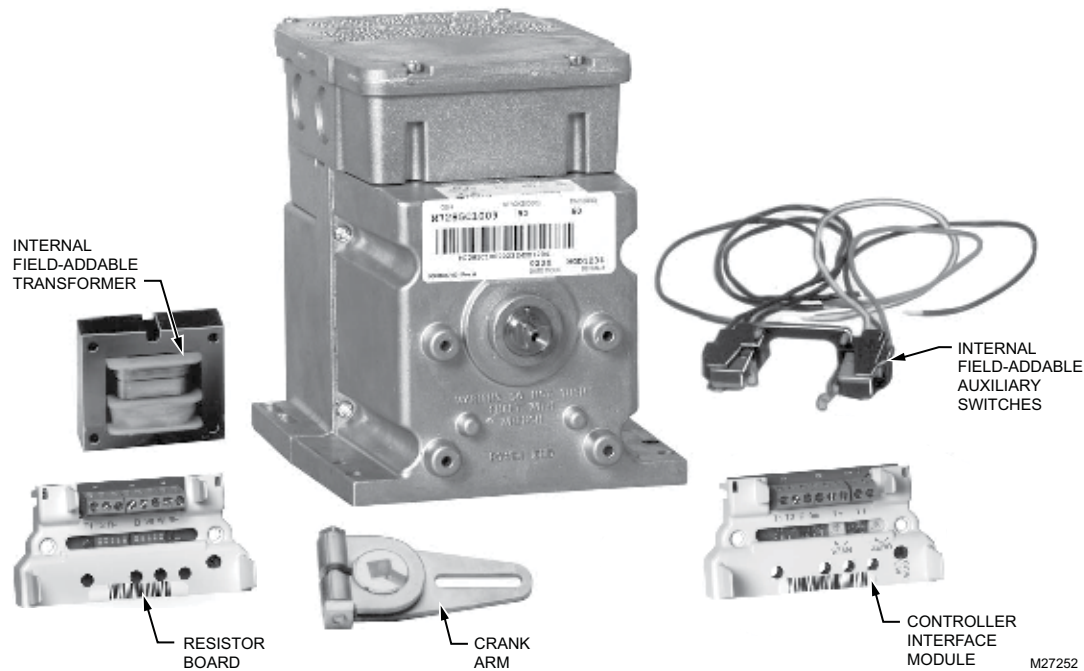


Modutrol IV Motors

Modutrol IV™ Family of Motors “Contractor-Friendly” design for service and retrofit



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:






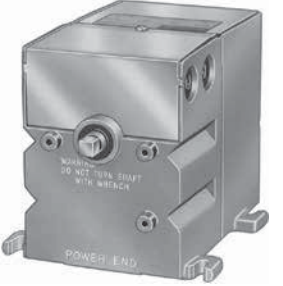
- 1. Dual shafts.** Slotted and tapped at both ends. Both drive and auxiliary shafts have equal torque ratings, allowing auxiliary shaft to drive full torque loads. This provides a more flexible motor. For example, a spring-return, normally closed motor will provide normally open operation simply by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

	Mod IV Replacement		Old Motors Replaced	
Non-Spring Return	M6184 M6194 M6284 M6294 M7164 M7284 M7294	M9164 M9174 M9184 M9194 M9484 M9494		M644 M744 M941 M944 M954 M734 M934 
Spring Return	M4185 M6285 M7285 M7286	M7685 M8185 M9185		M445 M745 M845 M945 M955 
Medium Torque Spring Return	M9175			M765 M865 M965 M975 

Modutrol IV Motors

The Honeywell Family of Modutrol IV™ Motors

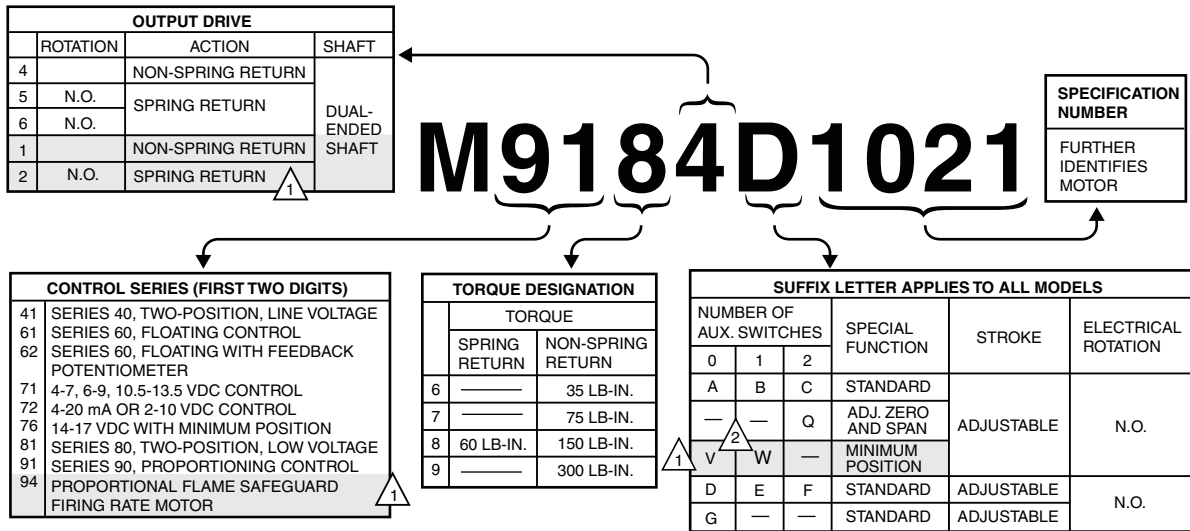
Actuator	Voltage Vac			Stroke	Timing	Control Input			Torque (lb-in.)					Spring Return	Recommended Controller
	24 ^a	120	230			On/Off	SPDT Floating	Modulating	35	60	75	150	300		
<i>*TRADELINE models.</i>															
M4185A1001/U		●		90-160	30-60	●				●				●	T775; T4031
M4185B1009/U		●		90-160	30-60	●				●				●	T775; T4031
M4185B1058/U	●	●	●	90-160	30-60	●				●				●	T775; T4031
M4185C1007/U	●	●		90-160	30-60	●				●				●	T775; T4031
M6184A1015/U	●			90-160	30-60		●				●				T775; T675; T678; T6031
M6184A1023/U		●		90-160	15-30		●				●				T775; T675; T678; T6031
M6184D1001/U	●			90-160	15-30		●				●				T775; T675; T678; T6031
*M6184D1035/U	●			90-160	30-60		●					●			T775; T675; T678; T6031
M6184D1068/U	●			90-160	120-240		●					●			T775; T675; T678; T6031
M6184F1014/U	●			90-160	30-60		●					●			T775; T675; T678; T6031
*M6194B1011/U	●			90-160	60-120		●						●		T775; T675; T678; T6031
*M6194D1017/U	●			90-160	120-240		●						●		T775; T675; T678; T6031
M6194E1006/U	●			90-160	120-240		●						●		T775; T675; T678; T6031
M6284A1055		●		90-160	30-60		●					●			T775; T675; T678; T6031
M6284A1071		●		90-160	30-60		●					●			T775; T675; T678; T6031
*M6284D1000	●			90-160	30-60		●					●			T775; T675; T678; T6031
*M6284D1026	●			90-160	30-60		●					●			T775; T675; T678; T6031
M6284F1013	●			90-160	30-60		●					●			T775; T675; T678; T6031
*M6285A1005	●			90-160	30-60		●			●			●		T775; T675; T678; T6031
M6285C1001	●			90-160	30-60		●			●			●		T775; T675; T678; T6031
*M6294D1008	●			90-160	120-240		●						●		T775; T675; T678; T6031
M7164A1017/U ^b	●			90-160	30-60			10.5-13.5 Vdc	●						T775; W7080
M7164G1030/U ^b		●		90-160	30-60			10.5-13.5 Vdc	●						T775; W7080
M7284A1004/U ^b		●		90-160	30-60			4-20 mA				●			T775, EXCEL 5000
M7284A1012/U ^b		●		90-160	30-60			4-20 mA				●			T775, EXCEL 5000
M7284A1038/U ^b		●		90-160	15-30			4-20 mA			●				T775, EXCEL 5000
M7284A1079/U ^b	●			90-160	30-60			2-10 Vdc				●			T775, EXCEL 5000
M7284C1000/U ^b		●		90-160	30-60			4-20 mA				●			T775, EXCEL 5000
M7284C1083/U	●			90	30		●	4-20 mA				●			DDC
M7284C1091/U	●			160	60		●	4-20 mA				●			DDC
M7284Q1009/U ^b		●		90-160	30-60			4-20 mA				●			T775, EXCEL 5000
M7284Q1082/U	●			90	30		●	4-20 mA				●			DDC
M7284Q1090/U	●			160	60		●	4-20 mA				●			DDC
M7285A1003/U ^b		●		90-160	30-60			4-20 mA		●			●		T775, EXCEL 5000
M7285A1045/U ^b	●			90-160	30-60			2-10 Vdc		●			●		T775, EXCEL 5000
M7285C1009/U ^b		●		90-160	30-60			4-20 mA		●			●		T775, EXCEL 5000
M7285Q1008/U ^b		●		90-160	30-60			4-20 mA		●			●		T775, EXCEL 5000
M7286G1009/U ^b	●			90-160	30-60			2-10 Vdc		●			●		T775, EXCEL 5000
M7294A1010/U ^b	●			90-160	60-120			2-10 Vdc					●		T775, EXCEL 5000
M7294Q1007/U ^b		●		90-160	60-120			4-20 mA					●		T775, EXCEL 5000
M7685A1025/U ^{b,c}	●			90-160	30-60			14-17 Vdc		●			●		T775; W7080
*M8185D1006/U	●			90-160	30-60	●				●			●		T775
M9164A1005/U		●		90-160	30-60			135 ohm	●						T775; T915; T991

^a All 24 Vac Modutrol motors have CE approval.
^b Available only through Honeywell Authorized Distributors.
^c Includes minimum position potentiometer.

Actuator	Voltage Vac			Stroke	Timing	Control Input			Torque (lb-in.)					Spring Return	Recommended Controller
	24 ^a	120	230			On/Off	SPDT Floating	Modulating	35	60	75	150	300		
<i>*TRADELINE models.</i>															
M9164A1013/U	●	●	●	90-160	30-60			135 ohm	●						T775; T915; T991
M9164A1070/U	●			90-160	30-60			135 ohm	●						T775; T915; T991
M9164C1001/U	●			90-160	30-60			135 ohm	●						T775; T915; T991
M9164C1068/U		●		90-160	30-60			135 ohm	●						T775; T915; T991
*M9164D1009/U	●			90-160	30-60			135 ohm	●						T775; T915; T991
M9174B1027/U		●		90-160	30-60			135 ohm			●				T775; T915; T991
M9174C1025/U		●		90-160	30-60			135 ohm			●				T775; T915; T991
M9174C1033/U		●		90-160	30-60			135 ohm			●				T775; T915; T991
*M9174D1007/U	●			90-160	30-60			135 ohm			●				T775; T915; T991
M9184A1019/U	●			90-160	30-60			135 ohm				●			T775; T915; T991
M9184C1031/U	●			90-160	30-60			135 ohm				●			T775; T915; T991
M9184D1005/U	●			90-160	15-30			135 ohm			●				T775; T915; T991
*M9184D1021/U	●			90-160	30-60			135 ohm				●			T775; T915; T991
M9184F1034/U	●			90-160	30-60			135 ohm				●			T775; T915; T991
M9185A1018/U	●			90-160	30-60			135 ohm		●			●		T775; T915; T991
M9185C1006/U	●			90-160	30-60			135 ohm		●			●		T775; T915; T991
*M9185D1004/U	●			90-160	30-60			135 ohm		●			●		T775; T915; T991
M9185E1019/U	●			90-160	30-60			135 ohm		●			●		T775; T915; T991
*M9194D1003/U	●			90-160	120-240			135 ohm					●		T775; T915; T991
M9194E1000/U	●			90-160	120-240			135 ohm					●		T775; T915; T991

^a All 24 Vac Modutrol motors have CE approval.
^b Available only through Honeywell Authorized Distributors.
^c Includes minimum position potentiometer.

Modutrol IV™ Motor Order Number Guide



¹ MODEL NUMBERS IN SHADED AREAS ARE AVAILABLE SPECIAL ORDER ONLY. CONTACT YOUR HONEYWELL SALES REPRESENTATIVE.

² SUFFIX LETTERS IN BOLD ARE OBSOLETE.

M13696A

Modutrol IV Motors

M4185 Line Volt; M8185 Low Volt Two-Position Modutrol IV™ Motors



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 have field adjustable stroke (90 to 160 degrees)
- 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

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

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.

