

AE-M Series

Electric Actuators



Features and Benefits

- 1 Permanently Lubricated Heavy Duty Aluminum Alloy Steel Gear Train
- 1 NEMA 4, 4X Weatherproof Enclosure
- 1 ISO 5211 Direct Mount Capabilities
- 1 Manual Override (except on the M25)
- 1 1/2" NPT Conduit Entries (2)
- 1 Adjustable Travel Stops
- 1 Standard 25% Duty Cycle
- 1 Thermal Overload Protection
- 1 Standard 110V AC Single Phase
- 1 2 Limit Switches

Options

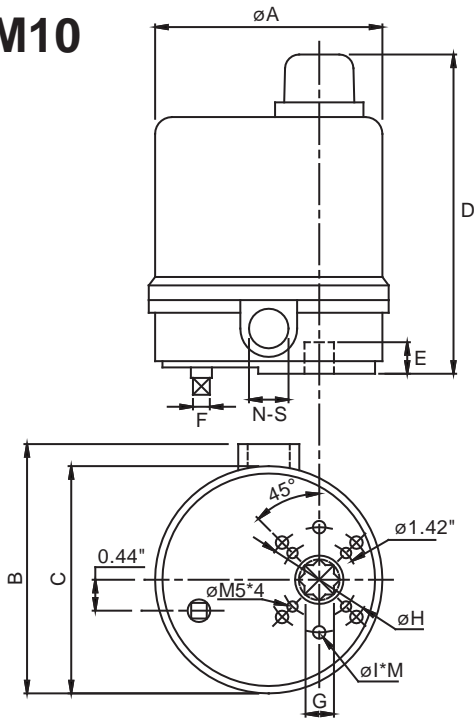
- 1 12V / 24V AC/DC, 220V AC
- 1 220V AC Three-Phase
- 1 Reversing Motors
- 1 Extended Duty Motors for Modulating Service
- 1 Heater and Thermostat
- 1 Extra Limit Switches (up to 2)
- 1 Remote Control Indicators



