circuit.

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position

Application: Electric
Control Signal: Floating
Frequency: 50 Hz; 60 Hz
Fail Safe Mode: Spring Return
Auxiliary Switch Ratings: AFL - 120 Vac – 7.2A; ALR - 120 Vac – 43.2A; AFL - 240 Vac – 3.6A; ALR - 240 Vac – 21.6A
External Auxiliary Switches Available: Yes
Shaft Rotation (upon control signal increase): Dependent on wiring (normally closed)
Electrical Connections: Quick-connect terminals
Mounting: Foot-mounted
Power Consumption: Driving – 20 VA
Timing, Nominal: 30 - 60 sec
Feedback: Yes
Shaft Dimensions: 0.375 in. Square (10 mm Square)
Stroke: Adjustable; 90 to 160 degrees, Asymmetrical
Motor shafts: 2; Dual-ended shaft
Deadweight Load on Shaft: Either End – 200 lbs.; Combined on both Shafts – 300 lbs.
Weight: 8.5 lb
Approximate, Dimensions: 6 7/16 in. high x 5 1/2 in. wide x 8 3/4 in. deep (164 mm high x 140 mm wide x 222 mm deep)
Ambient Temperature Range: -40°F to +150°F (-40°C to +60°C)

<table>
<thead>
<tr>
<th>Material Number</th>
<th>Torque Rating (lb-in.)</th>
<th>Torque Rating (Nm)</th>
<th>Supply Voltage</th>
<th>Internal Auxiliary Switch</th>
<th>Factory Stroke Setting</th>
<th>Internal Transformer</th>
<th>Comments</th>
<th>Tradeline Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>M6285A1005-S/U</td>
<td>60 lb-in.</td>
<td>6.8 Nm</td>
<td>24V</td>
<td>0</td>
<td>160 degrees</td>
<td>None</td>
<td>non-linear feedback, for slaving applications only</td>
<td>Tradeline</td>
</tr>
<tr>
<td>M6285A4009-S/U</td>
<td>60 lb-in.</td>
<td>6.8 Nm</td>
<td>24V</td>
<td>0</td>
<td>160 degrees</td>
<td>None</td>
<td>non-linear feedback, for slaving applications only</td>
<td>Tradeline</td>
</tr>
<tr>
<td>M6285C1001-S/U</td>
<td>60 lb-in.</td>
<td>6.8 Nm</td>
<td>24V</td>
<td>2</td>
<td>160 degrees</td>
<td>None</td>
<td>non-linear feedback, for slaving applications only</td>
<td>Tradeline</td>
</tr>
</tbody>
</table>

Approvals, Underwriters Laboratories Inc.: Listed: File No. E4436, Guide No. XAPX for USA and Canada
Approvals, CE: EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)
Approvals, RoHS: 2011/65/ES

Accessories:
- 220736A/U – Internal Auxiliary Switch Assembly - 1 Switch
- 220736B/U – Internal Auxiliary Switch Assembly - 2 Switches
- 220738A/U – Adapter Bracket. Adjusts shaft height to match Modutrol III motors
- 220741A2-62/U – Screw Terminal Adapter Kit for Series 62 Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals
- 221455A/U – Infinitely adjustable Motor Crank Arm
- 50017460-001/U – 24/120/230 Vac Internal Transformers for Series 2 Motors
- 50017460-003/U – 120 Vac Internal Transformers for Series 2 Motors
Dimensions in inches (millimeters)

**TOP VIEW**

- 4-7/8 (124)
- 5-1/2 (140)
- 13/16 (20)
- 13/16 (20)
- 4-1/16 (103)
- 1-1/2 (37)
- 1/4 (7)

**TOP VIEW OF BRACKET**

- 4-5/8 (116)
- 4-1/4 (107)
- 5-13/16 (148)
- 11/16 (17)
- 4-7/8 (124)
- 5-9/16 (141)

**JUNCTION BOX**

- 3/4 (19)

**MOTOR**

- 6-7/16 (164)

**POWER END**

- 5-3/8 (137)

**AUXILIARY END**

- 2-9/16 (66)

**ADAPTER BRACKET**

- 3/4 (19)

**SERIES 60 and Series 90 motors in slaving application**

**Typical wiring for Series 62 motors**

- POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- TRANSFORMER MAY BE INTERNAL OR EXTERNAL TO MOTOR.
- FEEDBACK POTentiOMETER.

**SPRING RETURN MODEL SHOWN**

- FOR 60 LB-IN. SPRING RETURN MODELS 8-3/4 (222).
- FOR NON-SPRING RETURN MODELS 7-5/16 (185).
- FOR 60 LB-IN. SPRING RETURN MODELS (SHOWN).
- FOR NON-SPRING RETURN MODELS.
Series 62 Modutrol IV™ Motors Spring Return and Non-Spring Return floating control motors are used with controllers that provide a switched SPDT or floating output to operate dampers or valves. These motors also have an internal electrically isolated feedback potentiometer that provides indication of the motor shaft position.

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position
- Motor and circuitry operate from 24 Vac
- Quick-connect terminals are standard – screw terminal adapter is available
- Adapter bracket for matching shaft height of older motors is available
- Motors have field adjustable stroke (90 to 160 degrees)
- Integral auxiliary switches are available factory mounted, or can be added
- All models have dual shafts (slotted and tapped on both ends)
- All models have auxiliary switch cams
- Fixed torque throughout the entire voltage range
- Motors are designed for either normally open or normally closed valves and dampers
- F models have an internal electrically isolated feedback potentiometer that provides indication of the motor shaft position

**Modutrol IV Motors**

**M6274; M6284; M6285; M6294**

- **Motor with Linear 10K feedback**

**Application:** Electric

**Control Signal:** Floating

**Frequency:** 50 Hz; 60 Hz

**Auxiliary Switch Ratings:**
- AFL - 120 Vac – 72A; ALR - 120 Vac – 43.2A; AFL - 240 Vac – 3.6A; ALR - 240 Vac – 21.6A

**External Auxiliary Switches Available:** Yes

**Shaft Rotation (upon control signal increase):** Dependent on wiring (normally closed)

**Mounting:** Foot-mounted

**Shaft Dimensions:** 0.375 in. Square (10 mm Square)

**Deadweight Load on Shaft:** Either End – 200 lbs.; Combined on both Shafts – 300 lbs.

**Approximate, Dimensions:** 6 7/16 in. high x 5 1/2 in. wide x 7 5/16 in. deep (164 mm high x 140 mm wide x 185 mm deep)

**Ambient Temperature Range:** -40°F to +150°F (-40°C to +60°C)

**Material Numbers**

- M6274F1009-F/U Non-Spring Return
- M6284F1078-F/U Non-Spring Return
- M6284D1032-F/U Non-Spring Return
- M6285F1001-F/U Spring Return
- M6294F1009-F/U Non-Spring Return
- M6294F1017-F/U Non-Spring Return
- M6294F1078-F/U Non-Spring Return

**Specifications**

<table>
<thead>
<tr>
<th>Material Number</th>
<th>Fail Safe Mode</th>
<th>Torque Rating (lb-in.)</th>
<th>Torque Rating (Nm)</th>
<th>Supply Voltage</th>
<th>Timing, Nominal</th>
<th>Internal Auxiliary Switch</th>
<th>Factory Stroke Setting</th>
<th>Power Consumption</th>
<th>Electrical Connections</th>
<th>Internal Transformer</th>
<th>Weight</th>
<th>Includes</th>
<th>Tradeline Value</th>
<th>Stroke</th>
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<tbody>
<tr>
<td>M6274F1009-F/U</td>
<td>Non-Spring Return</td>
<td>75 lb-in.</td>
<td>8.5 Nm</td>
<td>24V</td>
<td>15 - 27 sec</td>
<td>2</td>
<td>90 degrees</td>
<td>Driving – 26 VA</td>
<td>Screw terminals</td>
<td>None</td>
<td>6.5 lb</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
<td></td>
<td></td>
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<tr>
<td>M6284D1032-F/U</td>
<td>Non-Spring Return</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>24V</td>
<td>30 - 60 sec</td>
<td>0</td>
<td>160 degrees</td>
<td>Driving – 16 VA</td>
<td>Quick-connect terminals</td>
<td>None</td>
<td>6.5 lb</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M6284F1070-F/U</td>
<td>Non-Spring Return</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>120V</td>
<td>30 - 60 sec</td>
<td>0</td>
<td>90 degrees</td>
<td>Driving – 15 VA</td>
<td>Quick-connect terminals</td>
<td>50004263-003</td>
<td>7.5 lb Transformer</td>
<td>Adjustable; 90 to 160 degrees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M6284F1078-F/U</td>
<td>Non-Spring Return</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>24V</td>
<td>30 - 53 sec</td>
<td>2</td>
<td>90 degrees</td>
<td>Driving – 17 VA</td>
<td>Screw terminals</td>
<td>None</td>
<td>6.5 lb</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
<td></td>
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<tr>
<td>M6285F1001-F/U</td>
<td>Spring Return</td>
<td>60 lb-in.</td>
<td>8.8 Nm</td>
<td>24V</td>
<td>30 - 53 sec; Spring Return — 30 sec</td>
<td>2</td>
<td>160 degrees</td>
<td>Driving – 21 VA</td>
<td>Screw terminals</td>
<td>None</td>
<td>8.5 lb</td>
<td>Adjustable; 90 to 160 degrees, Asymmetrical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M6294F1009-F/U</td>
<td>Non-Spring Return</td>
<td>300 lb-in.</td>
<td>34 Nm</td>
<td>24V</td>
<td>120 - 214 sec</td>
<td>2</td>
<td>160 degrees</td>
<td>Driving – 17 VA</td>
<td>Screw terminals</td>
<td>None</td>
<td>6.5 lb</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
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<td></td>
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<tr>
<td>M6294F1017-F/U</td>
<td>Non-Spring Return</td>
<td>300 lb-in.</td>
<td>34 Nm</td>
<td>24V</td>
<td>80 - 107 sec</td>
<td>2</td>
<td>90 degrees</td>
<td>Driving – 17 VA</td>
<td>Screw terminals</td>
<td>None</td>
<td>6.5 lb</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Accessories:**

- 200736A/U – Internal Auxiliary Switch Assembly - 1 Switch
- 200738B/U – Internal Auxiliary Switch Assembly - 2 Switches
- 220741A2-62/U – Screw Terminal Adapter Kit for Series 62 Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals
- 221455A/U – Infinitely adjustable Motor Crank Arm
- 50017460-001/U – 24/120/230 Vac Internal Transformers for Series 2 Motors
- 50017460-003/U – 120 Vac Internal Transformers for Series 2 Motors
Modutrol IV Motors

Dimensions in inches (millimeters)

TOP VIEW

TOP VIEW OF BRACKET

JUNCTION BOX

MOTOR

AUXILIARY END

POWER END

ADAPTER BRACKET

SPRING RETURN MODEL SHOWN

FOR 60 LB-IN. SPRING RETURN MODELS 8-3/4 (222). FOR NON-SPRING RETURN MODELS 7-5/16 (185).