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) 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-TP/U – Screw Terminal Adapter Kit for 2 position Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals

221455A/U – Infinitely adjustable Motor Crank Arm

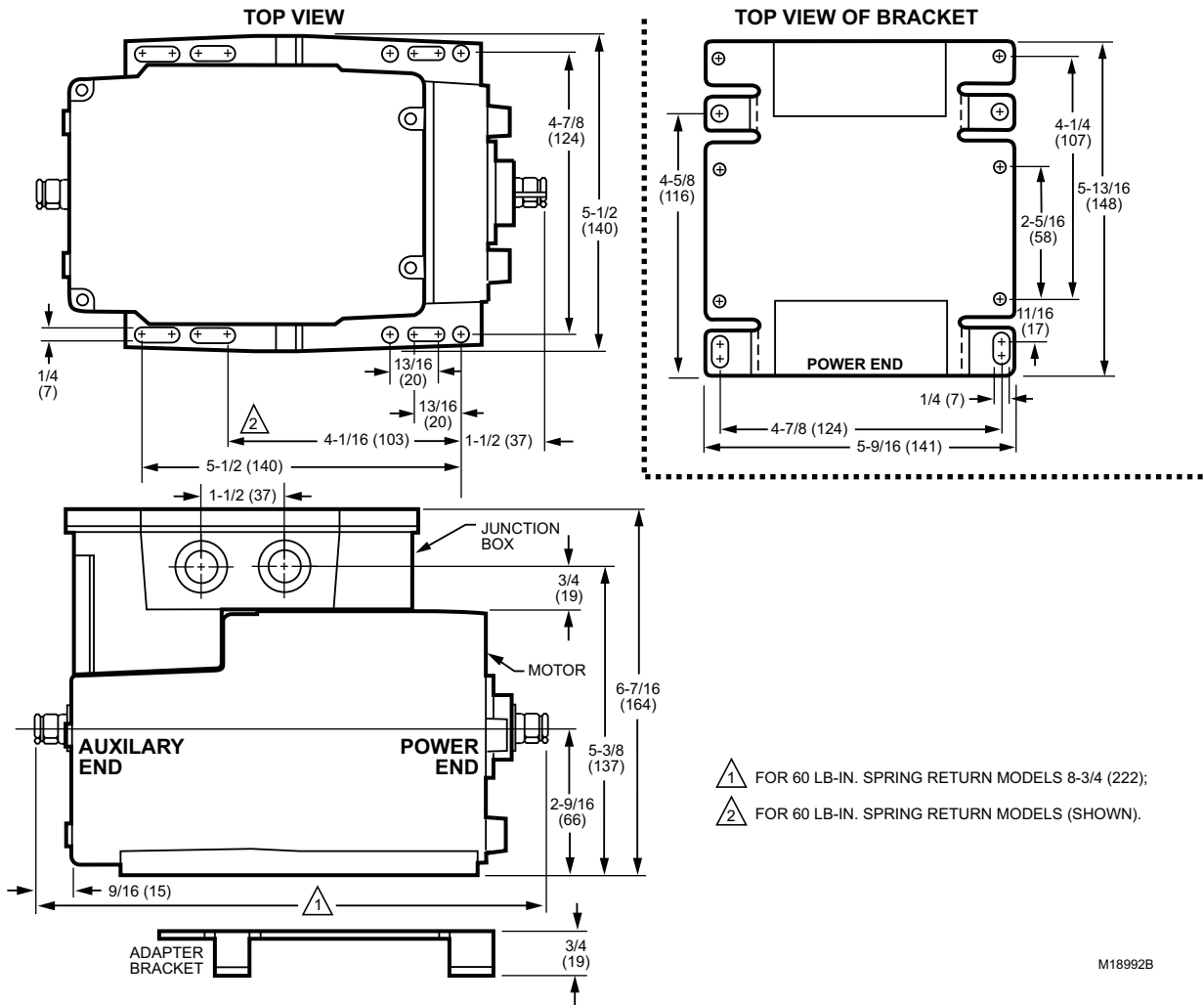
4074ERU/U – Weatherproofing kit. Protects motor from driving rain when mounted in any position. Not needed if motor is mounted upright.

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

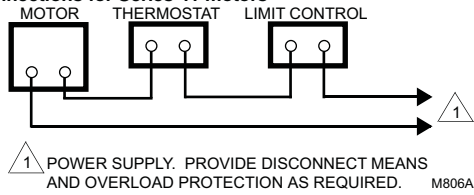
50017460-003/U – 120 Vac Internal Transformers for Series 2 Motors

Material Number	Torque Rating (lb-in.)	Torque Rating (Nm)	Supply Voltage	Internal Auxiliary Switch	Factory Stroke Setting	Stroke	Internal Transformer	Weight	Includes	Tradeline Value
M4185A1001/U	60 lb-in.	6.8 Nm	120V	0	160 degrees	Adjustable; 90 to 160 degrees, Asymmetrical	50004263-003	9.5 lb	Transformer	
M4185B1009/U	60 lb-in.	6.8 Nm	120V	1	160 degrees	Adjustable; 90 to 160 degrees, Asymmetrical	50004263-003	9.5 lb	Transformer	
M4185B1058/U	60 lb-in.	6.8 Nm	24V; 120V; 230V	1	90 degrees	Adjustable; 90 to 160 degrees, Asymmetrical	50004263-001	9.5 lb	Transformer	
M4185C1007/U	60 lb-in.	6.8 Nm	120V	2	90 degrees	Adjustable; 90 to 160 degrees, Asymmetrical	50004263-003	9.5 lb	Transformer	
M4185E4006/U	60 lb-in.	6.8 Nm	24V; 120V; 230V	1	160 degrees	Adjustable; 90 to 160 degrees, Asymmetrical	50004263-001	9.5 lb	Transformer	Tradeline
M4185E4014/U	60 lb-in.	6.8 Nm	120V	1	160 degrees	Adjustable; 90 to 160 degrees, Asymmetrical	50004263-003	9.5 lb	Transformer	Tradeline
M8185D1006/U	60 lb-in.	6.8 Nm	24V	0	160 degrees	Adjustable; 90 to 160 degrees, Asymmetrical	None	8.5 lb		Tradeline

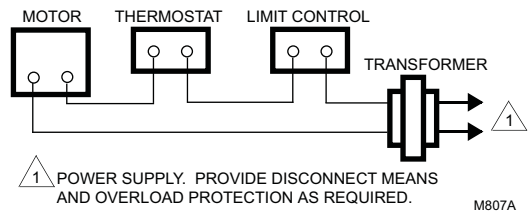
Dimensions in inches (millimeters)



Typical connections for Series 41 motors



Typical connections for Series 81 motors



Modutrol IV Motors

M6184; M6194 Floating Modutrol IV™ Motors



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

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

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

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)

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

220741A2-61/U – Screw Terminal Adapter Series 61 MOD IV Motor

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.

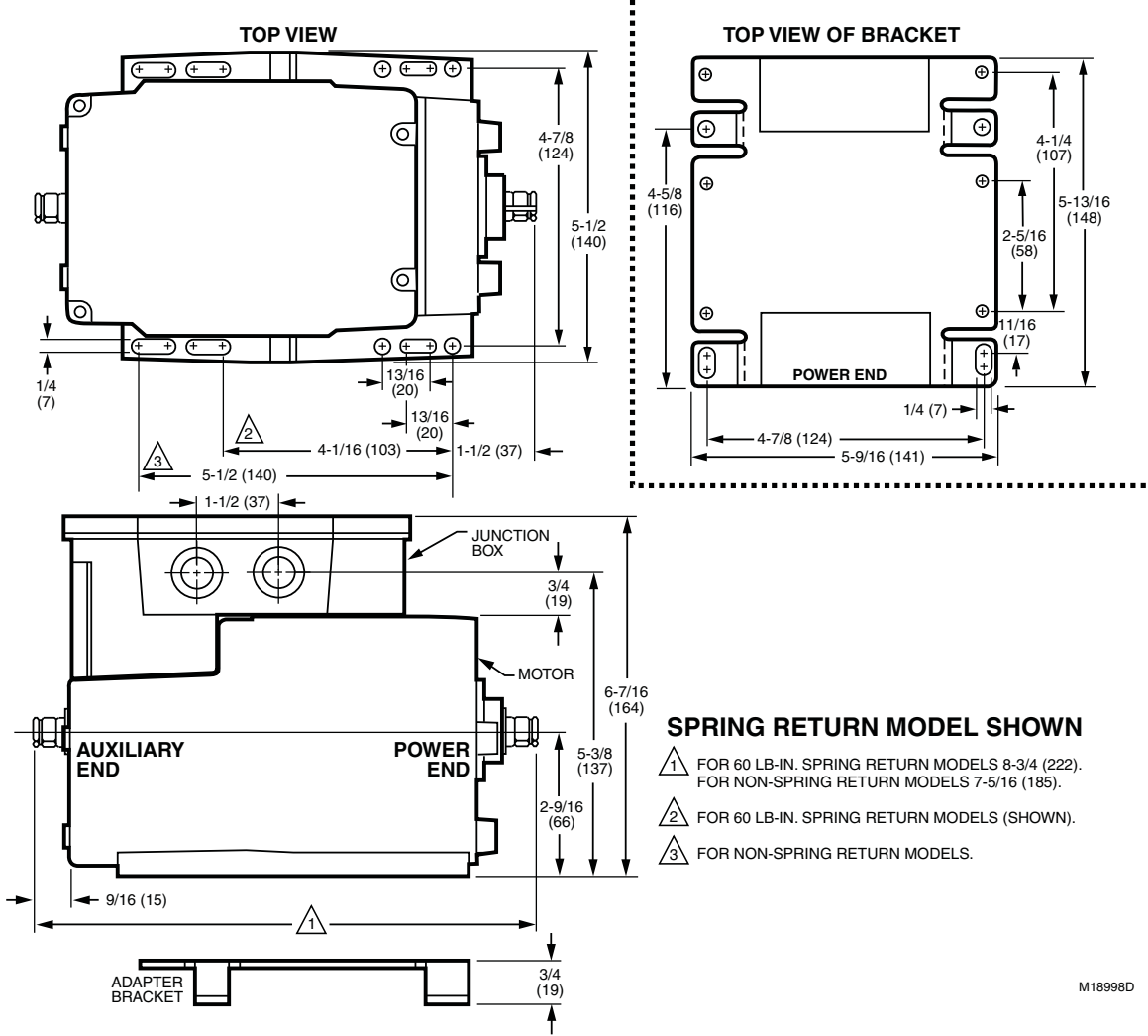
50017460-001/U – 24/120/230 Vac Internal Transformers for Series 2 Motors

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

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
M6184A1015/U	150 lb-in.	17 Nm	24V	30 - 60 sec	0	90 degrees	Adjustable; 90 to 160 degrees, Symmetrical	None	6.5 lb			
M6184A1023/U	75 lb-in.	8.5 Nm	120V	15 - 30 sec	0	160 degrees	Adjustable; 90 to 160 degrees, Asymmetrical	50004263-003	7.5 lb	Transformer		
M6184D1001/U	75 lb-in.	8.5 Nm	24V	15 - 30 sec	0	90 degrees	Adjustable; 90 to 160 degrees, Symmetrical	None	6.5 lb			
M6184D1035/U	150 lb-in.	17 Nm	24V	30 - 60 sec	0	160 degrees	Adjustable; 90 to 160 degrees, Symmetrical	None	6.5 lb			Tradeline
M6184D1068/U	150 lb-in.	17 Nm	24V	120 - 240 sec	0	90 degrees	Adjustable; 90 to 160 degrees, Symmetrical	None	6.5 lb		Contains on-off pulsing circuitry to achieve timing.	
M6184F1014/U	150 lb-in.	17 Nm	24V	30 - 60 sec	2	90 degrees	Adjustable; 90 to 160 degrees, Symmetrical	None	6.5 lb			
M6194A1005/U	300 lb-in.	34 Nm	120V	120 - 240 sec	0	90 degrees	Adjustable; 90 to 160 degrees, Symmetrical	50004263-003	7.5 lb	Transformer		
M6194B1011/U	300 lb-in.	34 Nm	24V	60 - 120 sec	1	90 degrees	Adjustable; 90 to 160 degrees, Symmetrical	None	6.5 lb			
M6194B1029/U	300 lb-in.	34 Nm	120V	120 - 240 sec	1	90 degrees	Adjustable; 90 to 160 degrees, Symmetrical	50004263-003	7.5 lb	Transformer	Minimum 10° fixed differential	
M6194D1017/U	300 lb-in.	34 Nm	24V	120 - 240 sec	0	160 degrees	Adjustable; 90 to 160 degrees, Symmetrical	None	6.5 lb			Tradeline

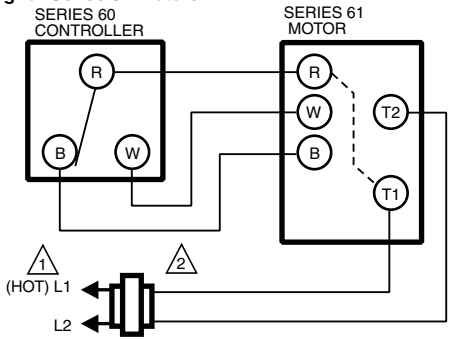
Material Number	Torque Rating (lb-in.)	Torque Rating (Nm)	Supply Voltage	Timing, Nominal	Internal Auxiliary Switch	Factory Stroke Setting	Stroke	Internal Transformer	Weight	Includes	Comments	Tradeline Value
M6194D4003/U	300 lb-in.	34 Nm	24V	120 - 240 sec	0	160 degrees	Adjustable; 90 to 160 degrees, Symmetrical	None	6.5 lb			Tradeline
M6194E1006/U	300 lb-in.	34 Nm	24V	120 - 240 sec	1	90 degrees	Adjustable; 90 to 160 degrees, Symmetrical	None	6.5 lb			