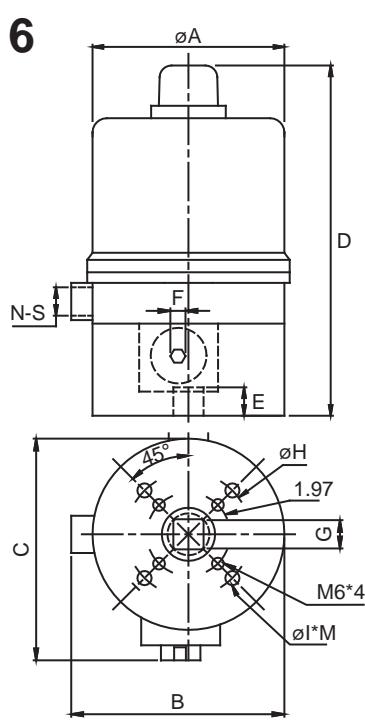
Performance Chart

12V / 24V												
Model No.	Torque (in-lbs)	Cycle Time (90°)		Motor Power	Motor Speed		12V DC/AC			24V DC/AC		
					12V	24V	Run	Start	Lock	Run	Start	Lock
M10	310	15 s		10W	3600/min	3600/min	0.5A	3.0A	3.0A	0.6A	0.8A	1.4A
M16	443	20 s		10W	3600/min	3600/min	0.5A	3.0A	3.0A	0.7A	0.8A	1.4A
M20	797	15 s		70W	1800/min	1800/min	3.4A	5.0A	8.5A	3.0A	5.0A	13.0A
M30	1328	22 s		70W	1800/min	1800/min	3.4A	5.0A	8.5A	3.0A	5.0A	13.0A
M40	3540	16 s		180W	1800/min	1800/min	12.0A	8.5A	30.0A	6.0A	8.0A	30.0A
M50	4420	22 s		180W	1800/min	1800/min	13.0A	8.5A	30.0A	6.5A	8.0A	30.0A
M60	5735	28 s		180W	1800/min	1800/min	14.0A	8.5A	30.0A	7.5A	8.0A	30.0A
Single-Phase												
Model No.	Torque (in-lbs)	Cycle Time (90°)		Motor Power	Motor Speed		110V Current			220V Current		
		60 Hz	50 Hz		60 Hz	50 Hz	Run	Start	Lock	Run	Start	Lock
M10	310	12 s	13 s	10W	3600/min	3000/min	0.5A	1.5A	0.6A	0.3A	1.0A	0.5A
M16	443	20 s	24 s	10W	3600/min	3000/min	0.5A	1.5A	0.6A	0.3A	1.0A	0.5A
M20	797	15 s	17 s	40W	1720/min	1450/min	1.3A	3.0A	1.8A	0.5A	1.5A	0.9A
M25	1063	8 s	10 s	40W	1720/min	1450/min	1.0A	3.0A	1.8A	0.5A	1.5A	0.9A
M30	1328	22 s	26 s	40W	1720/min	1450/min	1.0A	3.0A	1.8A	0.5A	1.5A	0.9A
M40	3540	16 s	18 s	120W	1720/min	1420/min	1.3A	3.1A	3.6A	0.6A	1.5A	1.8A
M50	4420	22 s	25 s	120W	1720/min	1450/min	1.5A	3.0A	3.6A	0.7A	1.5A	1.8A
M60	5735	28 s	31 s	120W	1720/min	1450/min	1.8A	3.0A	3.6A	0.8A	1.5A	1.8A
Three-Phase												
Model No.	Torque (in-lbs)	Cycle Time (90°)		Motor Power	Motor Speed		220V Current					
		60 Hz	50 Hz		60 Hz	50 Hz	Run	Start	Lock			
M20	797	15 s	17 s	40W	1720/min	1450/min	0.6A	1.8A	1.1A			
M25	1063	8 s	10 s	40W	1720/min	1450/min	0.6A	1.8A	1.1A			
M30	1328	22 s	26 s	40W	1720/min	1450/min	0.6A	1.8A	1.1A			
M40	3540	16 s	18 s	120W	1720/min	1450/min	1.0A	3.0A	3.5A			
M50	4420	22 s	25 s	120W	1720/min	1450/min	1.0A	3.0A	3.5A			
M60	5735	28 s	31 s	120W	1720/min	1450/min	1.0A	3.0A	3.5A			