FOR 60 LB-IN. SPRING RETURN MODELS (SHOWN).

FOR NON-SPRING RETURN MODELS.

POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

TRANSFORMER MAY BE INTERNAL OR EXTERNAL TO MOTOR.

FEEDBACK POTENTIOMETER.
Series 71 Modutrol IV™ Motors non-spring return motors are used to control dampers and valves. These motors accept a voltage signal from an electronic controller to position a damper or valve at any point between open and closed.

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position
- Motor and circuitry operate from 24 Vac
- Quick-connect terminals are standard – screw terminal adapter is available
- Adapter bracket for matching shaft height of older motors is available
- Motors have field adjustable stroke (90 to 160 degrees)
- Integral auxiliary switches are available factory mounted, or can be field added
- All models have dual shafts (slotted and tapped on both ends)
- All models have auxiliary switch cams
- Fixed torque throughout the entire voltage range

**Application:** Electric  
**Control Signal:** Modulating, 10.5-13.5 Vdc  
**Frequency:** 50 Hz; 60 Hz  
**Fail Safe Mode:** Non-Spring Return  
**Auxiliary Switch Ratings:** AFL - 120 Vac – 7.2A; ALR- 120 Vac – 43.2A; AFL - 240 Vac – 3.6A; ALR- 240 Vac – 21.6A  
**External Auxiliary Switches Available:** Yes  
**Shaft Rotation (upon control signal increase):** Clockwise (as viewed from power end) (normally closed)  
**Electrical Connections:** Quick-connect terminals  
**Mounting:** Foot-mounted  
**Power Consumption:** Driving – 10 VA  
**Timing, Nominal:** 30 - 60 sec  
**Feedback:** No  
**Shaft Dimensions:** 0.375 in. Square (10 mm Square)  
**Motor shafts:** 2; Dual-ended shaft  
**Deadweight Load on Shaft:** Either End – 200 lbs.; Combined on both Shafts – 300 lbs.  
**Weight:** 6.5 lb  
**Approximate, Dimensions:** 6 7/16 in. high x 5 1/2 in. wide x 7 5/16 in. deep (164 mm high x 140 mm wide x 185 mm deep)  
**Ambient Temperature Range:** -40°F to +150°F (-40°C to +60°C)  
**Includes:** Transformer

<table>
<thead>
<tr>
<th>Material Number</th>
<th>Torque Rating (lb-in.)</th>
<th>Torque Rating (Nm)</th>
<th>Supply Voltage</th>
<th>Internal Auxiliary Switch</th>
<th>Factory Stroke Setting</th>
<th>Stroke</th>
<th>Internal Transformer</th>
</tr>
</thead>
<tbody>
<tr>
<td>M7164A1017/U</td>
<td>35 lb-in.</td>
<td>4 Nm</td>
<td>24V, 120V, 230V</td>
<td>0</td>
<td>90 degrees</td>
<td>Adjustable; 90 to 160 degrees, Asymmetrical</td>
<td>50004263-001</td>
</tr>
<tr>
<td>M7164G1030/U</td>
<td>35 lb-in.</td>
<td>4 Nm</td>
<td>120V</td>
<td>0</td>
<td>90 degrees</td>
<td>Adjustable; 90 to 160 degrees, Symmetrical</td>
<td>50004263-003</td>
</tr>
</tbody>
</table>

**Approvals, Underwriters Laboratories Inc.:** Listed: File No. E4436, Guide No. XAPX for USA and Canada  
**Approvals, CE:** EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)  
**Approvals, RoHS:** 2011/65/ES

**Accessories:**  
220736A/U – Internal Auxiliary Switch Assembly - 1 Switch  
220736B/U – Internal Auxiliary Switch Assembly - 2 Switches  
220738A/U – Adapter Bracket. Adjusts shaft height to match Modutrol III motors  
220741A2-71/U – Screw Terminal Adapter Kit for Series 71 Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals  
221455A/U – Infinitely adjustable Motor Crank Arm  
4074ERU/U – Weatherproofing kit. Protects motor from driving rain when mounted in any position. Not needed if motor is mounted upright.  
50017460-001/U – 24/120/230 Vac Internal Transformers for Series 2 Motors  
50017460-003/U – 120 Vac Internal Transformers for Series 2 Motors
Modutrol IV Motors

Dimensions in inches (millimeters)

Typical wiring for Series 70 motors

- POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- CONNECTING F TO – WILL DRIVE MOTOR TO FULLY OPEN.
The Series 72 Modutrol IV Motors spring return and non-spring return motors are used to control dampers and valves. The motors accept a current or voltage signal from an electronic controller to position a damper or valve at any point between open and closed.

- Integral spring return returns motor to normal position in the event of power failure on spring return models

**Application:** Electric
**Frequency:** 50 Hz; 60 Hz
**Fail Safe Mode:** Non-Spring Return
**Auxiliary Switch Ratings:** AFL - 120 Vac – 7.2A; ALR - 120 Vac – 43.2A; AFL - 240 Vac – 3.6A; ALR - 240 Vac – 21.6A
**External Auxiliary Switches Available:** Yes
**Shaft Rotation (upon control signal increase):** Clockwise (as viewed from power end) (normally closed)
**Mounting:** Foot-mounted
**Feedback:** No
**Shaft Dimensions:** 0.375 in. Square (10 mm Square)
**Motor shafts:** 2; Dual-ended shaft
**Deadweight Load on Shaft:** Either End – 200 lbs.; Combined on both Shafts – 300 lbs.
**Approximate, Dimensions:** 6 7/16 in. high x 5 1/2 in. wide x 7 5/16 in. deep (164 mm high x 140 mm wide x 185 mm deep)
**Ambient Temperature Range:** -40°F to +150°F (-40°C to +60°C)
**Approvals, Underwriters Laboratories Inc.:** Listed: File No. E4436, Guide No. XAPX for USA and Canada
**Approvals, CE:** EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)

### Accessories:
- 220736A/U – Internal Auxiliary Switch Assembly - 1 Switch
- 220736B/U – Internal Auxiliary Switch Assembly - 2 Switches
- 220738A/U – Adapter Bracket. Adjusts shaft height to match Modutrol III motors
- 220741A2-72/U – Screw Terminal Adapter Kit for Series 72 Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals
- 221455A/U – Infinitely adjustable Motor Crank Arm
- 50017460-001/U – 24/120/230 Vac Internal Transformers for Series 2 Motors
- 50017460-003/U – 120 Vac Internal Transformers for Series 2 Motors

### Controls and Switching Applications
- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position
- Motor and circuitry operate from 24 Vac
- Quick-connect terminals are standard – screw terminal adapter is available
- Adapter bracket for matching shaft height of older motors is available
- Motors have field adjustable stroke (90 to 160 degrees)
- Integral auxiliary switches are available factory mounted, or can be field added
- Spring return motors can operate valve linkages from power end or auxiliary end shafts for normally closed or normally open valve applications
- All models have dual shafts (slotted and tapped on both ends)
- All models have auxiliary switch cams
- Fixed torque throughout the entire voltage range
- Motors are designed for either normally open or normally closed valves and dampers
- Models available with adjustable start (zero) and span
- Models available with 4 to 20 mA input signal
- Die-cast aluminum housing