Dimensions in inches (millimeters)



M18998D

Typical wiring for Series 61 motors



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

M17095C

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.: Listed: File No. E4436, Guide No. XAPX for USA and Canada

- 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
- Include electrically isolated feedback potentiometer that provides shaft position indication
- -S models with non-linear feedback are for slaving applications only

Approvals, CE: EN55011 (Emission) EN50082-2 (Immunity) 73/23/EEC (LVD)

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 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

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

Material Number	Torque Rating (lb-in.)	Torque Rating (Nm)	Supply Voltage	Timing, Nominal	Internal Auxiliary Switch	Electrical Connections	Internal Transformer	Weight	Includes	Tradeline Value	Factory Stroke Setting	Stroke
M6284A1055-S/U	150 lb-in.	17 Nm	120V	30 - 60 sec	0	Quick-connect terminals	50004263-003	7.5 lb	Transformer		90 degrees	Adjustable; 90 to 160 degrees, Symmetrical
M6284A1071-S/U	150 lb-in.	17 Nm	120V	30 - 60 sec	0	Screw terminals	50004263-002	7.5 lb	Transformer		90 degrees	Adjustable; 90 to 160 degrees, Symmetrical
M6284A1089-S/U	75 lb-in.	8.5 Nm	120V	15 - 30 sec	0	Screw terminals	50004263-002	7.5 lb	Transformer		90 degrees	Adjustable; 90 to 160 degrees, Symmetrical
M6284A1097-S/U	150 lb-in.	17 Nm	24V	30 - 60 sec	0	Quick-connect terminals	None	6.5 lb			90 degrees	Adjustable; 90 to 160 degrees, Symmetrical
M6284C1010-S/U	150 lb-in.	17 Nm	24V	30 - 60 sec	2	Screw terminals	None	6.5 lb	Bag Assembly		90 degrees	Adjustable; 90 to 160 degrees, Symmetrical
M6284D1000-S/U	150 lb-in.	17 Nm	24V	30 - 60 sec	0	Quick-connect terminals	None	6.5 lb		Tradeline	160 degrees	Adjustable; 90 to 160 degrees, Symmetrical
M6284D1026-S/U	150 lb-in.	17 Nm	24V	30 - 60 sec	0	Quick-connect terminals	None	6.5 lb	220741A2-62 Screw Terminal Adapter Kit	Tradeline	90 degrees	Adjustable; 90 to 160 degrees, Symmetrical
M6284D4004-S/U	150 lb-in.	17 Nm	24V	30 - 60 sec	0	Quick-connect terminals	None	6.5 lb		Tradeline	160 degrees	Adjustable; 90 to 160 degrees, Symmetrical
M6284F1013-S/U	150 lb-in.	17 Nm	24V	30 - 60 sec	2	Quick-connect terminals	None	6.5 lb			160 degrees	Adjustable; 90 to 160 degrees, Symmetrical
M6284F1062-S/U	150 lb-in.	17 Nm	24V; 120V; 230V	30 - 60 sec	2	Quick-connect terminals	50004263-001	7.5 lb	Transformer		90 degrees	Adjustable; 90 to 160 degrees, Asymmetrical

Modutrol IV Motors

M6285 Floating Modutrol IV™ Motors, for Slaving Applications only



Series 62 Modutrol IV™ Motors are spring return floating control motors 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)

- Integral spring return returns motor to normal position 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 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
- Include electrically isolated feedback potentiometer that provides shaft position indication

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

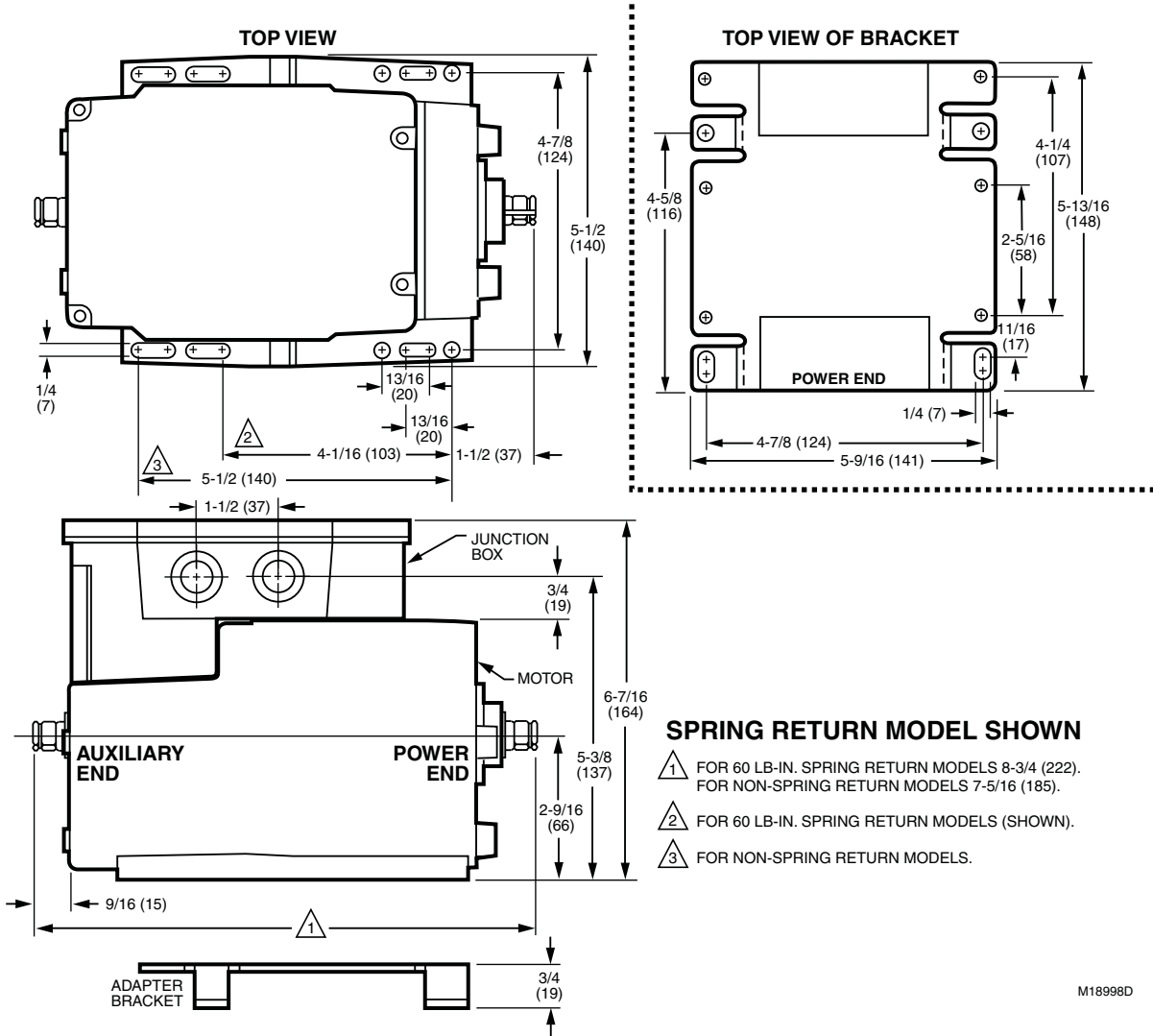
4074ERU/U – Weatherproofing kit. Protects motor from driving rain when mounted in any position. Not needed if motor is mounted upright.

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

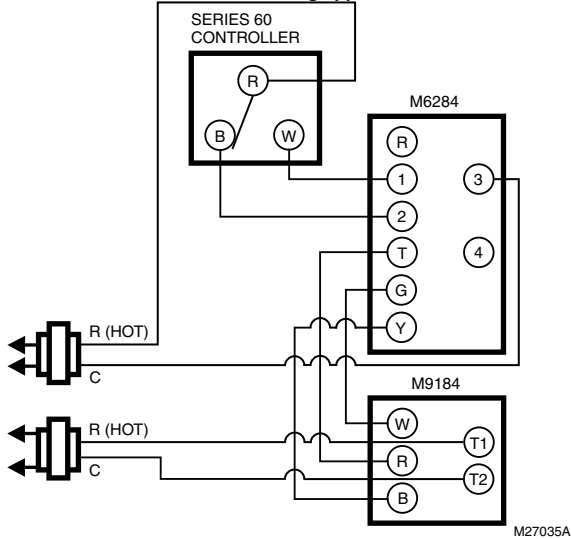
50017460-003/U – 120 Vac Internal Transformers for Series 2 Motors

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

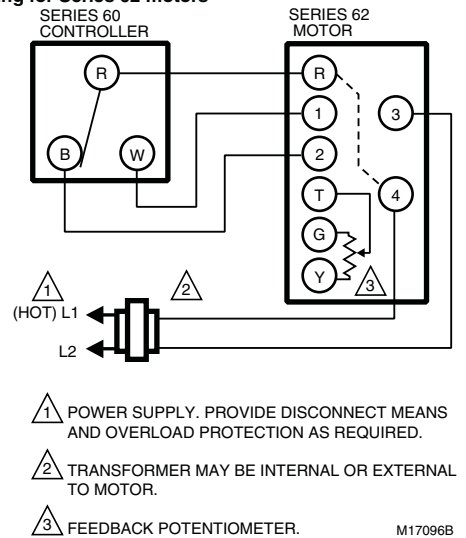
Dimensions in inches (millimeters)



Series 60 and Series 90 motors in slaving application

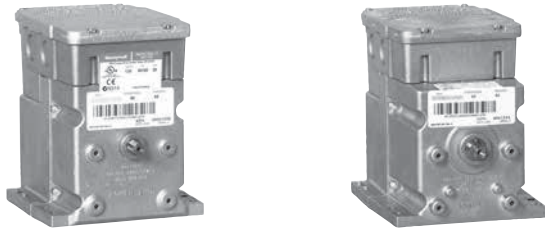


Typical wiring for Series 62 motors



Modutrol IV Motors

M6274; M6284; M6285; M6294 Modutrol IV™ Motor with Linear 10K feedback



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 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
- -F models have an internal electrically isolated feedback potentiometer that provides indication of the motor shaft position

Application: Electric

Control Signal: Floating

Frequency: 50 Hz; 60 Hz

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)

Mounting: Foot-mounted

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.: 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

Comments: Linear 10K feedback

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

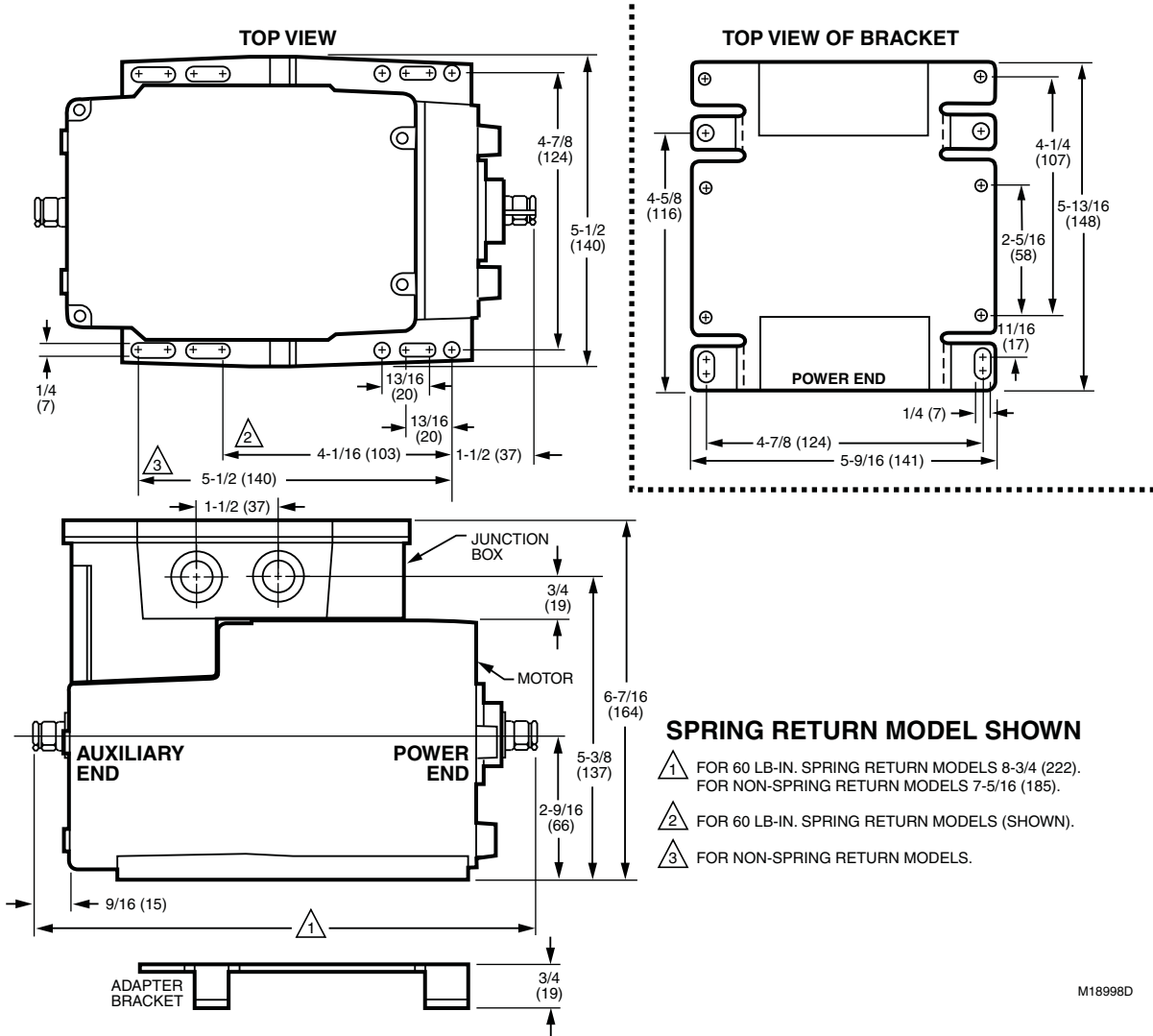
4074ERU/U – Weatherproofing kit. Protects motor from driving rain when mounted in any position. Not needed if motor is mounted upright.