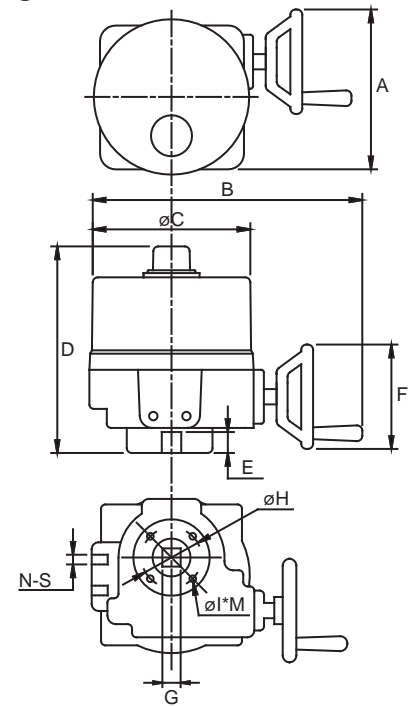
M10



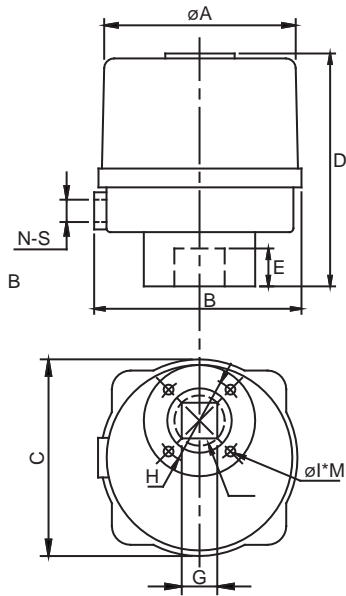
M16



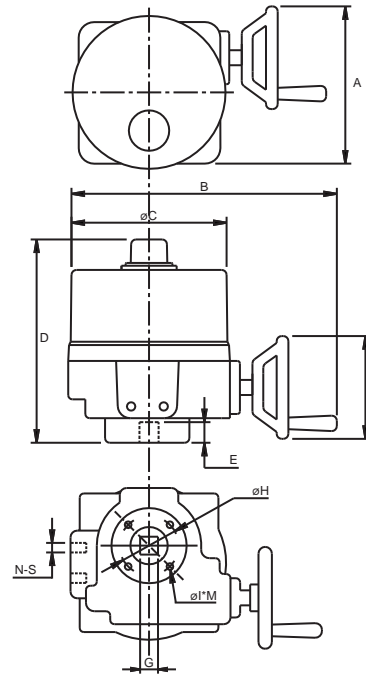
M20



M25



M30 - M60

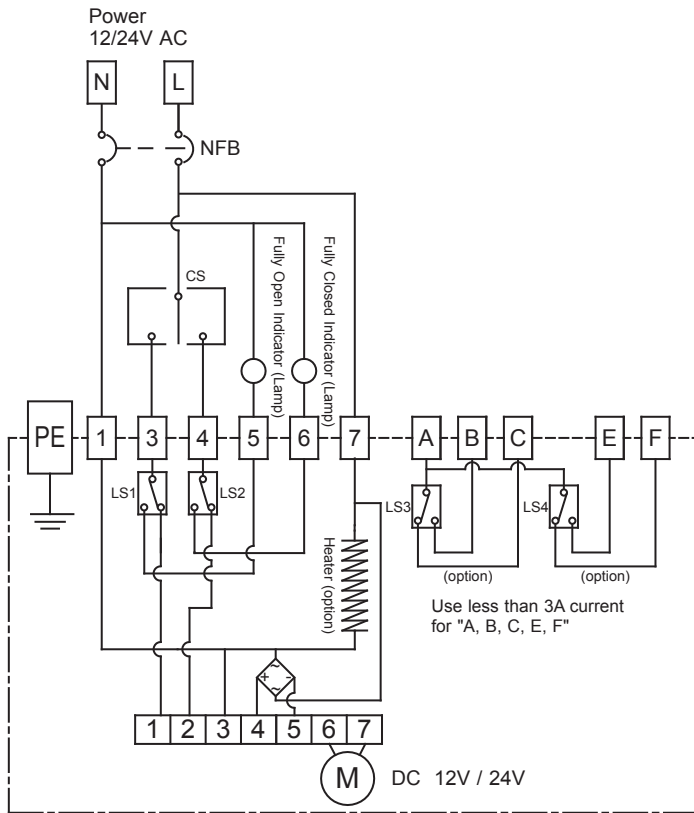


Dimensions (Inches)														
Model	A	B	C	D	E	F	G	H	I	M	N	S	Flange Type	Weight (lbs)
M10	4.25	4.80	4.25	6.10	0.59	0.31	0.55	1.97	M6	6	1	1/2	F03 / F05	4.40
M16	4.49	4.80	4.77	7.99*	0.63	0.20	0.67	2.76	M8	4	1	1/2	F05 / F07	6.60
M20	7.87	12.99	7.87	10.04	1.18	4.92	0.87	2.76	M8	4	2	1/2	F07	24.40
M25	6.06	6.30	6.06	7.56	1.18	-	0.87	2.76	M8	4	1	1/2	F07	9.90
M30	7.87	12.99	7.87	10.04	1.18	4.92	0.87	2.76	M8	4	2	1/2	F07	24.40
M40	11.81	14.96	9.21	12.40	1.57	7.68	1.42	4.02	M10	4	2	1/2	F10	48.40
M50	11.81	14.96	9.21	12.40	1.57	7.68	1.42	4.02	M10	4	2	1/2	F10	48.40
M60	11.81	14.96	9.21	12.40	1.57	7.68	1.42	4.02	M10	4	2	1/2	F10	48.40

