

M6161, M6181, M6184, M6191, M6194 Modutrol IV™ Motors

SPECIFICATION DATA



APPLICATION

These Modutrol IV Motors are 3-wire floating control motors used with controllers that provide spdt or floating output to operate dampers or valves.

FEATURES

- Replace M644 Motors.
- Oil immersed motor and gear train provides reliable performance and long life.
- Wiring box provides NEMA 3 weather protection.
- Quick-connect terminals standard—screw terminal adapter available.
- Adapter bracket for matching shaft height of older motors is standard with replacement motors.
- Die-cast aluminum housing
- Integral auxiliary switches are available factory mounted or can be field added to TRADELINE® models.



SPECIFICATIONS

TRADELINE® Models

TRADELINE models are selected and packaged to provide ease of stocking, ease of handling, and maximum replacement value. TRADELINE model specifications are the same as those of standard models, unless otherwise specified. M6184D1035 and M6194D1017 are TRADELINE models. TRADELINE models have auxiliary switch cams.

Standard Models

M6161A,B
M6181A,D,F
M6184A,B,D,F
M6191A,B,D
M6194A,B,D,E,F

Control Type
61 is Series 60

Power Rating
6 is low torque:
35 lb-in.
8 is high torque:
150 lb-in. at standard
timing (60 sec for 160°)

9 is extra high torque:
300 lb-in. at 2 or 4
minute timing

Output Drive
4 is dual-ended shaft,
non-spring return
1 is single-ended shaft,
non-spring return

Suffix Letter
A: Fixed stroke
(90° or 160°),
No auxiliary switches
B: Fixed stroke
(90° or 160°),
1 auxiliary switch
D: Adjustable stroke
(90° to 160°),
No auxiliary switches
E: Adjustable stroke
(90° to 160°),
2 auxiliary switches
F: Adjustable stroke
(90° to 160°),
2 auxiliary switches

NOTE: Some motors are furnished to HVAC equipment manufacturers with no adapter bracket, a single-ended shaft and/or no wiring box.

Electrical Ratings:

M6161, M6181, M6184, M6191, M6194	Voltage (V at 50/ 60 Hz)	Current Draw (A)	Power Consumption (W)
Without Transformer ^a	24	0.69	15
With Internal Transformer	120	0.21	20
	208	0.12	20
	240	0.11	20

^a Internal transformer can be field added.

Maximum Damper Rating:

Motor Torque lb-in.	B dim	
	in.	mm
75	48	1219
150	202	5131
300	258	6553

Dead Weight Load on Shaft:

Power or Auxiliary End: 200 lb (90.8 kg) maximum.
Maximum Combined Load: 300 lb (136 kg).

Ambient Temperature Ratings:

Maximum: 150°F (66°C) at 25% duty cycle.
Minimum: Minus 40°F (-40°C).

Crankshaft: 3/8 in. (9.5 mm) Square.

M6184, M6194 have dual-ended shaft.
M6161, M6181, M6191 have single-ended shaft

Auxiliary Switch Ratings (Amperes):

One Contact Rating ^a Amps	120V	240V
Full Load	7.2	3.6
Locked Rotor	43.2	21.6

^a 40 VA pilot duty, 120/240 Vac on opposite contact.

Controller Type:

Floating 3-wire (Series 60)—drive open, hold, drive closed.

Stroke:

Fixed stroke models available with 90° or 160° stroke. Other models available with stroke field adjustable from 90° to 160°. Start position of shaft changes with adjustment of stroke. (Midpoint of stroke remains fixed as stroke is adjusted.) Stroke is adjusted using cams located in wiring compartment.

Dimensions:

See Fig. 1.

Underwriters Laboratories Inc. Listed:

File No. E4436, Guide No. XAPX.

Canadian Standards Association Certified:

General Listing File No. LR1620, Guide No. 400-E.

Timing and Torque:

NOTE: Motors with 2 minute timing at 90° stroke or 4 minute timing at 160° stroke contain on-off pulsing circuitry to achieve timing. Intermittent operation is normal.

Timing		Torque in lb.-in (N•m)	
90° Stroke Motors	160° Stroke Motors	Normal Running	Breakaway ^a
30 sec	60 sec	35 (40)	70 (7.9)
15 sec	30 sec	75 (8.5)	150 (17.0)
30 sec	1 min	150 (17.0)	300 (34.0)
1, 2 min ^b	2, 4 min ^b	300 (34.0)	600 (68.0)

^a Breakaway torque is the maximum torque available to overcome occasional large loads such as a seized damper or valve. *Motor must not be used continuously at this rating.*

^b Stalling of 4 minute motor may damage drive shaft.

Accessories:

ES650117 Explosion-proof Housing: Encloses motor for use in explosive atmospheres. Not for use with Q601, Q618, and Q455 Linkages. Order separately from Nelson Electric Co. Requires Honeywell 7617DM Coupling.

Q607 External Auxiliary Switch: Controls auxiliary equipment as a function of motor position.

Internal Auxiliary Switch Kits: Can be field-installed on TRADELINE models.

220736A—One-switch Kit.

220736B—Two-switch Kit.

Q605 Damper Linkage: Connects motor to damper. Includes motor crank arm.

Q618 Linkage: Connects Modutrol motor to water or steam valve.

Q601 Bracket and Linkage Assembly: Connects Modutrol motor to water or steam valve.

Q100A,B Linkage: Connects Modutrol motor to butterfly valve.

Q68 Dual Control Potentiometer: Controls 1 through 9 additional motors.

Q181 Auxiliary Potentiometer: Controls 1 or 2 additional motors.