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

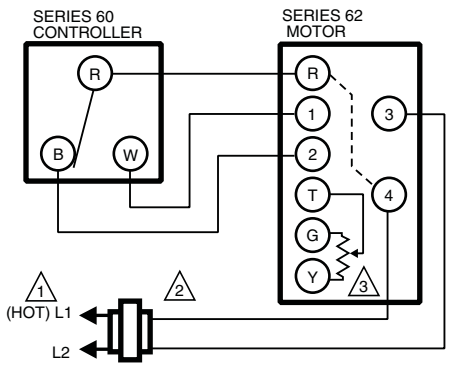
50017460-003/U – 120 Vac Internal Transformers for Series 2 Motors

Material Number	Fail Safe Mode	Torque Rating (lb-in.)	Torque Rating (Nm)	Supply Voltage	Timing, Nominal	Internal Auxiliary Switch	Factory Stroke Setting	Power Consumption	Electrical Connections	Internal Transformer	Weight	Includes	Tradeline Value	Stroke
M6274F1009-F/U	Non-Spring Return	75 lb-in.	8.5 Nm	24V	15 - 27 sec	2	90 degrees	Driving – 26 VA	Screw terminals	None	6.5 lb			Adjustable; 90 to 160 degrees, Symmetrical
M6284D1032-F/U	Non-Spring Return	150 lb-in.	17 Nm	24V	30 - 60 sec	0	160 degrees	Driving – 16 VA	Quick-connect terminals	None	6.5 lb		Tradeline	Adjustable; 90 to 160 degrees, Symmetrical
M6284F1070-F/U	Non-Spring Return	150 lb-in.	17 Nm	120V	30 - 60 sec	0	90 degrees	Driving – 15 VA	Quick-connect terminals	50004263-003	7.5 lb	Transformer		Adjustable; 90 to 160 degrees
M6284F1078-F/U	Non-Spring Return	150 lb-in.	17 Nm	24V	30 - 53 sec	2	90 degrees	Driving – 17 VA	Screw terminals	None	6.5 lb			Adjustable; 90 to 160 degrees, Symmetrical
M6285F1001-F/U	Spring Return	60 lb-in.	6.8 Nm	24V	30 - 53 sec; Spring Return — 30 sec	2	160 degrees	Driving – 21 VA	Screw terminals	None	8.5 lb			Adjustable; 90 to 160 degrees, Asymmetrical
M6294F1009-F/U	Non-Spring Return	300 lb-in.	34 Nm	24V	120 - 214 sec	2	160 degrees	Driving – 17 VA	Screw terminals	None	6.5 lb			Adjustable; 90 to 160 degrees, Symmetrical
M6294F1017-F/U	Non-Spring Return	300 lb-in.	34 Nm	24V	60 - 107 sec	2	90 degrees	Driving – 17 VA	Screw terminals	None	6.5 lb			Adjustable; 90 to 160 degrees, Symmetrical

Dimensions in inches (millimeters)



M18998D



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

M17096B

Modutrol IV Motors

M7164 Modutrol IV™ Motors



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

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

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)

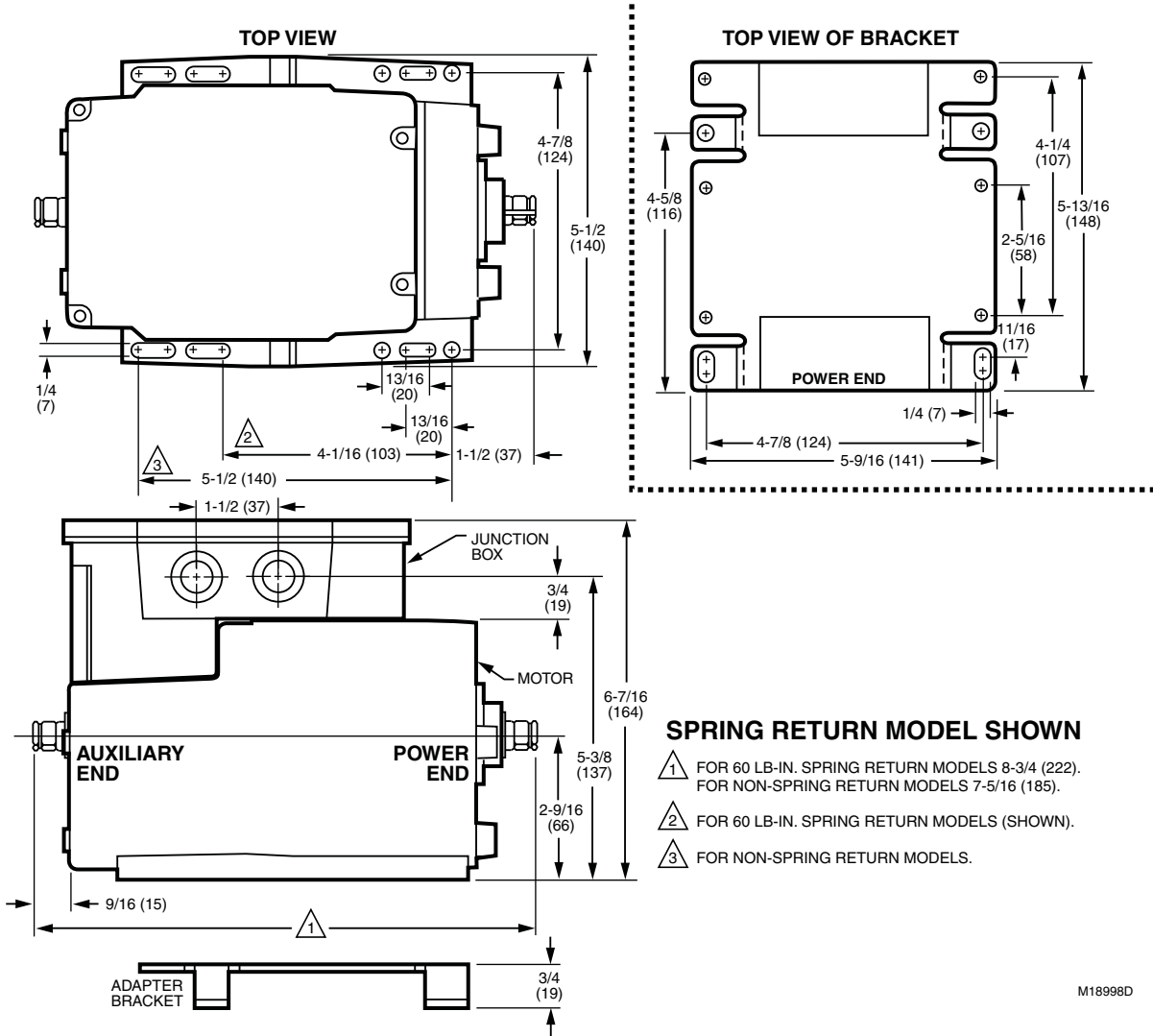
Approvals, RoHS: 2011/65/ES

Accessories:

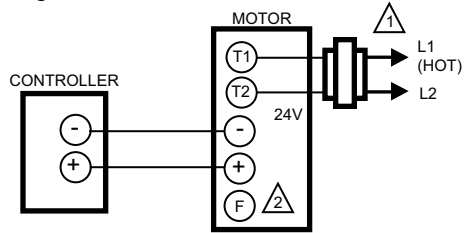
- 220736A/U** – Internal Auxiliary Switch Assembly - 1 Switch
- 220736B/U** – Internal Auxiliary Switch Assembly - 2 Switches
- 220738A/U** – Adapter Bracket. Adjusts shaft height to match Modutrol III motors
- 220741A2-71/U** – Screw Terminal Adapter Kit for Series 71 Modutrol IV Series 2 motors - Converts 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

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

Dimensions in inches (millimeters)



Typical wiring for Series 70 motors

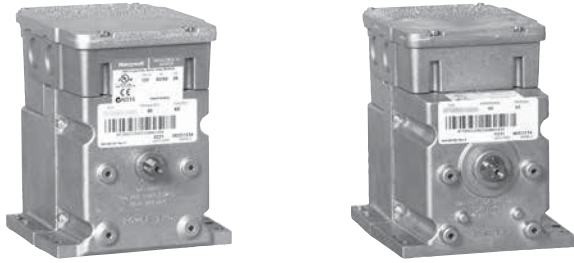


- 1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- 2 CONNECTING F TO - WILL DRIVE MOTOR TO FULLY OPEN.

M5778

Modutrol IV Motors

M7274; M7284; M7294 Modutrol IV™ Motors



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)