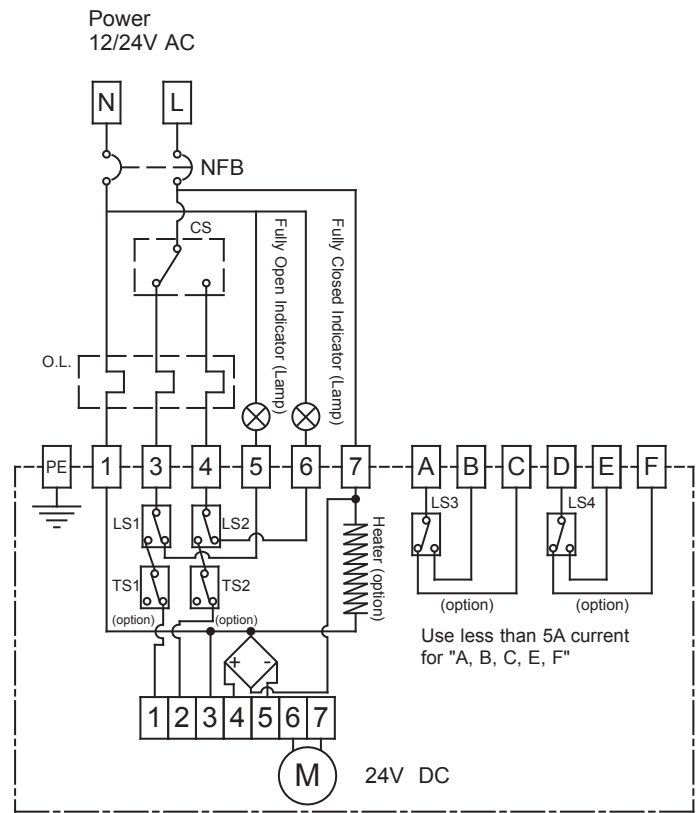
* D = 9.17" with modulating card

For information on 75% duty cycle, please contact us

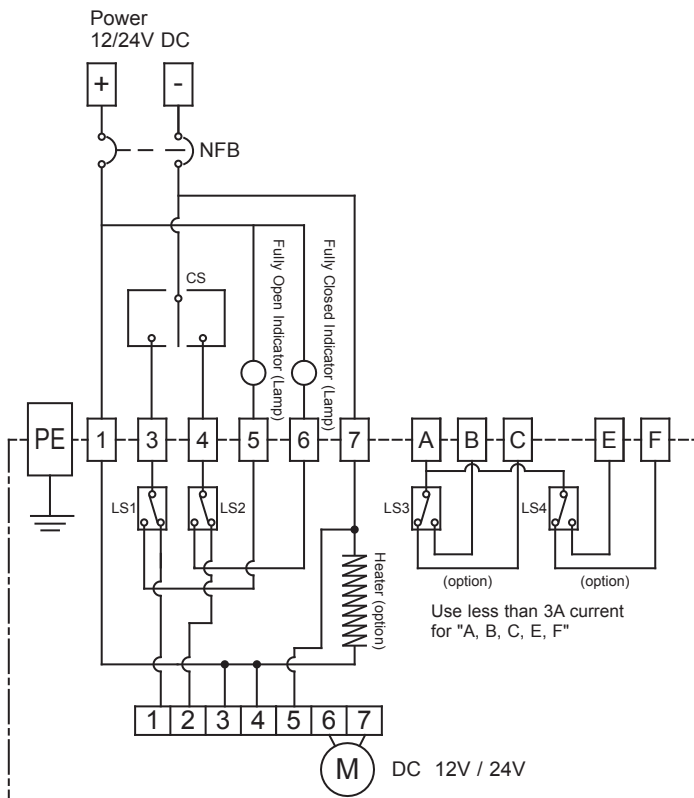
Wiring Diagram
M-10 & M-16 12V/24V AC
Two Positions*



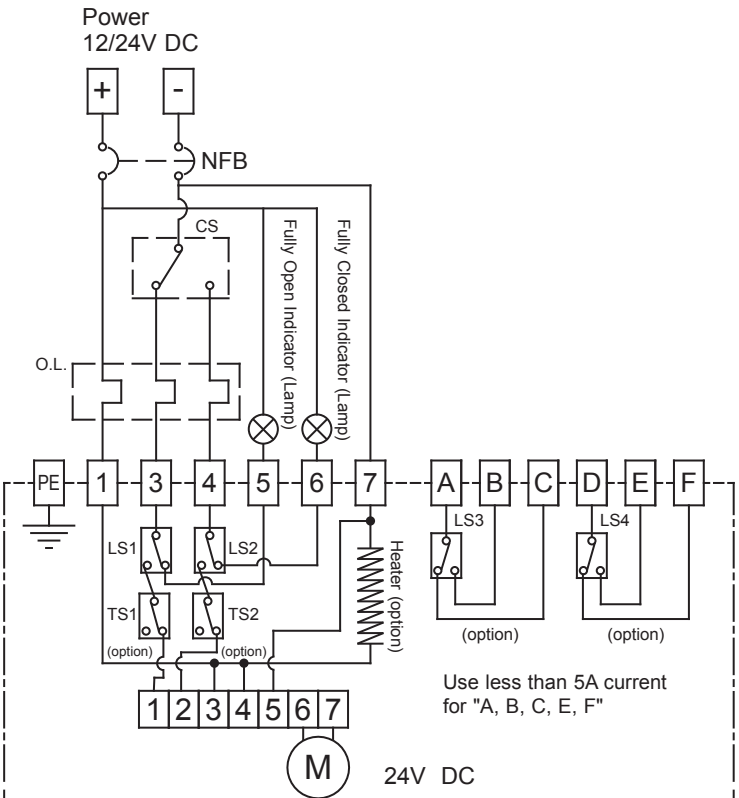
Wiring Diagram
M-20 ~ M-80 24V AC
Two Positions*