### Specifications

<table>
<thead>
<tr>
<th>Material Number</th>
<th>Torque Rating (lb-in.)</th>
<th>Torque Rating (Nm)</th>
<th>Supply Voltage</th>
<th>Timing, Nominal</th>
<th>Internal Auxiliary Switch</th>
<th>Factory Stroke Setting</th>
<th>Stroke</th>
<th>Control Signal</th>
<th>Electrical Connections</th>
<th>Power Consumption</th>
<th>Weight</th>
<th>Internal Transformer</th>
<th>Comments</th>
<th>Includes</th>
</tr>
</thead>
<tbody>
<tr>
<td>M7274Q1009/U</td>
<td>75 lb-in.</td>
<td>8.5 Nm</td>
<td>24V</td>
<td>15 - 27 sec</td>
<td>2</td>
<td>90 degrees</td>
<td>Adjustable; 90 degrees, Symmetrical</td>
<td>Modulating, 4-20 mA</td>
<td>Screw terminals</td>
<td>29 VA</td>
<td>7 lb</td>
<td>None</td>
<td>Adjustable zero and span for split range applications</td>
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</tr>
<tr>
<td>M7284A1004/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>120V</td>
<td>30 - 60 sec</td>
<td>0</td>
<td>90 degrees</td>
<td>Adjustable; 90 degrees, Symmetrical</td>
<td>Modulating, 4-20 mA</td>
<td>Screw terminals</td>
<td>15 VA</td>
<td>7.5 lb</td>
<td>50004263-002</td>
<td>Transformer and Screw Terminal Adapter</td>
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</tr>
<tr>
<td>M7284A1012/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>120V</td>
<td>30 - 60 sec</td>
<td>0</td>
<td>160 degrees</td>
<td>Adjustable; 90 degrees, Asymmetrical</td>
<td>Modulating, 4-20 mA</td>
<td>Screw terminals</td>
<td>15 VA</td>
<td>7.5 lb</td>
<td>50004263-002</td>
<td>Transformer and Screw Terminal Adapter</td>
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<tr>
<td>M7284A1038/U</td>
<td>75 lb-in.</td>
<td>8.5 Nm</td>
<td>120V</td>
<td>15 - 30 sec</td>
<td>0</td>
<td>90 degrees</td>
<td>Adjustable; 90 degrees, Asymmetrical</td>
<td>Modulating, 4-20 mA</td>
<td>Screw terminals</td>
<td>15 VA</td>
<td>7.5 lb</td>
<td>50004263-002</td>
<td>Transformer and Screw Terminal Adapter</td>
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<tr>
<td>M7284A1079/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>24V</td>
<td>30 - 60 sec</td>
<td>0</td>
<td>160 degrees</td>
<td>Adjustable; 90 degrees, Asymmetrical</td>
<td>Modulating, 2-10 Vdc</td>
<td>Quick-connect terminals</td>
<td>15 VA</td>
<td>8.5 lb</td>
<td>None</td>
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<tr>
<td>M7284C1000U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>120V</td>
<td>30 - 60 sec</td>
<td>2</td>
<td>90 degrees</td>
<td>Adjustable; 90 degrees, Symmetrical</td>
<td>Modulating, 4-20 mA</td>
<td>Screw terminals</td>
<td>15 VA</td>
<td>7.5 lb</td>
<td>50004263-002</td>
<td>Transformer and Screw Terminal Adapter</td>
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<tr>
<td>M7284C1083/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>24V; 120V; 230V</td>
<td>30 sec</td>
<td>2</td>
<td>90 degrees</td>
<td>Fixed; 90 degrees, Symmetrical</td>
<td>Modulating, 4-20 mA</td>
<td>Screw terminals</td>
<td>15 VA</td>
<td>7.5 lb</td>
<td>50004263-001</td>
<td>Enhanced models, additional repositions</td>
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</tr>
<tr>
<td>M7284C1091/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>24V; 120V; 230V</td>
<td>60 sec</td>
<td>2</td>
<td>160 degrees</td>
<td>Fixed; 160 degrees, Asymmetrical</td>
<td>Modulating, 4-20 mA</td>
<td>Screw terminals</td>
<td>15 VA</td>
<td>7.5 lb</td>
<td>50004263-001</td>
<td>Enhanced models, additional repositions</td>
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</table>

**Material Number**
- M7274Q1009/U
- M7284A1004/U
- M7284A1012/U
- M7284A1038/U
- M7284A1079/U
- M7284C1000U
- M7284C1083/U
- M7284C1091/U

**Torque Rating (lb-in.)**
- 75 lb-in.
- 150 lb-in.
- 150 lb-in.
- 75 lb-in.
- 150 lb-in.
- 150 lb-in.
- 150 lb-in.
- 150 lb-in.

**Torque Rating (Nm)**
- 8.5 Nm
- 17 Nm
- 17 Nm
- 8.5 Nm
- 17 Nm
- 17 Nm
- 8.5 Nm
- 17 Nm

**Supply Voltage**
- 24V
- 120V
- 120V
- 120V
- 24V
- 120V; 230V
- 24V; 120V; 230V

**Timing, Nominal**
- 15 - 27 sec
- 30 - 60 sec
- 30 - 60 sec
- 15 - 30 sec
- 30 - 60 sec
- 30 - 60 sec
- 60 sec

**Internal Auxiliary Switch**
- 2
- 0
- 0
- 0
- 2
- 2
- 2

**Factory Stroke Setting**
- 90 degrees
- 90 degrees
- 160 degrees
- 90 degrees
- 160 degrees
- 160 degrees
- 160 degrees

**Stroke**
- Adjustable; 90 degrees, Symmetrical
- Adjustable; 90 degrees, Symmetrical
- Adjustable; 90 degrees, Asymmetrical
- Adjustable; 90 degrees, Asymmetrical
- Adjustable; 90 degrees, Asymmetrical
- Adjustable; 90 degrees, Asymmetrical
- Fixed; 90 degrees, Symmetrical

**Control Signal**
- Modulating, 4-20 mA
- Modulating, 4-20 mA
- Modulating, 4-20 mA
- Modulating, 4-20 mA
- Modulating, 4-20 mA
- Modulating, 4-20 mA
- Modulating, 4-20 mA

**Electrical Connections**
- Screw terminals
- Screw terminals
- Screw terminals
- Quick-connect terminals
- Screw terminals
- Screw terminals
- Screw terminals

**Power Consumption**
- 29 VA
- 15 VA
- 15 VA
- 15 VA
- 15 VA
- 15 VA
- 15 VA

**Weight**
- 7 lb
- 7.5 lb
- 7.5 lb
- 7.5 lb
- 8.5 lb
- 7.5 lb
- 7.5 lb

**Internal Transformer**
- None
- 50004263-002
- 50004263-002
- 50004263-002
- None
- 50004263-002
- 50004263-002

**Comments**
- Adjustable zero and span for split range applications
- Transformer and Screw Terminal Adapter
- Transformer and Screw Terminal Adapter
- Transformer and Screw Terminal Adapter
- Transformer and Screw Terminal Adapter
- Transformer and Screw Terminal Adapter
- Transformer and Screw Terminal Adapter

**Includes**
- Transformer and Screw Terminal Adapter
<table>
<thead>
<tr>
<th>Material Number</th>
<th>Torque Rating (lb-in.)</th>
<th>Torque Rating (Nm)</th>
<th>Supply Voltage</th>
<th>Timing, Nominal</th>
<th>Internal Auxiliary Switch</th>
<th>Factory Stroke Setting</th>
<th>Stroke</th>
<th>Control Signal</th>
<th>Electrical Connections</th>
<th>Power Consumption</th>
<th>Weight</th>
<th>Transformer</th>
<th>Comments</th>
<th>Includes</th>
</tr>
</thead>
<tbody>
<tr>
<td>M7284Q1096/C</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>120V</td>
<td>30 - 60 sec</td>
<td>Fixed; 90 degrees</td>
<td>90 degrees</td>
<td>Adjustable; 90 to 90, 90 to 160, Symmetrical; Modulating, 4-20 mA</td>
<td>Screw terminals</td>
<td>Driving – 15 VA</td>
<td>7.5 lb</td>
<td>None</td>
<td>Transformer and Screw Terminal Adapter</td>
<td>Adjustable zero and span for split range applications</td>
<td></td>
</tr>
<tr>
<td>M7284Q1098/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>24V, 120V, 230V</td>
<td>30 sec</td>
<td>Fixed; 90 degrees</td>
<td>90 degrees</td>
<td>Adjustable; 90 to 90, 90 to 160, Symmetrical; Modulating, 4-20 mA</td>
<td>Screw terminals</td>
<td>Driving – 15 VA</td>
<td>7.5 lb</td>
<td>Enhanced models, additional repositions (160°); Adjustable zero and span for split range applications</td>
<td>Transformer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M7294Q1098/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>24V, 120V, 230V</td>
<td>60 sec</td>
<td>Fixed; 160 degrees</td>
<td>160 degrees</td>
<td>Adjustable; 90 to 90, 90 to 160, Symmetrical; Modulating, 4-20 mA</td>
<td>Screw terminals</td>
<td>Driving – 15 VA</td>
<td>7.5 lb</td>
<td>None</td>
<td>Transformer and Screw Terminal Adapter</td>
<td>Adjustable zero and span for split range applications; Enhanced models, additional repositions</td>
<td></td>
</tr>
<tr>
<td>M7294A1010/U</td>
<td>300 lb-in.</td>
<td>34 Nm</td>
<td>24V</td>
<td>30 - 60 sec</td>
<td>Adjustable; 90 to 90, 90 to 160, Symmetrical; Modulating, 4-20 mA</td>
<td>Screw terminals</td>
<td>Driving – 15 VA</td>
<td>6.5 lb</td>
<td>None</td>
<td>Transformer and Screw Terminal Adapter</td>
<td>Transformer</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>M7294Q1015/U</td>
<td>300 lb-in.</td>
<td>34 Nm</td>
<td>24V</td>
<td>60 - 107 sec</td>
<td>Adjustable; 90 to 90, 90 to 160, Symmetrical; Modulating, 4-20 mA</td>
<td>Screw terminals</td>
<td>Driving – 29 VA</td>
<td>7.5 lb</td>
<td>None</td>
<td>Transformer and Screw Terminal Adapter</td>
<td>Transformer</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Modutrol IV Motors

Dimensions in inches (millimeters)

Typical wiring for Series 70 motors

POWER SUPPLY: PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

CONNECTING F TO – WILL DRIVE MOTOR TO FULLY OPEN.

SPRING RETURN MODEL SHOWN

FOR 60 LB-IN. SPRING RETURN MODELS 8-3/4 (222).
FOR NON-SPRING RETURN MODELS 7-5/16 (185).
FOR 60 LB-IN. SPRING RETURN MODELS (SHOWN).
FOR NON-SPRING RETURN MODELS.
M7285; M7286 Modutrol IV™ Motors

Series 72 Modutrol IV™ Motors are spring return and non-spring return motors (per motor type) used to control dampers and valves. The motors accept a current or voltage signal from an electronic controller to position a damper or valve at any point between open and closed.