Approvals, RoHS: 2011/65/ES

- 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

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

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

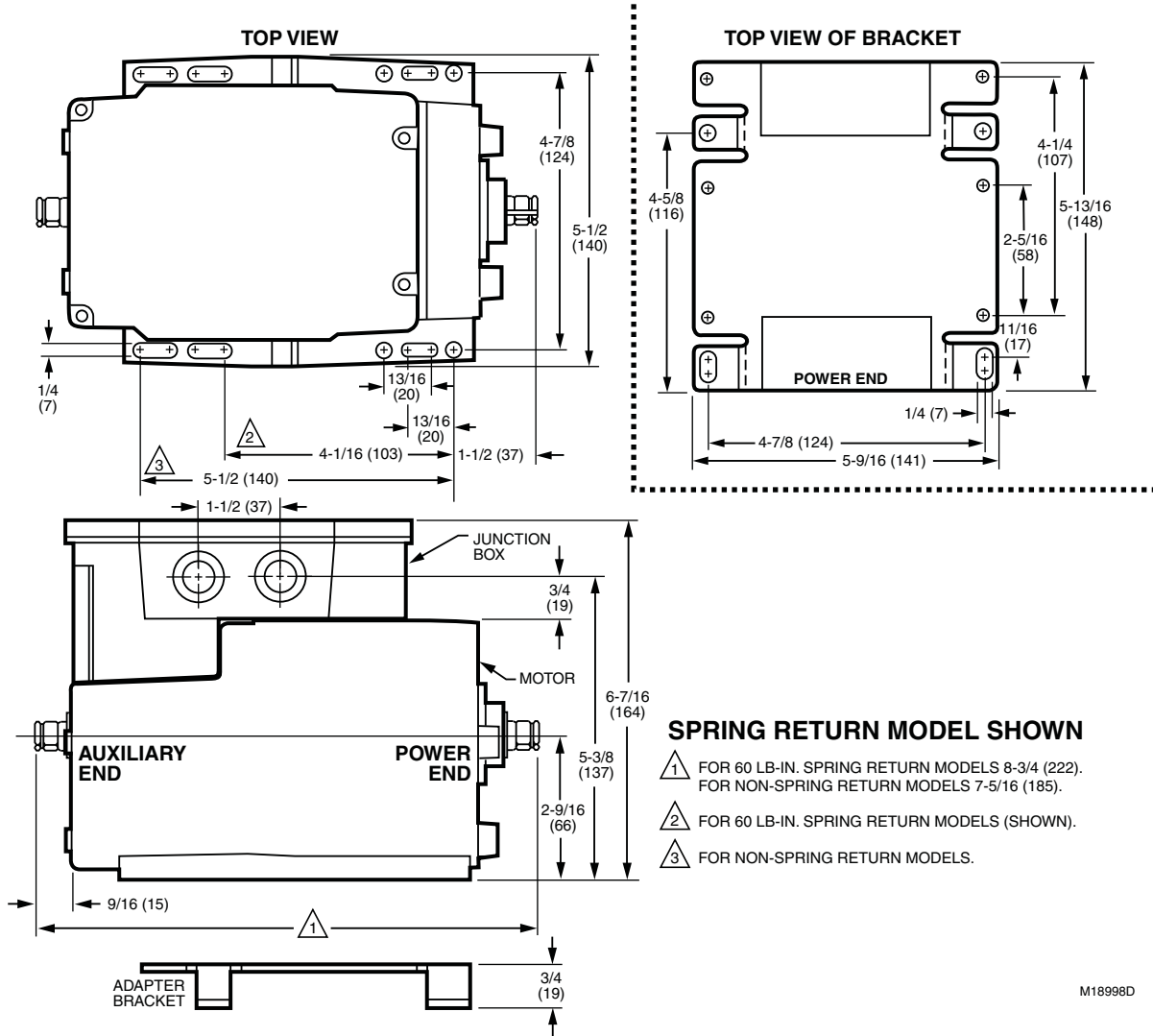
Material Number	Torque Rating (lb-in.)	Torque Rating (Nm)	Supply Voltage	Timing, Nominal	Internal Auxiliary Switch	Factory Stroke Setting	Stroke	Control Signal	Electrical Connections	Power Consumption	Weight	Internal Transformer	Comments	Includes
M7274Q1009/U	75 lb-in.	8.5 Nm	24V	15 - 27 sec	2	90 degrees	Adjustable; 90 to 160 degrees, Symmetrical	Modulating, 4-20 mA	Screw terminals	Driving – 29 VA	7 lb	None	Adjustable zero and span for split range applications	
M7284A1004/U	150 lb-in.	17 Nm	120V	30 - 60 sec	0	90 degrees	Adjustable; 90 to 160 degrees, Symmetrical	Modulating, 4-20 mA	Screw terminals	Driving – 15 VA	7.5 lb	50004263-002		Transformer and Screw Terminal Adapter
M7284A1012/U	150 lb-in.	17 Nm	120V	30 - 60 sec	0	160 degrees	Adjustable; 90 to 160 degrees, Asymmetrical	Modulating, 4-20 mA	Screw terminals	Driving – 15 VA	7.5 lb	50004263-002		Transformer and Screw Terminal Adapter
M7284A1038/U	75 lb-in.	8.5 Nm	120V	15 - 30 sec	0	90 degrees	Adjustable; 90 to 160 degrees, Asymmetrical	Modulating, 4-20 mA	Screw terminals	Driving – 15 VA	7.5 lb	50004263-002		Transformer and Screw Terminal Adapter
M7284A1079/U	150 lb-in.	17 Nm	24V	30 - 60 sec	0	160 degrees	Adjustable; 90 to 160 degrees, Asymmetrical	Modulating, 2-10 Vdc	Quick-connect terminals	Driving – 15 VA	6.5 lb	None		
M7284C1000/U	150 lb-in.	17 Nm	120V	30 - 60 sec	2	90 degrees	Adjustable; 90 to 160 degrees, Symmetrical	Modulating, 4-20 mA	Screw terminals	Driving – 15 VA	7.5 lb	50004263-002		Transformer and Screw Terminal Adapter
M7284C1083/U	150 lb-in.	17 Nm	24V; 120V; 230V	30 sec	2	90 degrees	Fixed; 90 degrees, Symmetrical	Modulating, 4-20 mA	Screw terminals	Driving – 15 VA	7.5 lb	50004263-001	Enhanced models, additional repositions	Transformer
M7284C1091/U	150 lb-in.	17 Nm	24V; 120V; 230V	60 sec	2	160 degrees	Fixed; 160 degrees, Asymmetrical	Modulating, 4-20 mA	Screw terminals	Driving – 15 VA	7.5 lb	50004263-001	Enhanced models, additional repositions	Transformer

Modutrol IV Motors

Material Number	Torque Rating (lb-in.)	Torque Rating (Nm)	Supply Voltage	Timing, Nominal	Internal Auxiliary Switch	Factory Stroke Setting	Stroke	Control Signal	Electrical Connections	Power Consumption	Weight	Internal Transformer	Comments	Includes
M7284Q1009/C	150 lb-in.	17 Nm	120V	30 - 60 sec	2	90 degrees	Adjustable; 90 to 160 degrees, Symmetrical	Modulating, 4-20 mA	Screw terminals	Driving - 15 VA	7.5 lb	50004263-002	Adjustable zero and span for split range applications	Transformer and Screw Terminal Adapter
M7284Q1009/U	150 lb-in.	17 Nm	120V	30 - 60 sec	2	90 degrees	Adjustable; 90 to 160 degrees, Symmetrical	Modulating, 4-20 mA	Screw terminals	Driving - 15 VA	7.5 lb	50004263-002	Adjustable zero and span for split range applications	Transformer and Screw Terminal Adapter
M7284Q1082/U	150 lb-in.	17 Nm	24V; 120V; 230V	30 sec	2	90 degrees	Fixed; 90 degrees, Symmetrical	Modulating, 4-20 mA	Screw terminals	Driving - 15 VA	7.5 lb	50004263-006	Enhanced models, additional repositions (160°); Adjustable zero and span for split range applications	Transformer
M7284Q1090/U	150 lb-in.	17 Nm	24V; 120V; 230V	60 sec	2	160 degrees	Fixed; 160 degrees, Asymmetrical	Modulating, 4-20 mA	Screw terminals	Driving - 15 VA	7.5 lb	50004263-006	Enhanced models, additional repositions (160°); Adjustable zero and span for split range applications	Transformer
M7284Q1098/U	150 lb-in.	17 Nm	24V	30 - 53 sec	2	160 degrees	Adjustable; 90 to 160 degrees, Asymmetrical	Modulating, 2-10 Vdc	Screw terminals	Driving - 20 VA	6.5 lb	None	Adjustable zero and span for split range applications; Enhanced models, additional repositions	
M7284Q1106/U	150 lb-in.	17 Nm	24V	30 - 60 sec	2	90 degrees	Adjustable; 90 to 160 degrees, Symmetrical	Modulating, 4-20 mA	Screw terminals	Driving - 15 VA	7.5 lb	None	Adjustable zero and span for split range applications	
M7294A1010/U	300 lb-in.	34 Nm	24V	60 - 120 sec	0	160 degrees	Adjustable; 90 to 160 degrees, Asymmetrical	Modulating, 2-10 Vdc	Quick-connect terminals	Driving - 15 VA	6.5 lb	None		
M7294Q1007/U	300 lb-in.	34 Nm	120V	60 - 120 sec	2	90 degrees	Adjustable; 90 to 160 degrees, Symmetrical	Modulating, 4-20 mA	Screw terminals	Driving - 15 VA	7.5 lb	50004263-002	Adjustable zero and span for split range applications	Transformer and Screw Terminal Adapter
M7294Q1015/U	300 lb-in.	34 Nm	24V	60 - 107 sec	2	90 degrees	Adjustable; 90 to 160 degrees, Symmetrical	Modulating, 4-20 mA	Screw terminals	Driving - 29 VA	7.5 lb	None	Adjustable zero and span for split range applications	Screw Terminal Adapter

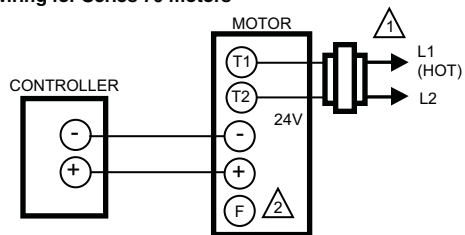
Modutrol IV Motors

Dimensions in inches (millimeters)



M18998D

Typical wiring for Series 70 motors



- ▲1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- ▲2 CONNECTING F TO - WILL DRIVE MOTOR TO FULLY OPEN.

M5778

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.

Torque Rating (Nm): 6.8 Nm

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: Adjustable; 90 to 160 degrees, Asymmetrical

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 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) 73/23/EEC (LVD)

Approvals, RoHS: 2011/65/ES

- 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
- Models available with 2 to 10 Vdc input signal
- Die-cast aluminum housing

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.

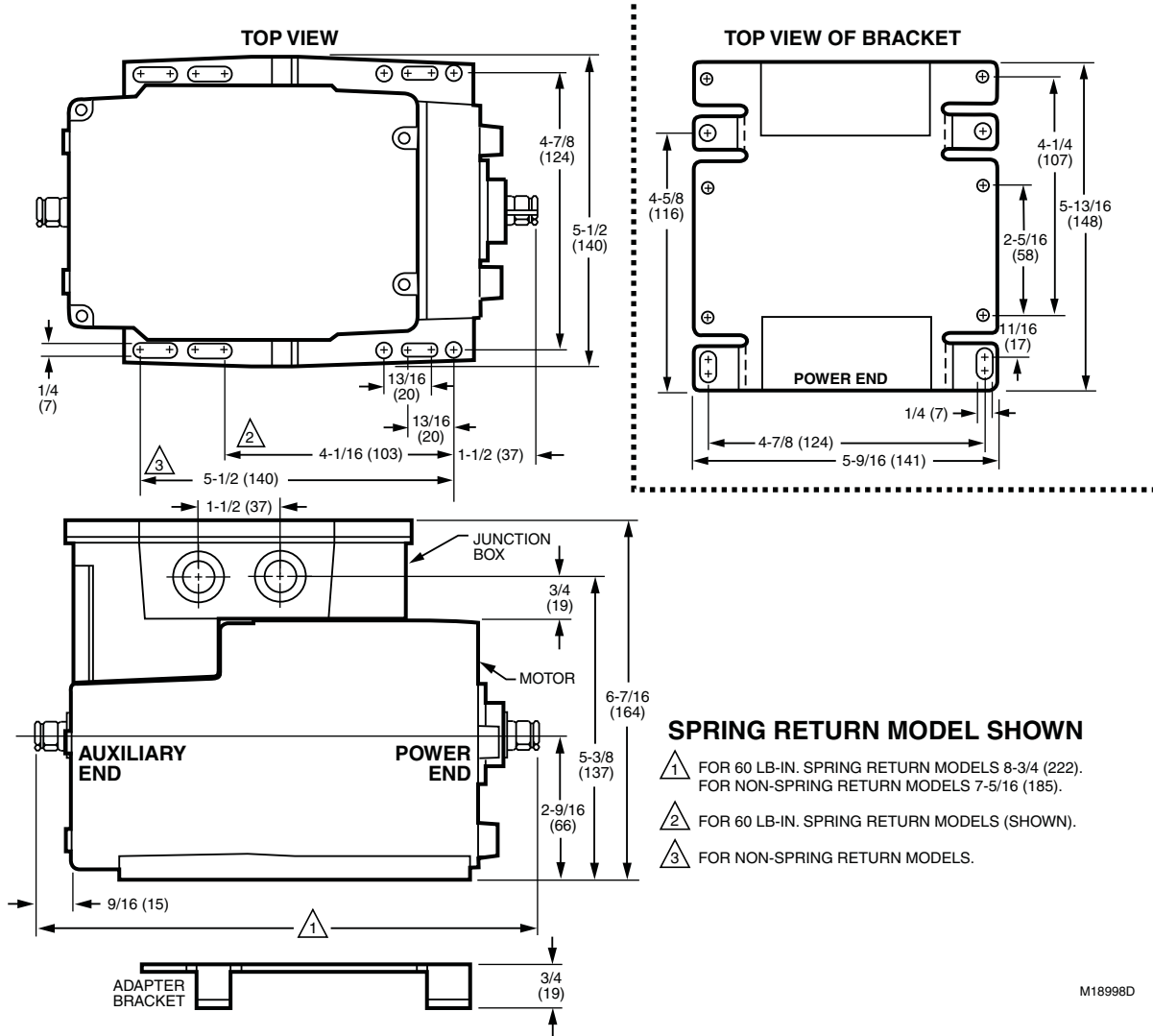
50017460-001/U – 24/120/230 Vac Internal Transformers for Series 2 Motors

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

Material Number	Control Signal	Power Consumption	Electrical Connections	Internal Transformer	Supply Voltage	Timing, Nominal	Internal Auxiliary Switch	Factory Stroke Setting	Weight	Shaft Rotation (upon control signal increase)	Comments	Includes
M7285A1003/U	Modulating, 4-20 mA	Driving – 20 VA	Screw terminals	50004263-002	120V	30 - 60 sec	0	90 degrees	9.5 lb	Clockwise (as viewed from power end) (normally closed)		Transformer and Screw Terminal Adapter
M7285A1045/U	Modulating, 2-10 Vdc	Driving – 20 VA	Quick-connect terminals	None	24V	30 - 60 sec	0	160 degrees	8.5 lb	Clockwise (as viewed from power end) (normally closed)		
M7285C1009/U	Modulating, 4-20 mA	Driving – 20 VA	Screw terminals	50004263-002	120V	30 - 60 sec	2	90 degrees	9.5 lb	Clockwise (as viewed from power end) (normally closed)		Transformer and Screw Terminal Adapter
M7285Q1008/U	Modulating, 4-20 mA	Driving – 20 VA	Screw terminals	50004263-002	120V	30 - 60 sec	2	90 degrees	9.5 lb	Clockwise (as viewed from power end) (normally closed)	Adjustable zero and span for split range applications	Transformer and Screw Terminal Adapter
M7285Q1024/U	Modulating, 4-20 mA	Driving – 34 VA	Screw terminals	None	24V	30 - 53 sec	2	90 degrees	9.5 lb	Clockwise (as viewed from power end) (normally closed)	Adjustable zero and span for split range applications	Screw Terminal Adapter
M7285Q1032/U	Modulating, 2-10 Vdc	Driving – 24 VA	Screw terminals	None	24V	30 - 53 sec	2	160 degrees	9.5 lb	Clockwise (as viewed from power end) (normally closed)	Adjustable zero and span for split range applications	Screw Terminal Adapter
M7286G1009/U	Modulating, 2-10 Vdc	Driving – 15 VA	Quick-connect terminals	None	24V	30 - 60 sec	0	160 degrees	8.5 lb	Counter-clockwise (as viewed from power end) (normally open)		

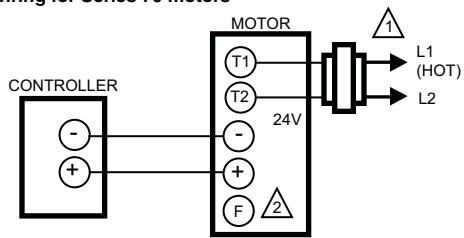
Modutrol IV Motors

Dimensions in inches (millimeters)



M18998D

Typical wiring for Series 70 motors



- △1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- △2 CONNECTING F TO - WILL DRIVE MOTOR TO FULLY OPEN.