Wiring Diagram
M-10 & M-16 12V/24V DC
Two Positions*

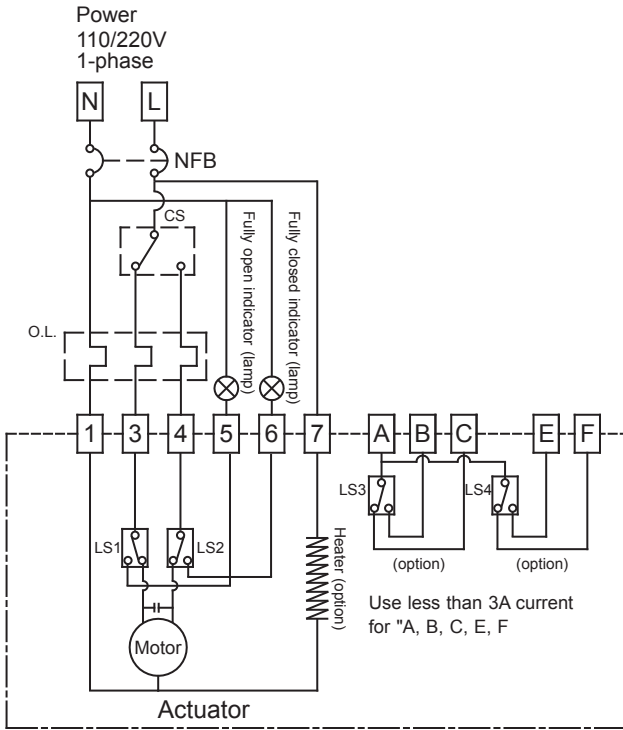


Wiring Diagram
M-20 ~ M-60 12V/24V DC
Two Positions*

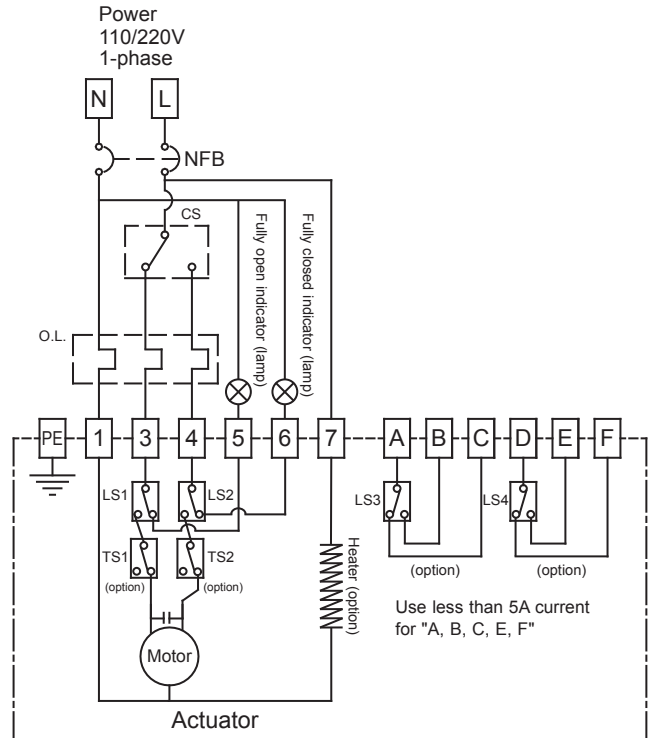


*Note:
 NFB -- Power Brake
 O.L. -- Overload Protector
 CS -- Selector Switch or Relay
 LS -- Limit Switch
 TS -- Torque Switch (option)
 (1) "N" or "+" connect to 1
 (3) "L" or "-" 7 connect to 3 for OPEN
 (4) "L" or "-" 7 connect to 4 for CLOSE
 (5) Fully Open Lamp ON
 (6) Fully Close Lamp ON
 (7) "L" or "-" connect to 7 for HEATER (option)