- Integral spring return returns motor to normal position in the event of power failure on spring return models
- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position

**Application:** Electric

**Frequency:** 50 Hz; 60 Hz

**Fail Safe Mode:** Spring Return

**Torque Rating (lb-in.):** 60 lb-in.

**Ambient Temperature Range:** -40°F to +150°F (-40°C to +60°C)

**Approvals, CE:** EN55011 (Emission) EN50082-2 (Immunity) Guide No. XAPX for USA and Canada

**Approvals, Underwriters Laboratories Inc.:** Listed: File No. E4436, Guide No. XAPX for USA and Canada

**Approvals, RoHS:** 2011/65/ES

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### Accessories:

- **220736A/U** – Internal Auxiliary Switch Assembly - 1 Switch
- **220736B/U** – Internal Auxiliary Switch Assembly - 2 Switches
- **220738A/U** – Adapter Bracket. Adjusts shaft height to match Modutrol III motors
- **221455A/U** – Infinitely adjustable Motor Crank Arm
- **4074ERU/U** – Weatherproofing kit. Protects motor from driving rain when mounted in any position. Not needed if motor is mounted upright.

**50017460-001/U** – 24/120/230 Vac Internal Transformers for Series 2 Motors

**50017460-003/U** – 120 Vac Internal Transformers for Series 2 Motors

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### Modutrol IV Motors

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<tr>
<th>Material Number</th>
<th>Control Signal</th>
<th>Power Consumption</th>
<th>Electrical Connections</th>
<th>Internal Transformer</th>
<th>Supply Voltage</th>
<th>Timing, Nominal</th>
<th>Internal Auxiliary Switch</th>
<th>Factory Stroke Setting</th>
<th>Weight</th>
<th>Shaft Rotation (open control signal increase)</th>
<th>Comments</th>
<th>Includes</th>
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<tbody>
<tr>
<td>M7285A1003/U</td>
<td>Modulating, 4-20 mA</td>
<td>Driving – 20 VA</td>
<td>Screw terminals</td>
<td>50004263-002</td>
<td>120V</td>
<td>30 - 60 sec</td>
<td>0</td>
<td>90 degrees</td>
<td>9.5 lb</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Transformer and Screw Terminal Adapter</td>
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<tr>
<td>M7285A1045/U</td>
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<td>Driving – 20 VA</td>
<td>Screw terminals</td>
<td>50004263-002</td>
<td>24V</td>
<td>30 - 60 sec</td>
<td>0</td>
<td>160 degrees</td>
<td>8.5 lb</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Transformer and Screw Terminal Adapter</td>
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<tr>
<td>M7285C1009/U</td>
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<td>Driving – 20 VA</td>
<td>Screw terminals</td>
<td>50004263-002</td>
<td>120V</td>
<td>30 - 60 sec</td>
<td>2</td>
<td>90 degrees</td>
<td>9.5 lb</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Transformer and Screw Terminal Adapter</td>
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<td>Driving – 20 VA</td>
<td>Screw terminals</td>
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<td>120V</td>
<td>30 - 60 sec</td>
<td>2</td>
<td>90 degrees</td>
<td>9.5 lb</td>
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<td>30 - 53 sec</td>
<td>2</td>
<td>90 degrees</td>
<td>9.5 lb</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Screw Terminal Adapter</td>
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<td>50004263-002</td>
<td>24V</td>
<td>30 - 53 sec</td>
<td>2</td>
<td>160 degrees</td>
<td>9.5 lb</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Screw Terminal Adapter</td>
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<tr>
<td>M7286G1009/U</td>
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<td>Screw terminals</td>
<td>50004263-002</td>
<td>120V</td>
<td>30 - 60 sec</td>
<td>0</td>
<td>160 degrees</td>
<td>8.5 lb</td>
<td>Clockwise (as viewed from power end) (normally open)</td>
<td>Transformer and Screw Terminal Adapter</td>
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<tr>
<td>M7286G1024/U</td>
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<td>Driving – 24 VA</td>
<td>Screw terminals</td>
<td>50004263-002</td>
<td>24V</td>
<td>30 - 53 sec</td>
<td>2</td>
<td>160 degrees</td>
<td>9.5 lb</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Screw Terminal Adapter</td>
<td></td>
</tr>
</tbody>
</table>

**M7285; M7286 Modutrol IV™ Motors**

- Motor and circuitry operate from 24 Vac
- Quick-connect terminals are standard – screw terminal adapter is available
- Adapter bracket for matching shaft height of older motors is available
- Motors have field adjustable stroke (90 to 160 degrees)
- Integral auxiliary switches are available factory mounted, or can be field added
- Spring return motors can operate valve linkages from power end or auxiliary end shafts for normally closed or normally open valve applications
- All models have dual shafts (slotted and tapped on both ends)
- All models have auxiliary switch cams
- Motors are designed for either normally open or normally closed valves and dampers
- Models available with adjustable start (zero) and span
- Models available with 4 to 20 mA input signal
- Models available with 2 to 10 Vdc input signal
- Die-cast aluminum housing
**Modutrol IV Motors**

**Dimensions in inches (millimeters)**

**TOP VIEW**

**TOP VIEW OF BRACKET**

**SPRING RETURN MODEL SHOWN**

- FOR 60 LB-IN. SPRING RETURN MODELS 8-3/4 (222).
- FOR NON-SPRING RETURN MODELS 7-5/16 (185).
- FOR 60 LB-IN. SPRING RETURN MODELS (SHOWN).
- FOR NON-SPRING RETURN MODELS.

**Typical wiring for Series 70 motors**

- Controller: T1 T2 + 24V L1 (HOT) L2
- **POWER SUPPLY**: PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- **CONNECTING F TO – WILL DRIVE MOTOR TO FULLY OPEN.**
M7685 Modutrol IV™ Motor

Proportional, spring-return motors for use with Honeywell W7080 panel 14-17 Vdc output; with minimum position adjustment.

- Integral spring return returns motor to normal position in the event of power failure
- Integral junction box provides NEMA 3 weather protection
- Motor and circuitry operate from 24 Vac
- Quick-connect terminals are standard
- Adapter bracket for matching shaft height of older motors is available
- Motors have field adjustable stroke (90 to 160 degrees)
- Integral auxiliary switches are available factory mounted, or can be field added
- Spring return motors can operate valve linkages from power end or auxiliary end shafts for normally closed or normally open valve applications
- All models have dual shafts (slotted and tapped on both ends)
- All models have auxiliary switch cams
- Fixed torque throughout the entire voltage range

Application:
Electric

Control Signal:
Modulating, 14-17 Vdc

Frequency:
50 Hz; 60 Hz

Fail Safe Mode:
Spring Return

Auxiliary Switch Ratings:
AFL - 120 Vac – 7.2A; ALR - 120 Vac – 43.2A; AFL - 240 Vac – 3.6A; ALR - 240 Vac – 21.6A

External Auxiliary Switches Available:
Yes

Shaft Rotation (upon control signal increase):
Clockwise (as viewed from power end) (normally closed)

Electrical Connections:
Quick-connect terminals

Mounting:
Foot-mounted

Power Consumption:
Driving – 20 VA

Feedback:
No

Shaft Dimensions:
0.375 in. Square (10 mm Square)

Motor shafts:
2; Dual-ended shaft

Deadweight Load on Shaft:
Either End – 200 lbs.; Combined on both Shafts – 300 lbs.

Weight:
8.5 lb

Approximate Dimensions:
6 7/16 in. high x 5 1/2 in. wide x 8 3/4 in. deep (164 mm high x 140 mm wide x 222 mm deep)

Ambient Temperature Range:
-40°F to +150°F (-40°C to +60°C)

Approvals, Underwriters Laboratories Inc.:
Listed: File No. E4436, Guide No. XAPX for USA and Canada

Approvals, CE:
EN55011 (Emission) EN50082-2 (Immunity)

Approvals, RoHS:
2011/65/ES

Includes:
Minimum Position Potentiometer

<table>
<thead>
<tr>
<th>Material Number</th>
<th>Torque Rating (lb-in.)</th>
<th>Torque Rating (Nm)</th>
<th>Supply Voltage</th>
<th>Timing, Nominal</th>
<th>Internal Auxiliary Switch</th>
<th>Factory Stroke Setting</th>
<th>Stroke</th>
<th>Internal Transformer</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
<td>M7685A1025/U</td>
<td>60 lb-in.</td>
<td>6.8 Nm</td>
<td>24V</td>
<td>30 - 60 sec</td>
<td>0</td>
<td>90 degrees</td>
<td>Adjustable, 90 to 160 degrees, Asymmetrical</td>
<td>None</td>
<td>Minimum position potentiometer</td>
</tr>
</tbody>
</table>
Modutrol IV Motors

Dimensions in inches (millimeters)

TOP VIEW

1/4 (7) 5-1/2 (140) 1-1/2 (37)

JUNCTION BOX

MOTOR

AUXILIARY END

POWER END

ADAPTER BRACKET

4-7/8 (124) 5-9/16 (141)

TOP VIEW OF BRACKET

4-5/8 (116) 5-13/16 (148)

POWER END

4-7/8 (124) 1/4 (7)

SPRING RETURN MODEL SHOWN

FOR 60 LB-IN. SPRING RETURN MODELS 2-3/4 (222).
FOR NON-SPRING RETURN MODELS 7-5/16 (185).
FOR 60 LB-IN. SPRING RETURN MODELS (SHOWN).
FOR NON-SPRING RETURN MODELS.