M5778

M7685 Modutrol IV™ Motor



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) 73/23/EEC (LVD)

Approvals, RoHS: 2011/65/ES

Includes: Minimum Position Potentiometer

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

Accessories:

203709D2/U – Interface Module for Modutrol Motors

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.

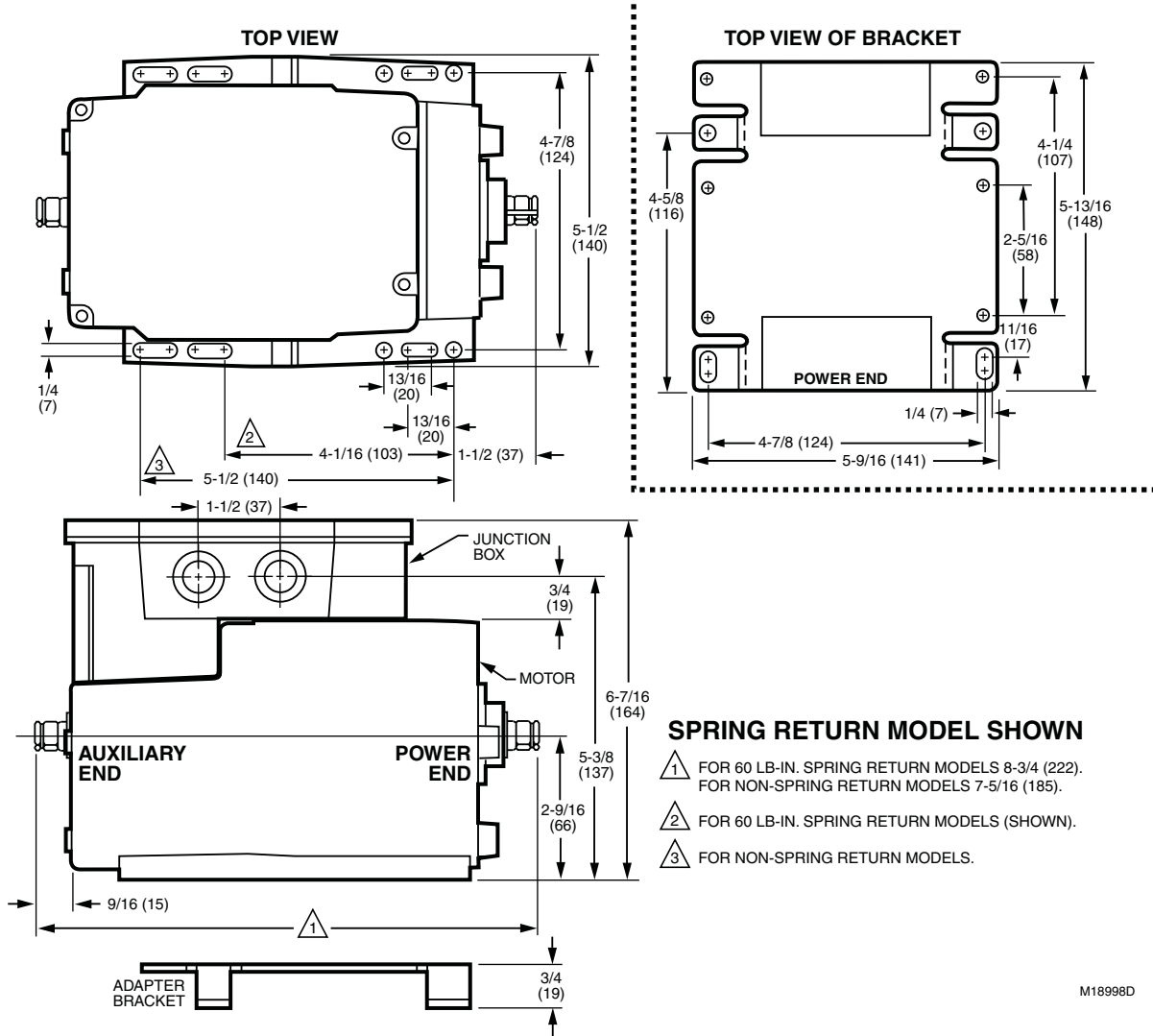
50017460-001/U – 24/120/230 Vac Internal Transformers for Series 2 Motors

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

Material Number	Torque Rating (lb-in.)	Torque Rating (Nm)	Supply Voltage	Timing, Nominal	Internal Auxiliary Switch	Factory Stroke Setting	Stroke	Internal Transformer	Comments
M7685A1025/U	60 lb-in.	6.8 Nm	24V	30 - 60 sec	0	90 degrees	Adjustable; 90 to 160 degrees, Asymmetrical	None	Minimum position potentiometer

Modutrol IV Motors

Dimensions in inches (millimeters)

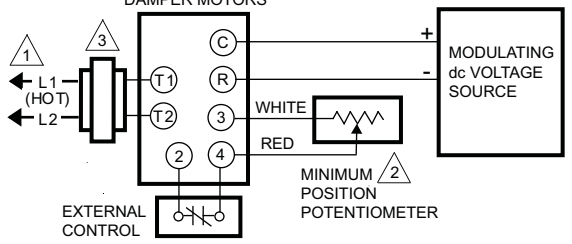


SPRING RETURN MODEL SHOWN

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

M18998D

Typical wiring for M7685 motors DAMPER MOTORS



- △1 POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
- △2 IF MINIMUM POSITION POTENTIOMETER IS NOT USED, JUMPER TERMINALS 3 AND 4.
- △3 TRANSFORMER MAY BE INTERNAL OR EXTERNAL. M13727A

M9164; M9174; M9184; M9191; M9194 Modutrol IV™ Motors



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

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

220741A2-90/U – Screw Terminal Adapter Kit for Series 90 Modutrol IV Series 2 and Series 3 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

Q7130A1006/U – Interface Module (4-7, 6-9 or 10.5-13.5 Vdc Control)

Q7230A1005/U – Interface Module (4-20 mA or 2-10 Vdc Control)

Q7330A1004/U – Interface Module (W936 or W945 Control)

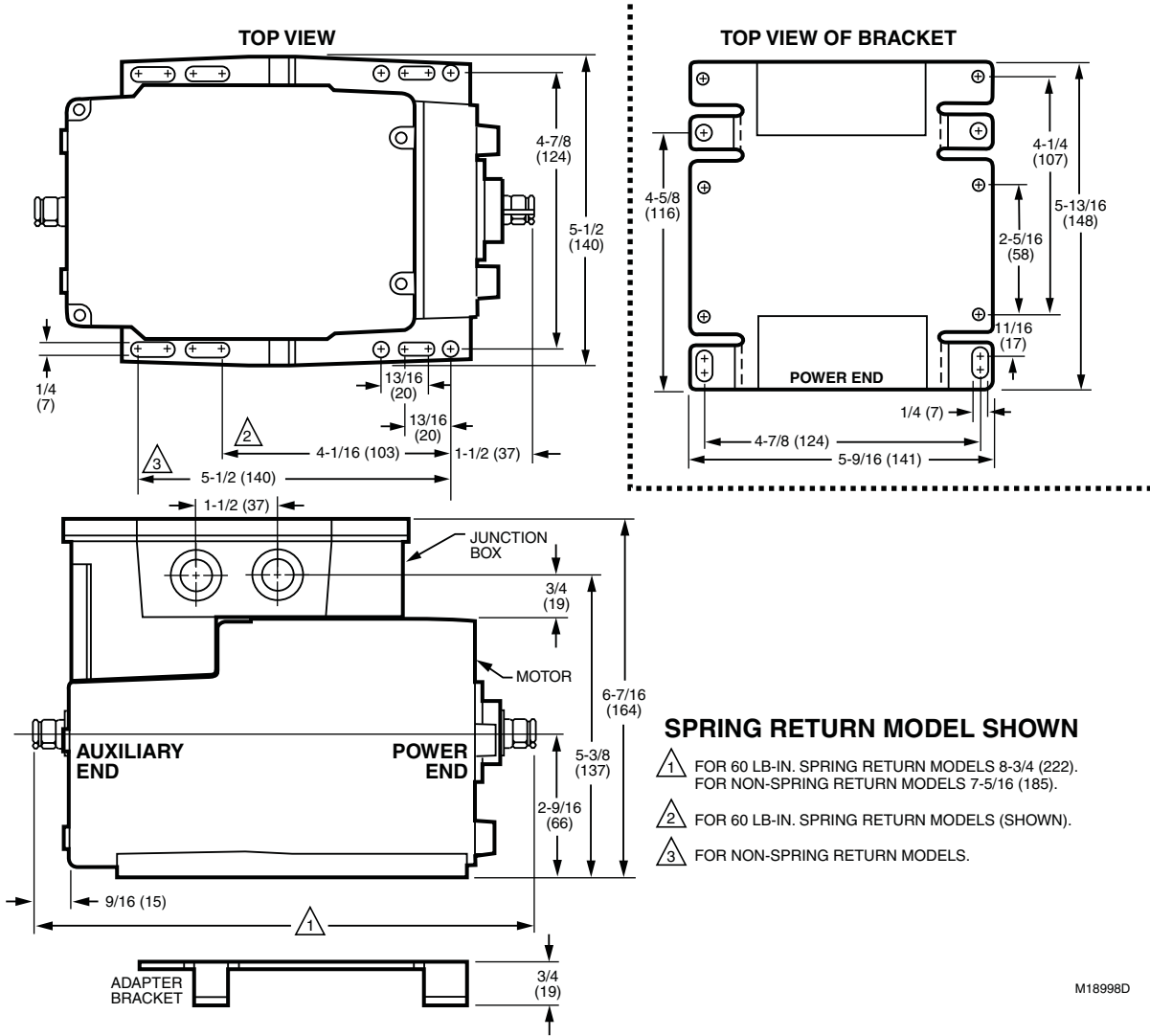
Material Number	Torque Rating (lb-in.)	Torque Rating (Nm)	Power Consumption	Timing, Nominal	Internal Auxiliary Switch	Factory Stroke Setting	Shaft Rotation (upon control signal increase)	Electrical Connections	Internal Transformer	Weight	Includes	Supply Voltage	Tradeline Value	Stroke
M9164A1005/U	35 lb-in.	4 Nm	Driving – 10 VA	30 - 60 sec	0	90 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	50004263-003	7.5 lb	Transformer	120V		Adjustable; 90 to 160 degrees, Asymmetrical
M9164A1013/U	35 lb-in.	4 Nm	Driving – 10 VA	30 - 60 sec	0	160 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	50004263-001	7.5 lb	Transformer	24V; 120V; 230V		Adjustable; 90 to 160 degrees, Asymmetrical
M9164A1070/U	35 lb-in.	4 Nm	Driving – 10 VA	30 - 60 sec	0	160 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	None	6.5 lb		24V		Adjustable; 90 to 160 degrees, Asymmetrical
M9164C1001/U	35 lb-in.	4 Nm	Driving – 10 VA	30 - 60 sec	2	160 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	None	6.5 lb		24V		Adjustable; 90 to 160 degrees, Asymmetrical
M9164C1068/U	35 lb-in.	4 Nm	Driving – 10 VA	30 - 60 sec	2	90 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	50004263-003	7.5 lb	Transformer	120V		Adjustable; 90 to 160 degrees, Asymmetrical
M9164D1009/U	35 lb-in.	4 Nm	Driving – 10 VA	30 - 60 sec	0	160 degrees	Counter-clockwise (as viewed from power end) (normally open)	Quick-connect terminals	None	6.5 lb		24V	Tradeline	Adjustable; 90 to 160 degrees, Asymmetrical
M9174B1027/U	75 lb-in.	8.5 Nm	Driving – 12 VA	30 - 60 sec	1	90 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	50004263-003	7.5 lb	Transformer	120V		Adjustable; 90 to 160 degrees, Asymmetrical