221455A Infinitely Adjustable Crank Arm: Approximately 0.75 in. (19 mm) shorter than the 4074ELY Crank Arm. Can rotate through downward position and clear base of motor without requiring use of adapter bracket.

7617ADW Adjustable Crank Arm: Approximately 0.75 in. (19 mm) shorter than the 7616BR Crank Arm. Can rotate through downward position and clear base of motor without requiring use of adapter bracket.

220741A Screw Terminal Adapter: Converts the standard quick-connect terminals to screw terminals.

Transformers: Mounted internally, provide 24 Vac power to motor.

198162JA—24 Vac; 50/60 Hz (for electrical isolation).

198162EA—120 Vac; 50/60 Hz.

198162GA—220 Vac; 50/60 Hz.

198162AA—120/208/240 Vac; 50/60 Hz.

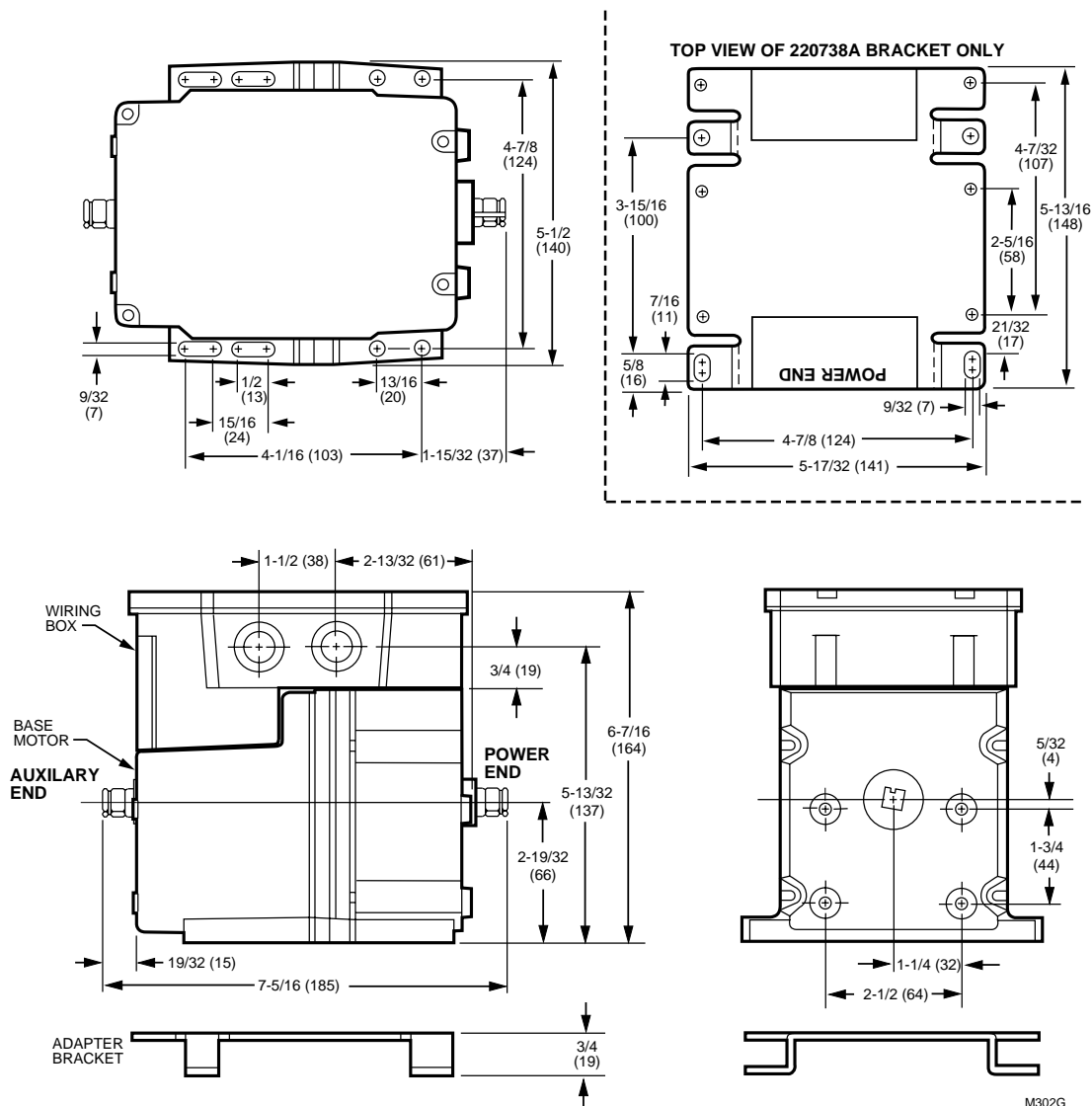


Fig. 1. Dimensions in in. (mm). Note: M6161, M6181, M6191 models do not have auxiliary shaft. All other dimensions are the same.

Home and Building Control

Honeywell Inc.
Honeywell Plaza
P.O. Box 524
Minneapolis MN 55408-0524

Honeywell Latin American Division

Miami Lakes Headquarters
14505 Commerce Way Suite 500
Miami Lakes FL 33016

Home and Building Control

Honeywell Limited-Honeywell Limitée
155 Gordon Baker Road
North York, Ontario
M2H 2C9

Honeywell Europe S.A.

3 Avenue du Bourget
B-1140 Brussels Belgium

Honeywell Asia Pacific Inc.

Room 3213-3225
Sun Hung Kai Centre
No. 30 Harbour Road
Wanchai
Hong Kong

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