Typical wiring for M7685 motors

DAMPER MOTORS

L1 (HOT) L2

- +

WHITE RED

EXTERNAL CONTROL

MINIMUM POSITION POTENTIOMETER

MODULATING dc VOLTAGE SOURCE

POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
IF MINIMUM POSITION POTENTIOMETER IS NOT USED, JUMPER TERMINALS 3 AND 4.
TRANSFORMER MAY BE INTERNAL OR EXTERNAL.
Series 90 Modutrol™ IV Motors are non-spring return modulating proportional control motors used with controllers that provide a Series 90 output to operate dampers or valves. • Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position • Motor and circuitry operate from 24 Vac • Quick-connect terminals are standard; screw terminal adapter is available • Adapter bracket for matching shaft height of older motors is available • Motors have field adjustable stroke (90 to 160 degrees) • Integral auxiliary switches are available factory mounted, or can be field added • All models have dual shafts (slotted and tapped on both ends) • All models have auxiliary switch cams • Fixed torque throughout the entire voltage range

**Application:** Electric  
**Control Signal:** Proportional, 135 ohm  
**Frequency:** 50 Hz; 60 Hz  
**Fail Safe Mode:** Non-Spring Return  
**Auxiliary Switch Ratings:** AFL - 120 Vac – 7.2A; ALR - 120 Vac – 43.2A; AFL – 240 Vac – 3.6A; ALR - 240 Vac – 21.6A  
**External Auxiliary Switches Available:** Yes  
**Mounting:** Foot-mounted  
**Feedback:** No  
**Shaft Dimensions:** 0.375 in. Square (10 mm Square)  
**Motor shafts:** 2; Dual-ended shaft  
**Deadweight Load on Shaft:** Either End – 200 lbs.; Combined on both Shafts – 300 lbs.  
**Approximate, Dimensions:** 6 7/16 in. high x 5 1/2 in. wide x 7 5/16 in. deep (164 mm high x 140 mm wide x 185 mm deep)  
**Ambient Temperature Range:** -40°F to +150°F (-40°C to +60°C)  
**Approvals, Underwriters Laboratories Inc.:** Listed: File No. E4436, Guide No. XAPX for USA and Canada  
**Approvals, CE:** EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)  
**Approvals, RoHS:** 2011/65/ES

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<tr>
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<th>Torque Rating (Nm)</th>
<th>Power Consumption</th>
<th>Timing, Nominal</th>
<th>Internal Auxiliary Switch</th>
<th>Factory Stroke Setting</th>
<th>Shaft Rotation (upon control signal increase)</th>
<th>Electrical Connections</th>
<th>Internal Transformer</th>
<th>Weight</th>
<th>Includes</th>
<th>Supply Voltage</th>
<th>Tradeline Value</th>
<th>Stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>M9164A1005/U</td>
<td>35 lb-in.</td>
<td>4 Nm</td>
<td>Driving – 10 VA</td>
<td>30 - 60 sec</td>
<td>0 90 degrees</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
<td>50004263-003</td>
<td>7.5 lb Transformer</td>
<td>120V</td>
<td>Adjustable: 90 to 160 degrees, Asymmetrical</td>
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<td></td>
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<tr>
<td>M9164A1013/U</td>
<td>35 lb-in.</td>
<td>4 Nm</td>
<td>Driving – 10 VA</td>
<td>30 - 60 sec</td>
<td>0 160 degrees</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
<td>50004263-001</td>
<td>7.5 lb Transformer</td>
<td>24V</td>
<td>Adjustable: 90 to 160 degrees, Asymmetrical</td>
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<tr>
<td>M9164A1070/U</td>
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<td>4 Nm</td>
<td>Driving – 10 VA</td>
<td>30 - 60 sec</td>
<td>0 160 degrees</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
<td>None</td>
<td>6.5 lb Transformer</td>
<td>24V</td>
<td>Adjustable: 90 to 160 degrees, Asymmetrical</td>
<td></td>
<td></td>
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<tr>
<td>M9164C1001/U</td>
<td>35 lb-in.</td>
<td>4 Nm</td>
<td>Driving – 10 VA</td>
<td>30 - 60 sec</td>
<td>2 160 degrees</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
<td>None</td>
<td>6.5 lb Transformer</td>
<td>24V</td>
<td>Adjustable: 90 to 160 degrees, Asymmetrical</td>
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<tr>
<td>M9164C1068/U</td>
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<td>4 Nm</td>
<td>Driving – 10 VA</td>
<td>30 - 60 sec</td>
<td>2 90 degrees</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
<td>50004263-003</td>
<td>7.5 lb Transformer</td>
<td>120V</td>
<td>Adjustable: 90 to 160 degrees, Asymmetrical</td>
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<tr>
<td>M9164D1009/U</td>
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<td>4 Nm</td>
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<td>30 - 60 sec</td>
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<td>Counter-clockwise (as viewed from power end) (normally open)</td>
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<tr>
<td>M9174B1027/U</td>
<td>75 lb-in.</td>
<td>8.5 Nm</td>
<td>Driving – 12 VA</td>
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<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
<td>50004263-003</td>
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<td>Material Number</td>
<td>Torque Rating (lb-in.)</td>
<td>Torque Rating (Nm)</td>
<td>Power Consumption</td>
<td>Timing, Nominal</td>
<td>Internal Auxiliary Switch Setting</td>
<td>Factory Stroke Setting</td>
<td>Shaft Rotation (upon control signal increase)</td>
<td>Electrical Connections</td>
<td>Internal Transformer</td>
<td>Weight Includes</td>
<td>Supply Voltage</td>
<td>Tradeline Value</td>
<td>Stroke</td>
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<td>2</td>
<td>90 degrees</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
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<td>2</td>
<td>160 degrees</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
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<td>120V</td>
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<td>2</td>
<td>90 degrees</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
<td>50004263-003</td>
<td>7.5 lb Transformer</td>
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<td>Quick-connect terminals</td>
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<td>6.5 lb</td>
<td>24V</td>
<td>Tradeline</td>
<td>Adjustable: 90 to 160 degrees, Asymmetrical</td>
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<td>Quick-connect terminals</td>
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<td>6.5 lb</td>
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<td>Adjustable: 90 to 160 degrees, Asymmetrical</td>
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<tr>
<td>M9184B1017/U</td>
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<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
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<td>6.5 lb</td>
<td>24V</td>
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<td>Adjustable: 90 to 160 degrees, Symmetrical</td>
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<tr>
<td>M9184C1031/U</td>
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<td>17 Nm</td>
<td>Driving – 15 VA</td>
<td>30 - 60 sec</td>
<td>2</td>
<td>90 degrees</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
<td>None</td>
<td>6.5 lb</td>
<td>24V</td>
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<td>Adjustable: 90 to 160 degrees, Symmetrical</td>
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<td>17 Nm</td>
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<td>160 degrees</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
<td>None</td>
<td>6.5 lb</td>
<td>24V</td>
<td>Tradeline</td>
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<tr>
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<td>17 Nm</td>
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<td>160 degrees</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
<td>None</td>
<td>6.5 lb</td>
<td>24V</td>
<td>Tradeline</td>
<td>Adjustable: 90 to 160 degrees, Symmetrical</td>
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<td>Driving – 15 VA</td>
<td>30 - 60 sec</td>
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<td>160 degrees</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
<td>None</td>
<td>6.5 lb</td>
<td>24V</td>
<td>Tradeline</td>
<td>Adjustable: 90 to 160 degrees, Symmetrical</td>
<td></td>
</tr>
<tr>
<td>M9184F1034/U</td>
<td>150 lb-in.</td>
<td>17 Nm</td>
<td>Driving – 15 VA</td>
<td>30 - 60 sec</td>
<td>2</td>
<td>90 degrees</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
<td>None</td>
<td>6.5 lb</td>
<td>24V</td>
<td></td>
<td>Adjustable: 90 to 160 degrees, Symmetrical</td>
<td></td>
</tr>
<tr>
<td>M9191F1001/U</td>
<td>300 lb-in.</td>
<td>34 Nm</td>
<td>Driving – 15 VA</td>
<td>60 - 120 sec</td>
<td>2</td>
<td>90 degrees</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
<td>None</td>
<td>6.5 lb</td>
<td>24V</td>
<td></td>
<td>Adjustable: 90 to 160 degrees, Symmetrical</td>
<td></td>
</tr>
<tr>
<td>M9194C1005/U</td>
<td>300 lb-in.</td>
<td>34 Nm</td>
<td>Driving – 15 VA</td>
<td>60 - 120 sec</td>
<td>2</td>
<td>90 degrees</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
<td>50004263-002</td>
<td>7.5 lb Transformer</td>
<td>120V</td>
<td>Adjustable: 90 to 160 degrees, Symmetrical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M9194D1003/U</td>
<td>300 lb-in.</td>
<td>34 Nm</td>
<td>Driving – 15 VA</td>
<td>120 - 240 sec</td>
<td>0</td>
<td>160 degrees</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
<td>None</td>
<td>6.5 lb</td>
<td>24V</td>
<td>Tradeline</td>
<td>Adjustable: 90 to 160 degrees, Symmetrical</td>
<td></td>
</tr>
<tr>
<td>Material Number</td>
<td>Torque Rating (lb-in.)</td>
<td>Torque Rating (Nm)</td>
<td>Power Consumption</td>
<td>Timing, Nominal</td>
<td>Internal Auxiliary Switch</td>
<td>Factory Stroke Setting</td>
<td>Shaft Rotation (upon control signal increase)</td>
<td>Electrical Connections</td>
<td>Internal Transformer</td>
<td>Weight</td>
<td>Includes</td>
<td>Supply Voltage</td>
<td>Tradeline Value</td>
<td>Stroke</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------</td>
<td>-------------------</td>
<td>------------------</td>
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<td>------------------------</td>
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<td>--------------</td>
<td>---------------</td>
<td>--------</td>
</tr>
<tr>
<td>M9194E1000/U</td>
<td>300</td>
<td>34 Nm</td>
<td>Driving – 15 VA</td>
<td>120 - 240 sec</td>
<td>1</td>
<td>90 degrees</td>
<td>Clockwise (as viewed from power end) (normally closed)</td>
<td>Quick-connect terminals</td>
<td>None</td>
<td>6.5 lb</td>
<td>24V</td>
<td>Adjustable: 90 to 160 degrees, Symmetrical</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dimensions in inches (millimeters)

![Diagram of Modutrol IV Motors](image_url)
Modutrol IV Motors

Dimensions in inches (millimeters)

WIRING BOX
BASE MOTOR
AUXILIARY END
ADAPTER BRACKET

TOP VIEW OF BRACKET ONLY

3/4 (19)
2-19/32 (66)
2-5/16 (58)
5-13/16 (148)
5-1/2 (140)
5/8 (16)
4-7/8 (124)
3/4 (19)

SPRING RETURN MODEL SHOWN

1 FOR SPRING RETURN MODELS 3-29/32 (98); FOR NON-SPRING RETURN MODELS 2-13/32 (61).
2 FOR SPRING RETURN MODELS 8-3/4 (223); FOR NON-SPRING RETURN MODELS 7-5/16 (185).
3 FOR SPRING RETURN MODELS.
4 FOR NON-SPRING RETURN MODELS.