Modutrol IV Motors

Material Number	Torque Rating (lb-in.)	Torque Rating (Nm)	Power Consumption	Timing, Nominal	Internal Auxiliary Switch	Factory Stroke Setting	Shaft Rotation (upon control signal increase)	Electrical Connections	Internal Transformer	Weight	Includes	Supply Voltage	Tradeline Value	Stroke
M9174C1025/U	75 lb-in.	8.5 Nm	Driving – 12 VA	30 - 60 sec	2	90 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	50004263-003	7.5 lb	Transformer	120V		Adjustable; 90 to 160 degrees, Asymmetrical
M9174C1033/U	75 lb-in.	8.5 Nm	Driving – 12 VA	30 - 60 sec	2	160 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	50004263-003	7.5 lb	Transformer	120V		Adjustable; 90 to 160 degrees, Asymmetrical
M9174C1041/U	75 lb-in.	8.5 Nm	Driving – 12 VA	30 - 60 sec	2	90 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	50004263-003	7.5 lb	Transformer	120V		Adjustable; 90 to 160 degrees, Asymmetrical
M9174D1007/U	75 lb-in.	8.5 Nm	Driving – 12 VA	30 - 60 sec	0	160 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	None	6.5 lb		24V	Tradeline	Adjustable; 90 to 160 degrees, Asymmetrical
M9174F1001/U	75 lb-in.	8.5 Nm	Driving – 17 VA	30 - 53 sec	2	160 degrees	Clockwise (as viewed from power end) (normally closed)	Screw terminals	None	6.5 lb		24V		Adjustable; 90 to 160 degrees, Asymmetrical
M9184A1019/U	150 lb-in.	17 Nm	Driving – 15 VA	30 - 60 sec	0	160 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	None	6.5 lb		24V		Adjustable; 90 to 160 degrees, Asymmetrical
M9184B1017/U	150 lb-in.	17 Nm	Driving – 15 VA	30 - 60 sec	1	90 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	None	6.5 lb		24V		Adjustable; 90 to 160 degrees, Symmetrical
M9184C1031/U	150 lb-in.	17 Nm	Driving – 15 VA	30 - 60 sec	2	90 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	None	6.5 lb		24V		Adjustable; 90 to 160 degrees, Symmetrical
M9184D1005/U	75 lb-in.	8.5 Nm	Driving – 15 VA	15 - 30 sec	0	90 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	None	6.5 lb		24V		Adjustable; 90 to 160 degrees, Symmetrical
M9184D1021/U	150 lb-in.	17 Nm	Driving – 15 VA	30 - 60 sec	0	160 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	None	6.5 lb		24V	Tradeline	Adjustable; 90 to 160 degrees, Symmetrical
M9184D4009/U	150 lb-in.	17 Nm	Driving – 15 VA	30 - 60 sec	0	160 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	None	6.5 lb		24V	Tradeline	Adjustable; 90 to 160 degrees, Symmetrical
M9184E4006/U	150 lb-in.	17 Nm	Driving – 15 VA	30 - 60 sec	1	160 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	None	6.5 lb		24V	Tradeline	Adjustable; 90 to 160 degrees, Symmetrical
M9184F1034/U	150 lb-in.	17 Nm	Driving – 15 VA	30 - 60 sec	2	90 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	None	6.5 lb		24V		Adjustable; 90 to 160 degrees, Symmetrical
M9191F1001/U	300 lb-in.	34 Nm	Driving – 15 VA	60 - 120 sec	2	90 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	None	6.5 lb		24V		Adjustable; 90 to 160 degrees, Symmetrical
M9194C1005/U	300 lb-in.	34 Nm	Driving – 15 VA	60 - 120 sec	2	90 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	50004263-002	7.5 lb	Transformer	120V		Adjustable; 90 to 160 degrees, Symmetrical
M9194D1003/U	300 lb-in.	34 Nm	Driving – 15 VA	120 - 240 sec	0	160 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	None	6.5 lb		24V	Tradeline	Adjustable; 90 to 160 degrees, Symmetrical

Material Number	Torque Rating (lb-in.)	Torque Rating (Nm)	Power Consumption	Timing, Nominal	Internal Auxiliary Switch	Factory Stroke Setting	Shaft Rotation (upon control signal increase)	Electrical Connections	Internal Transformer	Weight	Includes	Supply Voltage	Tradeline Value	Stroke
M9194E1000/U	300 lb-in.	34 Nm	Driving – 15 VA	120 - 240 sec	1	90 degrees	Clockwise (as viewed from power end) (normally closed)	Quick-connect terminals	None	6.5 lb		24V		Adjustable; 90 to 160 degrees, Symmetrical

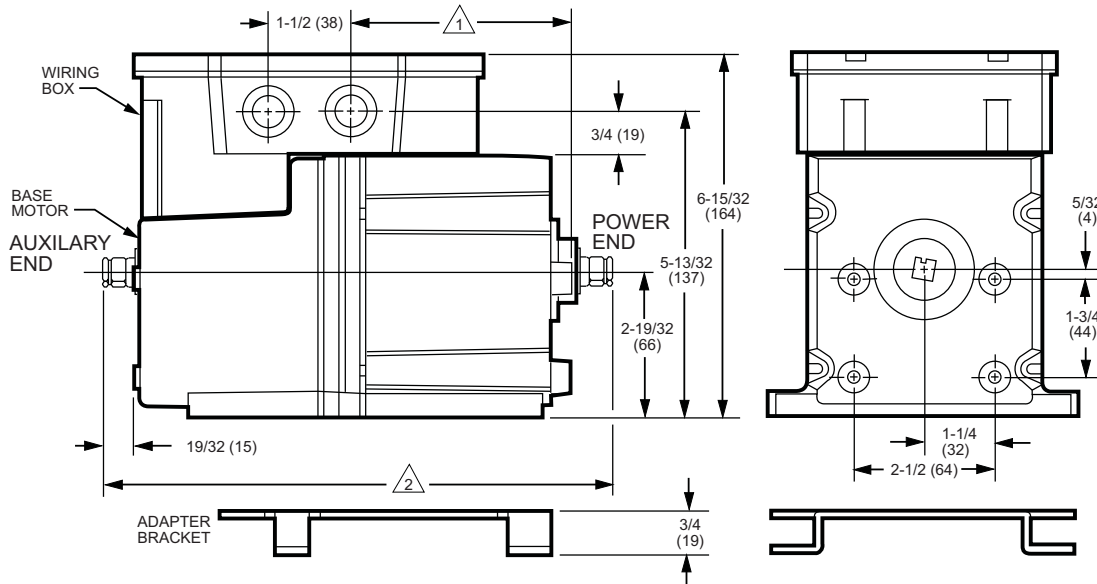
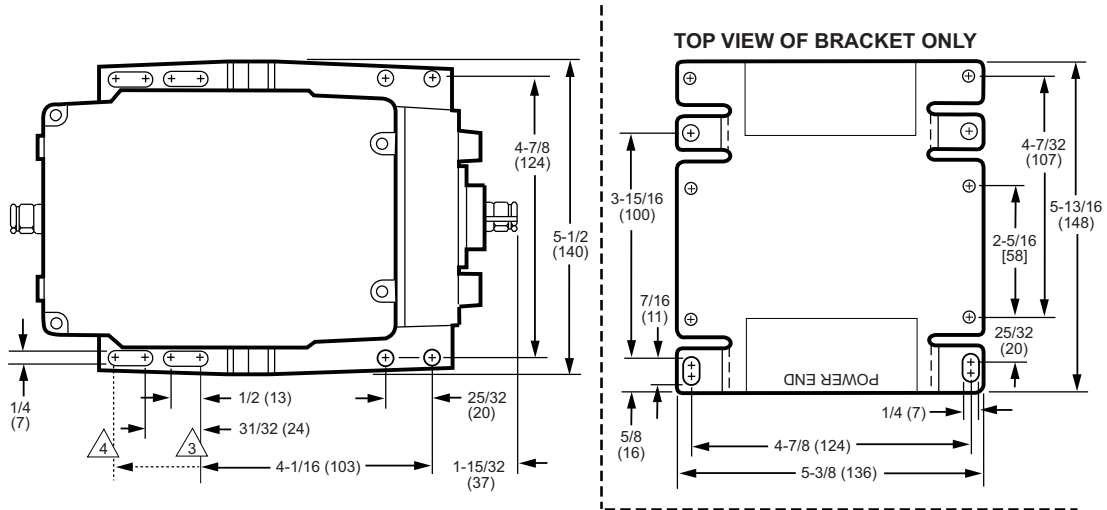
Dimensions in inches (millimeters)



M18998D

Modutrol IV Motors

Dimensions in inches (millimeters)

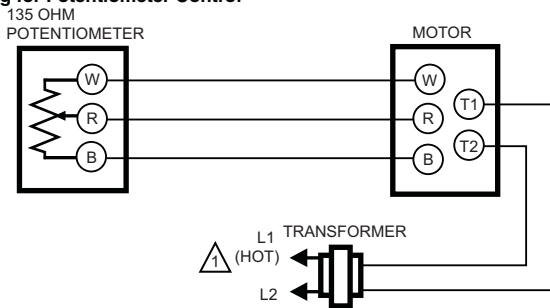


SPRING RETURN MODEL SHOWN

- 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.

M451E

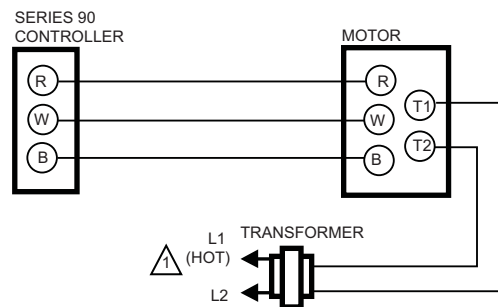
Wiring for Potentiometer Control



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

M13708

Typical wiring for Series 90 motors



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

M770A

M9175; M9182; M9185 Modutrol IV™ Motors



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)

Motor shafts: 2; Dual-ended shaft

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

Internal Transformer: None

Weight: 8.5 lb

Approximate, Dimensions: 6 7/16 in. high x 5 1/2 in. wide x 8 1/4 in. deep (164 mm high x 140 mm wide x 210 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

Supply Voltage: 24V

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

220741A2-90/U – Screw Terminal Adapter Kit for Series 90 Modutrol IV Series 2 and Series 3 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

Q7230A1005/U – Interface module, provides adjustable zero and span, voltage or current control

Q7130A1006/U – Interface Module (4-7, 6-9 or 10.5-13.5 Vdc Control)

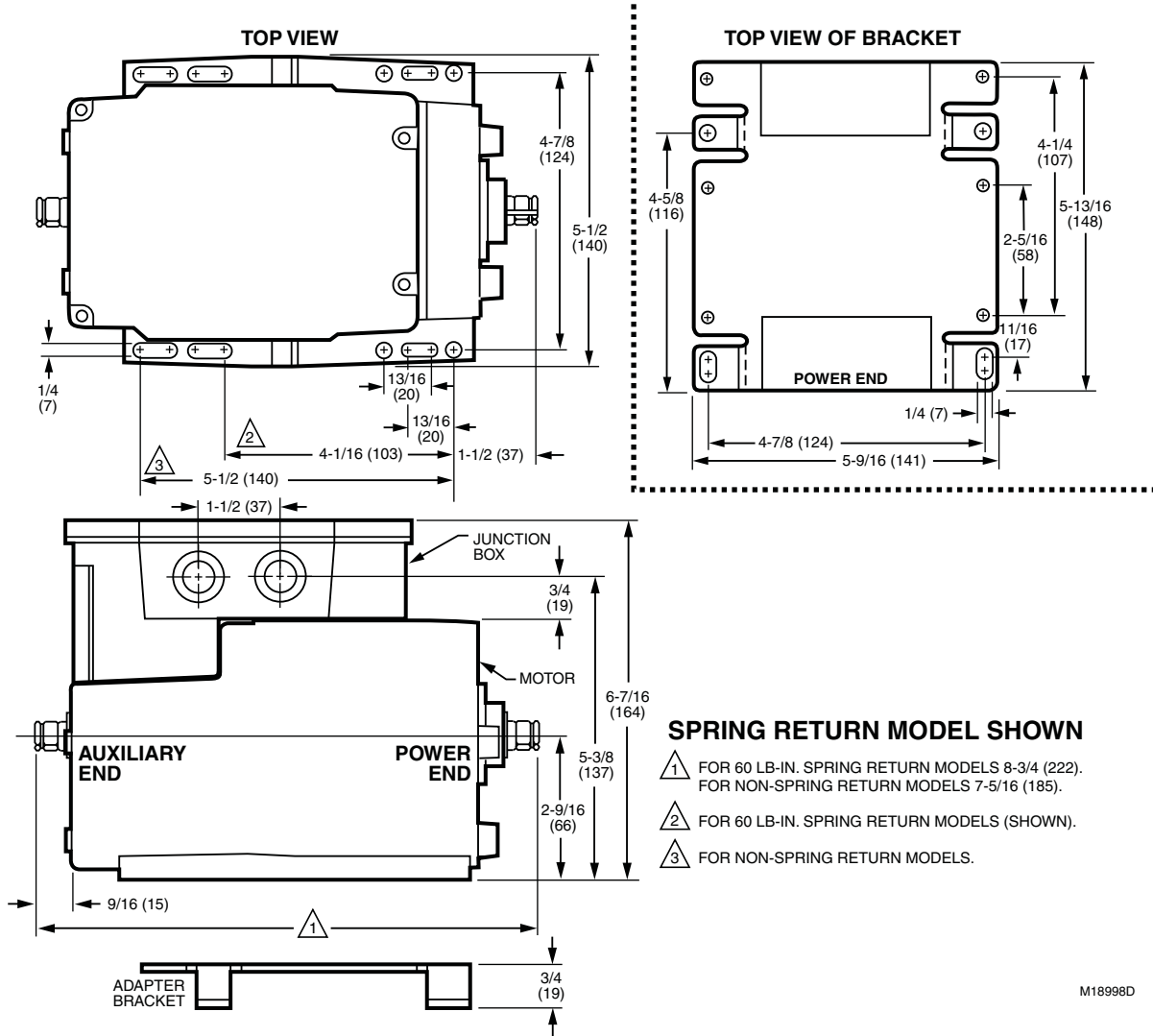
Q7230A1005/U – Interface Module (4-20 mA or 2-10 Vdc Control)