Wiring for Potentiometer Control

135 OHM POTENTIOMETER
MOTOR
TRANSFORMER

POWER SUPPLY, PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
TRANSFORMER MAY BE INTERNAL OR EXTERNAL.

Typical wiring for Series 90 motors

SERIES 90 CONTROLLER
MOTOR
TRANSFORMER

POWER SUPPLY, PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
TRANSFORMER MAY BE INTERNAL OR EXTERNAL.
Series 90 Modutrol IV™ Motors are spring return modulating proportional control motors used with controllers that provide a Series 90 output to operate dampers or valves.

- Integral junction box provides NEMA 3 weather protection if motor is mounted in the upright position
- Integral spring return in the event of power failure
- Motor and circuitry operate from 24 Vac
- Quick-connect terminals are standard; screw terminal adapter is available
- Adapter bracket for matching shaft height of older motors is available
- Motors have field adjustable stroke (90 to 160 degrees)
- Integral auxiliary switches are available factory mounted, or can be field added
- Spring return motors can operate valve linkages from power end or normally open valve applications
- All models have dual shafts (slotted and tapped on both ends)
- All models have auxiliary switch cams
- Fixed torque throughout the entire voltage range

### Application:
**Electric**

### Control Signal:
Proportional, 135 ohm

### Frequency:
50 Hz; 60 Hz

### Fail Safe Mode:
Spring Return

### Auxiliary Switch Ratings:
- AFL - 120 Vac – 7.2A
- ALR - 120 Vac – 43.2A
- AFL - 240 Vac – 3.6A
- ALR - 240 Vac – 21.6A

### External Auxiliary Switches Available:
Yes

### Shaft Rotation (upon control signal increase):
Clockwise (as viewed from power end) (normally closed)

### Mounting:
Foot-mounted

### Feedback:
No

### Shaft Dimensions:
0.375 in. Square (10 mm Square)

### Weight:
8.5 lb

### Material Number
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>M9182A1011/U</td>
<td>60 lb-in.</td>
<td>6.8 Nm</td>
<td>Driving – 20 VA</td>
<td>30 - 60 sec</td>
<td>0</td>
<td>160 degrees</td>
<td>Quick-connect terminals</td>
<td>Adjustable; 90 to 160 degrees, Asymmetrical</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M9182D1023/U</td>
<td>60 lb-in.</td>
<td>6.8 Nm</td>
<td>Driving – 20 VA</td>
<td>60 - 120 - 240 sec</td>
<td>0</td>
<td>160 degrees</td>
<td>Quick-connect terminals</td>
<td>Adjustable; 90 to 160 degrees, Asymmetrical Nominal – 60 sec</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M9185A1018/U</td>
<td>60 lb-in.</td>
<td>6.8 Nm</td>
<td>Driving – 20 VA</td>
<td>30 - 60 sec</td>
<td>0</td>
<td>160 degrees</td>
<td>Quick-connect terminals</td>
<td>Adjustable; 90 to 160 degrees, Asymmetrical</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M9185C1006/U</td>
<td>60 lb-in.</td>
<td>6.8 Nm</td>
<td>Driving – 20 VA</td>
<td>30 - 60 sec</td>
<td>2</td>
<td>160 degrees</td>
<td>Quick-connect terminals</td>
<td>Adjustable; 90 to 160 degrees, Asymmetrical</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M9185D1004/U</td>
<td>60 lb-in.</td>
<td>6.8 Nm</td>
<td>Driving – 20 VA</td>
<td>30 - 60 sec</td>
<td>0</td>
<td>160 degrees</td>
<td>Quick-connect terminals</td>
<td>Adjustable; 90 to 160 degrees, Asymmetrical Tradeline</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M9185D4008/U</td>
<td>60 lb-in.</td>
<td>6.8 Nm</td>
<td>Driving – 20 VA</td>
<td>30 - 60 sec</td>
<td>0</td>
<td>160 degrees</td>
<td>Quick-connect terminals</td>
<td>Adjustable; 90 to 160 degrees, Asymmetrical Tradeline</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M9185E1019/U</td>
<td>60 lb-in.</td>
<td>6.8 Nm</td>
<td>Driving – 20 VA</td>
<td>30 - 60 sec</td>
<td>1</td>
<td>90 degrees</td>
<td>Quick-connect terminals</td>
<td>Adjustable; 90 to 160 degrees, Asymmetrical Tradeline</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Modutrol IV Motors

Dimensions in inches (millimeters)

Wiring for Potentiometer Control

135 OHM
POTENTIOMETER

MOTOR

TRANSFORMER

POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

TRANSFORMER MAY BE INTERNAL OR EXTERNAL

Typical wiring for Series 90 motors

SERIES 90
CONTROLLER

MOTOR

TRANSFORMER

POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.

TRANSFORMER MAY BE INTERNAL OR EXTERNAL
# Modutrol IV Motors

## Foot Mounted Motor Accessories

<table>
<thead>
<tr>
<th>Material Number</th>
<th>Description</th>
<th>Used With</th>
</tr>
</thead>
<tbody>
<tr>
<td>203709D2/U</td>
<td>Screw Terminal Adapter for Series 70 Mod IV Motors with Adjustable Zero and Span</td>
<td>Series 2 and Series 3 Modutrol IV™ motors</td>
</tr>
<tr>
<td>220738A/U</td>
<td>Adapter Bracket. Adjusts shaft height to match Modutrol III motors</td>
<td>Mod IV Actuator to match shaft height of Mod III Actuator</td>
</tr>
<tr>
<td>220741A2-61/U</td>
<td>Screw Terminal Adapter Kit for Series 61 Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals</td>
<td>Series 61 Mod IV Motor</td>
</tr>
<tr>
<td>220741A2-62/U</td>
<td>Screw Terminal Adapter Kit for Series 62 Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals</td>
<td>Series 62 Mod IV Motor</td>
</tr>
<tr>
<td>220741A2-71/U</td>
<td>Screw Terminal Adapter Kit for Series 71 Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals</td>
<td>Series 71 Mod IV Motor</td>
</tr>
<tr>
<td>220741A2-72/U</td>
<td>Screw Terminal Adapter Kit for Series 72 Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals</td>
<td>Series 72 Mod IV Motor</td>
</tr>
<tr>
<td>220741A2-90/U</td>
<td>Screw Terminal Adapter Kit for Series 90 Modutrol IV Series 2 and Series 3 motors - Converts quick-connect terminals to screw terminals</td>
<td>Series 90 Mod IV Motor</td>
</tr>
<tr>
<td>221455A/U</td>
<td>Infinitely adjustable Motor Crank Arm</td>
<td>Modutrol IV Motors</td>
</tr>
<tr>
<td>221508A2/U</td>
<td>Resistor board for use with Modutrol IV motors. One board can be configured to drive up to 6 motors in parallel from a series 90 controller, drive up to 4 motors from a 4-20 mA controller or drive up to 3 motors from a W973 controller.</td>
<td>Series 2 and Series 3 Modutrol IV™ motors</td>
</tr>
<tr>
<td>4074ERU/U</td>
<td>Weatherproofing kit. Protects motor from driving rain when mounted in any position. Not needed if motor is mounted upright.</td>
<td>Fits all Modutrol IV motors.</td>
</tr>
<tr>
<td>7617DM/U</td>
<td>Coupling - Must be used with ES650117 explosion-proof housing</td>
<td>ES650117</td>
</tr>
</tbody>
</table>

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70-6910 439
Modutrol IV Motors

198162 Internal Transformer for Series 1 Motors

Application: Internal Transformer
Ambient Temperature Range: 0°F to 131°F (-18°C to +55°C)

<table>
<thead>
<tr>
<th>Material Number</th>
<th>Supply Voltage</th>
<th>Control Signal</th>
<th>Includes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>198162A/U</td>
<td>120 or 208 or 240 Vac at 50 or 60 Hz</td>
<td>SPST, On/Off switch</td>
<td>Transformer, screws, instructions for mounting internally in Modutrol IV Series 1 motors</td>
<td>For Mod IV Series 2 and 3 actuators, use 50017460-001</td>
</tr>
<tr>
<td>198162A/U</td>
<td>120 Vac at 50 or 60 Hz</td>
<td>SPST, On/Off switch</td>
<td>Transformer, screws, instructions for mounting internally in Modutrol IV Series 1 motors</td>
<td>For Mod IV Series 2 and 3 actuators, use 50017460-003</td>
</tr>
<tr>
<td>198162G/A/U</td>
<td>220 Vac at 50 or 60 Hz</td>
<td>SPST, On/Off switch</td>
<td>Transformer, screws, instructions for mounting internally in Modutrol IV Series 1 motors</td>
<td>For Mod IV Series 2 and 3 actuators, use 50017460-001</td>
</tr>
<tr>
<td>198162J/A/U</td>
<td>24 Vac (for electrical isolation)</td>
<td>SPST, On/Off switch</td>
<td>Transformer, screws, instructions for mounting internally in Modutrol IV Series 1 motors</td>
<td>For Mod IV Series 2 and 3 actuators, use 50017460-001</td>
</tr>
</tbody>
</table>