Q7330A1004/U – Interface Module (W936 or W945 Control)

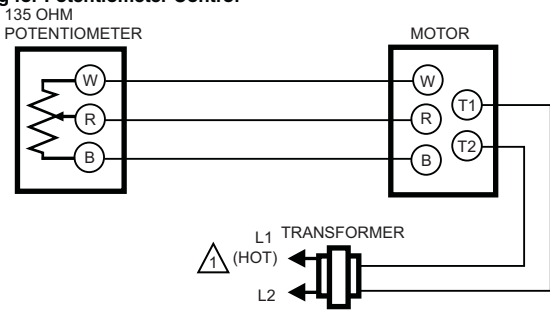
Material Number	Torque Rating (lb-in.)	Torque Rating (Nm)	Power Consumption	Timing, Nominal	Internal Auxiliary Switch	Factory Stroke Setting	Electrical Connections	Stroke	Spring Return Timing	Includes	Tradeline Value
M9182A1011/U	60 lb-in.	6.8 Nm	Driving – 20 VA	30 - 60 sec	0	160 degrees	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical			
M9182D1023/U	60 lb-in.	6.8 Nm	Driving – 20 VA	60 - 120 - 240 sec	0	160 degrees	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical	Nominal – 60 sec		
M9185A1018/U	60 lb-in.	6.8 Nm	Driving – 20 VA	30 - 60 sec	0	160 degrees	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical			
M9185C1006/U	60 lb-in.	6.8 Nm	Driving – 20 VA	30 - 60 sec	2	160 degrees	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical			
M9185D1004/U	60 lb-in.	6.8 Nm	Driving – 20 VA	30 - 60 sec	0	160 degrees	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical			Tradeline
M9185D4008/U	60 lb-in.	6.8 Nm	Driving – 20 VA	30 - 60 sec	0	160 degrees	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical			Tradeline
M9185E1019/U	60 lb-in.	6.8 Nm	Driving – 20 VA	30 - 60 sec	1	90 degrees	Quick-connect terminals	Adjustable; 90 to 160 degrees, Asymmetrical			

Modutrol IV Motors

Dimensions in inches (millimeters)



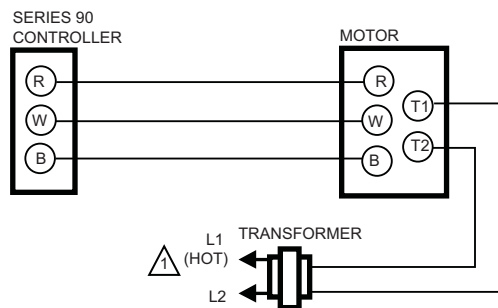
Wiring for Potentiometer Control



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

M13708

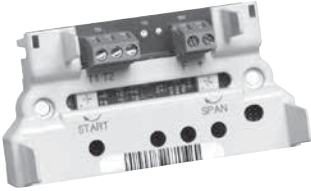
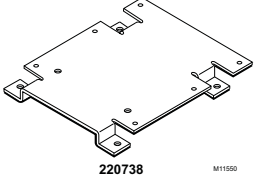
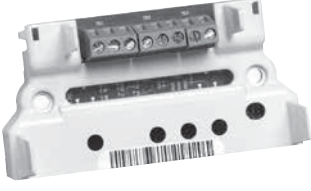



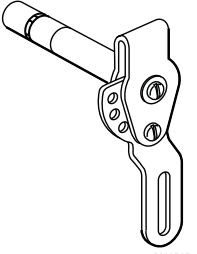
Typical wiring for Series 90 motors



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

M770A

Foot Mounted Motor Accessories



Material Number	Description	Used With	
203709D2/U	Screw Terminal Adapter for Series 70 Mod IV Motors with Adjustable Zero and Span	Series 2 and Series 3 Modutrol IV™ motors	
220738A/U	Adapter Bracket. Adjusts shaft height to match Modutrol III motors	Mod IV Actuator to match shaft height of Mod III Actuator	 220738 M1150
220741A2-61/U	Screw Terminal Adapter Kit for Series 61 Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals	Series 61 Mod IV Motor	
220741A2-62/U	Screw Terminal Adapter Kit for Series 62 Series Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals	Series 62 Mod IV Motor	
220741A2-71/U	Screw Terminal Adapter Kit for Series 71 Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals	Series 71 Mod IV Motor	
220741A2-72/U	Screw Terminal Adapter Kit for Series 72 Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals	Series 72 Mod IV Motor	
220741A2-90/U	Screw Terminal Adapter Kit for Series 90 Modutrol IV Series 2 and Series 3 motors - Converts quick-connect terminals to screw terminals	Series 90 Mod IV Motor	
220741A2-TP/U	Screw Terminal Adapter Kit for 2 position Modutrol IV Series 2 motors - Converts quick-connect terminals to screw terminals	Two Position for use with M4XXX and M8XXX Mod IV Motors	
221455A/U	Infinitely adjustable Motor Crank Arm	Modutrol IV Motors	
221508A2/U	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.	Series 2 and Series 3 Modutrol IV™ motors	
4074ERU/U	Weatherproofing kit. Protects motor from driving rain when mounted in any position. Not needed if motor is mounted upright.	Fits all Modutrol IV motors.	
7617DM/U	Coupling - Must be used with ES650117 explosion-proof housing	ES650117	 7617DM M11515

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)

Material Number	Supply Voltage	Control Signal	Includes	Comments	
198162AA/U	120 or 208 or 240 Vac at 50 or 60 Hz	SPST, On/Off switch	Transformer, screws, instructions for mounting internally in Modutrol IV Series 1 motors	For Mod IV Series 2 and 3 actuators, use 50017460-001	
198162EA/U	120 Vac at 50 or 60 Hz	SPST, On/Off switch	Transformer, screws, instructions for mounting internally in Modutrol IV Series 1 motors	For Mod IV Series 2 and 3 actuators, use 50017460-003	
198162GA/U	220 Vac at 50 or 60 Hz	SPST, On/Off switch	Transformer, screws, instructions for mounting internally in Modutrol IV Series 1 motors	For Mod IV Series 2 and 3 actuators, use 50017460-001	
198162JA/U	24 Vac (for electrical isolation)	SPST, On/Off switch	Transformer, screws, instructions for mounting internally in Modutrol IV Series 1 motors	For Mod IV Series 2 and 3 actuators, use 50017460-001	

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)

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

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)

Material Number	Supply Voltage	Control Signal	Includes	Used With
50017460-001/U	24 Vac; 120 Vac; 230 Vac	SPST, On/Off switch	Transformer, screws, instructions for mounting internally in Modutrol IV™ Series 2 and 3 motors	Series 2 and Series 3 Modutrol IV™ motors
50017460-003/U	120 Vac	SPST, On/Off switch	Transformer, screws, instructions for mounting internally in Modutrol IV™ Series 2 and 3 motors	Series 2 and Series 3 Modutrol IV™ motors

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

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

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

Material Number	Electrical Connections	Control Signal	Mounting	Weight	Approximate, Dimensions	Includes	Used With
Q209A1022/U	Screw terminals	SPST, On/Off switch	Internal mount to Modutrol IV Motors	0.2 lb	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)	150 ohm Potentiometer, leadwires and bracket	M9184; M9185; M6284; M6285
Q209A1030/U	Screw terminals	SPST, On/Off switch	Internal mount to Modutrol IV Motors	0.25 lb	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)	300 ohm Potentiometer, leadwires and bracket	M9184; M9185; M6284; M6285
Q209E1002/U	Quick-connect terminals with lead wires	SPST, On/Off switch	External mount to Modutrol IV Motors	0.5 lb	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)	150 ohm Potentiometer, factory mounted on a wiring cover box	
Q209E1010/U	Quick-connect terminals with lead wires	SPST, On/Off switch	External mount to Modutrol IV Motors	0.5 lb	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)	300 Ohm Potentiometer, Factory Mounted on a wiring cover box	

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

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

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

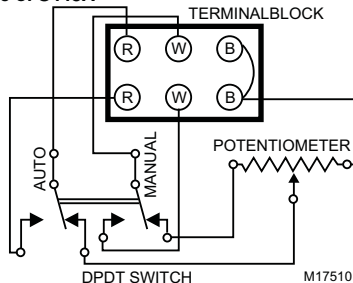
Mounting: Surfaced mounted with conduit knock-outs

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, 86 mm wide, 83 mm deep. **Fits inside wiring junction box of Modutrol IV Motor)

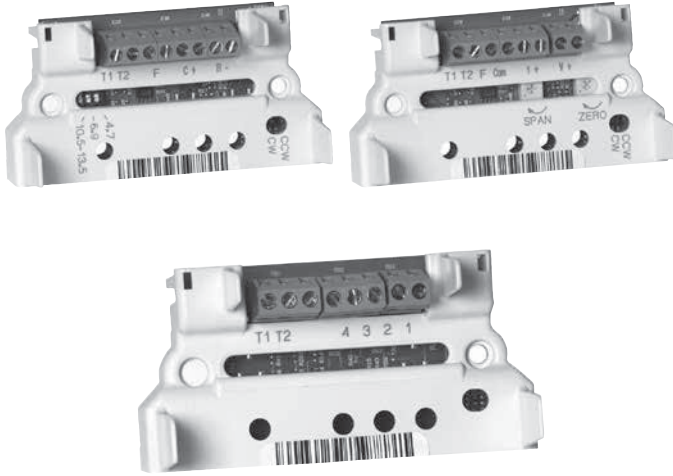
Ambient Temperature Range: -40°F to +150°F (-40°C to +60°C)

Internal schematic of S443A



Material Number	Electrical Connections	Control Signal	Comments	Used With
S443A1007/U	Screw terminals	SPST, On/Off switch	2 position manual switch	M9164; M9484; M9184; M9185 and motors replaced by these motors

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)

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

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 for 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
M436A1116/U	20 lb-in.	2.3 Nm	120 Vac	Opening – 30 sec	Run Time Maximum – 40 sec	Opening – 0.37 A, Holding – 0.12 A	Opening – 28 W, Holding – 8.5 W			Tradeline
M436A1124/U	20 lb-in.	2.3 Nm	240 Vac	Opening – 30 sec	Run Time Maximum – 40 sec	Opening – 0.19 A, Holding – 0.06 A	Opening – 29 W, Holding – 8.5 W	Bracket 198545		Tradeline
M436A1140/U	20 lb-in.	2.3 Nm	220 Vac	Opening – 30 sec, Closing – 25 sec	Run Time Maximum – 55 sec	Opening – 0.21 A, Holding – 0.062 A	Opening – 30 W, Holding – 8.5 W	Ground and cover screw	Series 40, 80 circuits	
M836A1034/U	20 lb-in.	2.3 Nm	24 Vac	Opening – 30 sec, Closing – 25 sec	Run Time Maximum – 55 sec	Opening – 1.85 A, Holding – 0.6 A	Opening – 39 W, Holding – 8.5 W		Series 40, 80 circuits	
M836A1042/U	20 lb-in.	2.3 Nm	24 Vac	Opening – 30 sec	Run Time Maximum – 40 sec	Opening – 1.85 A, Holding – 0.6 A	Opening – 28 W, Holding – 8.5 W			Tradeline
M836B1025/U	15 lb-in.	1.7 Nm	24 Vac	Opening – 30 sec, Closing – 25 sec	Run Time Maximum – 50 sec	Opening – 1.34 A, Holding – 0.73 A	Opening – 20.3 W, Holding – 11.2 W		Series 40, 80 circuits	
M836B1033/U	15 lb-in.	1.7 Nm	24 Vac	Opening – 25 sec	Run Time Maximum – 40 sec	Opening – 1.34 A, Holding – 0.73 A	Opening – 20.3 W, Holding – 11.2 W			Tradeline