220736 Internal Auxiliary Switch Kits

Application: Internal Auxiliary Switch Kits
Auxiliary Switch Ratings: AFL - 120 Vac – 7.2A; ALR - 120 Vac – 43.2A; AFL - 240 Vac – 3.6A; ALR - 240 Vac – 21.6A
Power Consumption: Driving – 20 VA
Weight: 0.3 lb
Ambient Temperature Range: 0°F to 131°F (-18°C to +55°C)

<table>
<thead>
<tr>
<th>Material Number</th>
<th>Electrical Connections</th>
<th>Control Signal</th>
<th>Includes</th>
<th>Used With</th>
</tr>
</thead>
<tbody>
<tr>
<td>220736A/U</td>
<td>15 in (381 mm) Lead Wires</td>
<td>SPDT, On/Off switch</td>
<td>One Micro Switch V3 precision switch, which is actuated by adjustable cams inside the motor.</td>
<td>TRADELINE Modutrol IV Motors</td>
</tr>
<tr>
<td>220736B/U</td>
<td>15 in (381 mm) Lead Wires</td>
<td>SPDT, On/Off switch</td>
<td>Two Micro Switch V3 precision switches, which are actuated by adjustable cams inside the motor.</td>
<td>TRADELINE Modutrol IV Motors</td>
</tr>
</tbody>
</table>

50017460 Internal Transformers for Series 2 and 3 Motors

Application: Internal Transformer
Frequency: 50 Hz; 60 Hz
Mounting: Internal mount to Modutrol IV Motors
Ambient Temperature Range: 0°F to 131°F (-18°C to +55°C)

<table>
<thead>
<tr>
<th>Material Number</th>
<th>Supply Voltage</th>
<th>Control Signal</th>
<th>Includes</th>
<th>Used With</th>
</tr>
</thead>
<tbody>
<tr>
<td>50017460-001/U</td>
<td>24 Vac; 120 Vac; 230 Vac</td>
<td>SPST, On/Off switch</td>
<td>Transformer, screws, instructions for mounting internally in Modutrol IV™ Series 2 and 3 motors</td>
<td>Series 2 and 3 Modutrol IV™ motors</td>
</tr>
<tr>
<td>50017460-003/U</td>
<td>120 Vac</td>
<td>SPST, On/Off switch</td>
<td>Transformer, screws, instructions for mounting internally in Modutrol IV™ Series 2 and 3 motors</td>
<td>Series 2 and 3 Modutrol IV™ motors</td>
</tr>
</tbody>
</table>
### Q181 Auxiliary Potentiometer for Modutrol Motors

Controls from one to four Modutrol (Series 90) motors from one master motor.
- Compatible with Modutrol III and Modutrol IV motors.
- Mounts on master motor and operates controlled motors in unison or in sequence.
- Controls motors with mechanical balance relay and solid state drive circuit.
- Use with 24V motors.

**Application:** Electro-mechanical  
**Mounting:** External mount to Modutrol IV Motors  
**Approximate, Dimensions:** 3 3/16 in. high x 3 1/4 in. wide x 3 3/8 in. deep (81 mm high x 83 mm wide x 86 mm deep)  
**Approvals, CE:** Report: GV97-011

<table>
<thead>
<tr>
<th>Material Number</th>
<th>Electrical Connections</th>
<th>Control Signal</th>
<th>Weight</th>
<th>Includes</th>
<th>Comments</th>
<th>Used With</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q181A1007/U</td>
<td>Screw terminals</td>
<td>SPST, On/Off switch</td>
<td>1.38 lb</td>
<td>Cover</td>
<td>For controlling one Modutrol motor</td>
<td>Series 90</td>
</tr>
<tr>
<td>Q181A1015/U</td>
<td>Screw terminals</td>
<td>SPST, On/Off switch</td>
<td>1.56 lb</td>
<td>Cover</td>
<td>For controlling two Modutrol motors</td>
<td>Series 90</td>
</tr>
<tr>
<td>Q181A1064/U</td>
<td>Screw terminals</td>
<td>SPST, On/Off switch</td>
<td>1.25 lb</td>
<td></td>
<td>For controlling up to three Modutrol motors</td>
<td>Series 90</td>
</tr>
</tbody>
</table>

### Q209 Manual Potentiometer for Modutrol Motors

Used to limit minimum position of a proportioning Modutrol motor.
- Mount directly in motor.
- All wiring is accomplished within motor wiring compartment.
- Color-coded leadwires.

**Application:** Electro-mechanical  
**Approvals, CE:** Report: GV97-011

<table>
<thead>
<tr>
<th>Material Number</th>
<th>Electrical Connections</th>
<th>Control Signal</th>
<th>Mounting</th>
<th>Weight</th>
<th>Approximate, Dimensions</th>
<th>Includes</th>
<th>Used With</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q209A1022/U</td>
<td>Screw terminals</td>
<td>SPST, On/Off switch</td>
<td>Internal mount to Modutrol IV Motors</td>
<td>0.2 lb</td>
<td>3 1/4 in. high x 3 3/8 in. wide x 3 7/8 in. deep (83 mm high x 86 mm wide x 98 mm deep)</td>
<td>150 ohm Potentiometer, leadwires and bracket</td>
<td>M9184; M9185; M6284; M6285</td>
</tr>
<tr>
<td>Q209A1030/U</td>
<td>Screw terminals</td>
<td>SPST, On/Off switch</td>
<td>Internal mount to Modutrol IV Motors</td>
<td>0.25 lb</td>
<td>3 1/4 in. high x 3 3/8 in. wide x 3 7/8 in. deep (83 mm high x 86 mm wide x 98 mm deep)</td>
<td>300 ohm Potentiometer, leadwires and bracket</td>
<td>M9184; M9185; M6284; M6285</td>
</tr>
<tr>
<td>Q209E1002/U</td>
<td>Quick-connect terminals with lead wires</td>
<td>SPST, On/Off switch</td>
<td>External mount to Modutrol IV Motors</td>
<td>0.5 lb</td>
<td>1 in. high x 4 1/2 in. wide x 6 1/4 in. deep (25 mm high x 114 mm wide x 159 mm deep)</td>
<td>150 ohm Potentiometer, factory mounted on a wiring cover box</td>
<td>M9184; M9185; M6284; M6285</td>
</tr>
<tr>
<td>Q209E1010/U</td>
<td>Quick-connect terminals with lead wires</td>
<td>SPST, On/Off switch</td>
<td>External mount to Modutrol IV Motors</td>
<td>0.5 lb</td>
<td>1 in. high x 4 1/2 in. wide x 6 1/4 in. deep (25 mm high x 114 mm wide x 159 mm deep)</td>
<td>300 Ohm Potentiometer, Factory Mounted on a wiring cover box</td>
<td>M9184; M9185; M6284; M6285</td>
</tr>
</tbody>
</table>
Modutrol IV Motors

Q607 Auxiliary Switches for Modutrol Motors

For control of auxiliary equipment as a function of Modutrol motor shaft position.

- Compatible with Modutrol III and Modutrol IV motors. (Requires 220738A adapter bracket for use with Modutrol IV motors).
- Micro Switch precision switches, adjustable.
- Indicate motor position by use of a scale plate anchored to a common shaft, which allows Q607 to be adjusted for operational sequence before mounting.
- Adjustable plate allows universal mounting on either end of motor.
- Wrap-around cover for easy access to switch adjustments and wiring.
- Maintenance-free protection of the switches and cams.

Application: Electro-mechanical

Control Signal: SPDT, On/Off switch

Auxiliary Switch Ratings:
- AFL - 120 Vac – 9.8A; ALR - 120 Vac – 58.8A; AFL - 240 Vac – 4.9A; ALR - 240 Vac – 29.4A

Mounting: Cover or gear end

Approximate, Dimensions: 6 7/16 in. high x 5 3/16 in. wide x 2 1/8 in. deep (164 mm high x 132 mm wide x 54 mm deep)

Approvals, Underwriters Laboratories Inc.: Listed File: E4436, Guide: XAPX2

Approvals, CSA: Certified: File No. LR1620

<table>
<thead>
<tr>
<th>Material Number</th>
<th>Electrical Connections</th>
<th>Internal Auxiliary Switch</th>
<th>Weight</th>
<th>Tradeline Value</th>
<th>Includes</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q607A1050/U</td>
<td>Screw terminals</td>
<td>1</td>
<td>2.5 lb</td>
<td>Tradeline</td>
<td>Revised mounting bracket</td>
<td>Post 1969 Honeywell Modutrol Motors</td>
</tr>
<tr>
<td>Q607A1068/U</td>
<td>Screw terminals</td>
<td>1</td>
<td>2.5 lb</td>
<td>Tradeline</td>
<td>With adapter for cover end spring return motor and revised</td>
<td>Post 1969 Honeywell Modutrol Motors</td>
</tr>
<tr>
<td>Q607A1076/U</td>
<td>Screw terminals</td>
<td>1</td>
<td>2.5 lb</td>
<td>Tradeline</td>
<td>With adapter for cover end spring return motor and revised</td>
<td>Post 1969 Honeywell Modutrol Motors</td>
</tr>
<tr>
<td>Q607B1067/U</td>
<td>Screw terminals</td>
<td>2</td>
<td>2.4 lb</td>
<td>Tradeline</td>
<td>Revised mounting bracket</td>
<td>Pre/Post 1969 Honeywell Modutrol Motors</td>
</tr>
<tr>
<td>Q607B1075/U</td>
<td>Screw terminals</td>
<td>2</td>
<td>2.63 lb</td>
<td>Tradeline</td>
<td>With adapter for cover end spring return motor and revised</td>
<td>Pre/Post 1969 Honeywell Modutrol Motors</td>
</tr>
<tr>
<td>Q607B1083/U</td>
<td>Screw terminals</td>
<td>2</td>
<td>2.8 lb</td>
<td>Tradeline</td>
<td>With adapter for cover end spring return motor and revised</td>
<td>Pre/Post 1969 Honeywell Modutrol Motors</td>
</tr>
<tr>
<td>Q607C1009/U</td>
<td>Terminal Board</td>
<td>1</td>
<td>2.16 lb</td>
<td>Special terminal</td>
<td>Special terminal panel and metric grounding screws</td>
<td>Pre/Post 1969 Honeywell Modutrol Motors</td>
</tr>
<tr>
<td>Q607D1008/U</td>
<td>Terminal Board</td>
<td>2</td>
<td>2.25 lb</td>
<td>Special terminal</td>
<td>Special terminal panel and metric grounding screws</td>
<td>Pre/Post 1969 Honeywell Modutrol Motors</td>
</tr>
</tbody>
</table>

S443 Manual Potentiometer for Modutrol Motors

Used for remote manual control of proportioning (Series 90) motors and relays.

- Compatible with Modutrol III and Modutrol IV motors.
- Select automatic or manual control with DPST toggle switch.
- Suitable for Series 90, M7685; and M7285 motors controlled by 135 ohm inputs.
- Surface mounted, with conduit outlet on each side of case. Screw terminals.
- Scale marked OPEN-CLOSE.

Application: Electric

Mounting: Surfaced mounted with conduit knock-outs

Weight: 1.3 lb

Approximate, Dimensions: Including Knob 3 3/4 in. high, 3 3/8 in. wide, 3 1/4 in. deep. **Fits inside wiring junction box of Modutrol IV Motor (Including Knob 95 mm high, 82 mm wide, 83 mm deep. **Fits inside wiring junction box of Modutrol IV Motor)

Ambient Temperature Range: -40°F to +150°F (-40°C to +60°C)

<table>
<thead>
<tr>
<th>Material Number</th>
<th>Electrical Connections</th>
<th>Control Signal</th>
<th>Comments</th>
<th>Used With</th>
</tr>
</thead>
<tbody>
<tr>
<td>S443A1007/U</td>
<td>Screw terminals</td>
<td>SPST, On/Off switch</td>
<td>2 position manual switch</td>
<td>M9164; M9484; M9184; M9185 and motors replaced by these motors</td>
</tr>
</tbody>
</table>
Q7130; Q7230; and Q7330 Interface Modules for Series 90 Modutrol IV Motors

For converting Series 90 Modutrol IV motors to Series 70 (electronic) control.
- Mounts and works inside wiring box of any series 90 Modutrol IV Motor
- Protected from weather by motor's NEMA 3 wiring box
- Mates to motor's quick-connect terminals and provides screw terminals for control wiring connections
- Features solid-state circuitry with surface mount components
- Cover holds module in place, screws not required
- Includes (except Q7330A) reversing switch to allow replacement of electrically normally open or electrically normally closed motors

Application:
- Electric
- Frequency: 50 Hz; 60 Hz
- Mounting: Mounts to quick-connects inside Mod Motor
- Power Consumption: Driving – 2 VA
- Approximate, Dimensions: Fits inside wiring junction box of Modutrol IV Motor
- Ambient Temperature Range: -40°F to +150°F (-40°C to +60°C)

<table>
<thead>
<tr>
<th>Material Number</th>
<th>Electrical Connections</th>
<th>Control Signal</th>
<th>Weight</th>
<th>Used With</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q7130A1006/U</td>
<td>Terminal Board</td>
<td>Provides selectable voltage ranges: 4 to 7, 6 to 9, or 10.5 to 13.5 Vdc. Adapts M91XX to function as M71XX model.</td>
<td>0.3 lb</td>
<td>Used with M91XX Modutrol IV Motor to replace M71XX Motor applications. Module controls only one motor.</td>
</tr>
<tr>
<td>Q7230A1005/U</td>
<td>Terminal Board</td>
<td>Provides adjustable zero &amp; span, voltage or current control (includes 2-10 Vdc or 4-20 mA). Adapts M91XX to function as M72XX model.</td>
<td>0.3 lb</td>
<td>Used with M91XX Modutrol IV Motor to replace M72XX Motor applications. Module controls only one motor.</td>
</tr>
<tr>
<td>Q7330A1004/U</td>
<td>Terminal Board</td>
<td>Provides interface to W936 Control. Adapts M91XX to function as M73XX model.</td>
<td>0.3 lb</td>
<td>Used with M91XX Modutrol IV Motor to replace M73XX Motor applications. Module controls only one motor.</td>
</tr>
</tbody>
</table>
Kit Mounted Motors

M436; M836 Damper Motors

Spring return motors for two-position back draft, outdoor air changeover, zone or minimum position damper control.

- Operate outdoor air dampers for combustion or makeup air in residential and light commercial applications.
- Operate changeover dampers for heating and cooling systems.
- Operate minimum position dampers for ventilation and similar applications.
- Include internal SPDT switch for controlling auxiliary equipment, additional motors, or to provide a burner interlock switch.
- Spring returns motor to start position on power failure.
- Drive shafts located on both sides of motor.
- Adjustable auxiliary switch to cascading motors or operating auxiliary equipment.
- Thermal breaker for overload protection during lifting stroke or if motor stalls.

**Mounting:** Foot-mounted, Any position where the output shaft is horizontal

**Spring Return Timing:** Maximum – 25 sec

**Motor shafts:** 2, Hexagonal shape

**Weight:** 4 lb 10 oz (2.1 kg)

**Approximate, Dimensions:** 4 1/2 in. high x 4 5/8 in. wide x 3 3/4 in. deep (114 mm high x 118 mm wide x 95 mm deep)

**Operating Temperature Range:** 32°F to 125°F (0°C to 52°C)

**Approvals, Underwriters Laboratories Inc.:** Listed File: E4436, Guide: XAPX

**Operating Humidity Range (% RH):** 5 to 95% RH

### Control Signal
- Two position, SPST

### Frequency
- 60 Hz

### Fail Safe Mode
- Spring Return

### Additional Torque Ratings (lb-in.):
- Breakaway – 30 lb-in.

### Additional Torque Ratings (Nm):
- Breakaway – 3.3 Nm

### Internal Auxiliary Switch
- 1

### Auxiliary Switch Ratings:
- AFL - 120 Vac – 7.2A; ALR - 120 Vac – 43.2A; AFL - 240 Vac – 3.6A; ALR - 240 Vac – 21.6A

### External Auxiliary Switches Available:
- Yes

### Stroke
- Angle of Rotation – 75 degrees maximum

### Electrical Connections
- Screw terminals

### Material
- Number
- Torque Rating (lb-in.)
- Torque Rating (Nm)
- Supply Voltage
- Timing, Nominal Timing
- Nominal Current Draw (amps)
- Nominal Power (watts)
- Includes
- Used With
- Tradeline Value

<table>
<thead>
<tr>
<th>Material Number</th>
<th>Torque Rating (lb-in.)</th>
<th>Torque Rating (Nm)</th>
<th>Supply Voltage</th>
<th>Timing, Nominal Timing</th>
<th>Nominal Current Draw (amps)</th>
<th>Nominal Power (watts)</th>
<th>Includes</th>
<th>Used With</th>
<th>Tradeline Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>M436A1116/U</td>
<td>20 lb-in.</td>
<td>2.3 Nm</td>
<td>120 Vac</td>
<td>Opening – 30 sec</td>
<td>Opening – 0.37 A, Holding – 0.12 A, Opening – 28 W, Holding – 8.5 W</td>
<td>Tradeline</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M436A1124/U</td>
<td>20 lb-in.</td>
<td>2.3 Nm</td>
<td>240 Vac</td>
<td>Opening – 30 sec</td>
<td>Opening – 0.19 A, Holding – 0.06 A, Opening – 29 W, Holding – 8.5 W</td>
<td>Tradeline</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M436A1140/U</td>
<td>20 lb-in.</td>
<td>2.3 Nm</td>
<td>220 Vac</td>
<td>Opening – 30 sec, Closing – 25 sec</td>
<td>Opening – 0.21 A, Holding – 0.062 A, Opening – 30 W, Holding – 8.5 W, Ground and cover screw</td>
<td>Series 40, 80 circuits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M836A1034/U</td>
<td>20 lb-in.</td>
<td>2.3 Nm</td>
<td>24 Vac</td>
<td>Opening – 30 sec, Closing – 25 sec</td>
<td>Opening – 1.85 A, Holding – 0.6 A, Opening – 39 W, Holding – 8.5 W</td>
<td>Series 40, 80 circuits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M836A1042/U</td>
<td>20 lb-in.</td>
<td>2.3 Nm</td>
<td>24 Vac</td>
<td>Opening – 30 sec</td>
<td>Opening – 1.85 A, Holding – 0.6 A, Opening – 28 W, Holding – 8.5 W</td>
<td>Tradeline</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M836B1033/U</td>
<td>15 lb-in.</td>
<td>1.7 Nm</td>
<td>24 Vac</td>
<td>Opening – 25 sec</td>
<td>Opening – 1.34 A, Holding – 0.73 A, Opening – 20.3 W, Holding – 11.2 W</td>
<td>Tradeline</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>