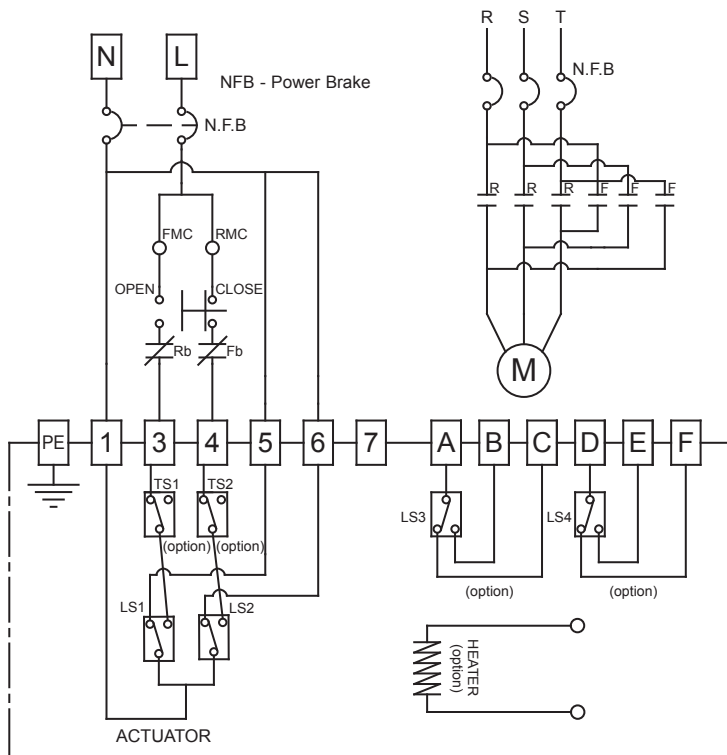
**Wiring Diagram
M-10 & M-16 110V/220V AC
Two Positions***



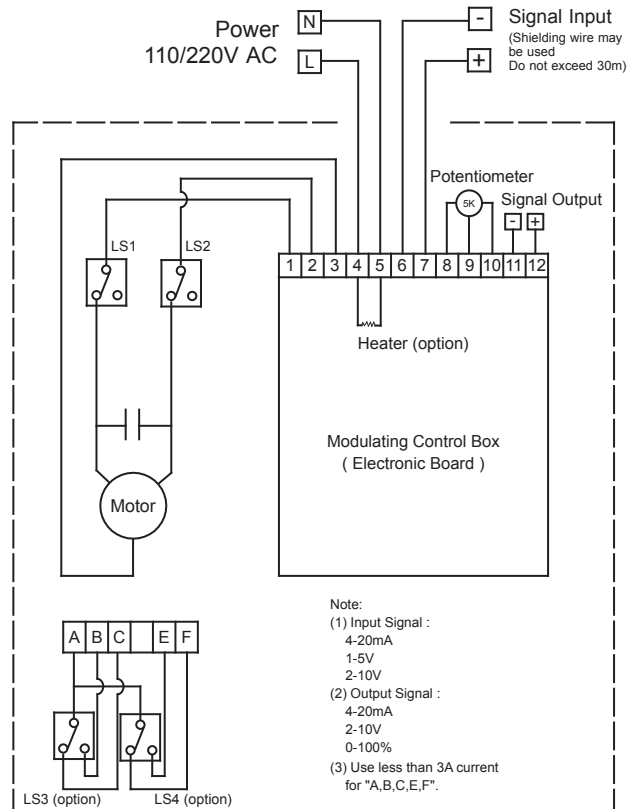
**Wiring Diagram
M-20 ~ M-60 110V/220V AC 1-PH
Two Positions***



**Wiring Diagram
M-20 ~ M-60 220V AC 3-PH
Two Positions***

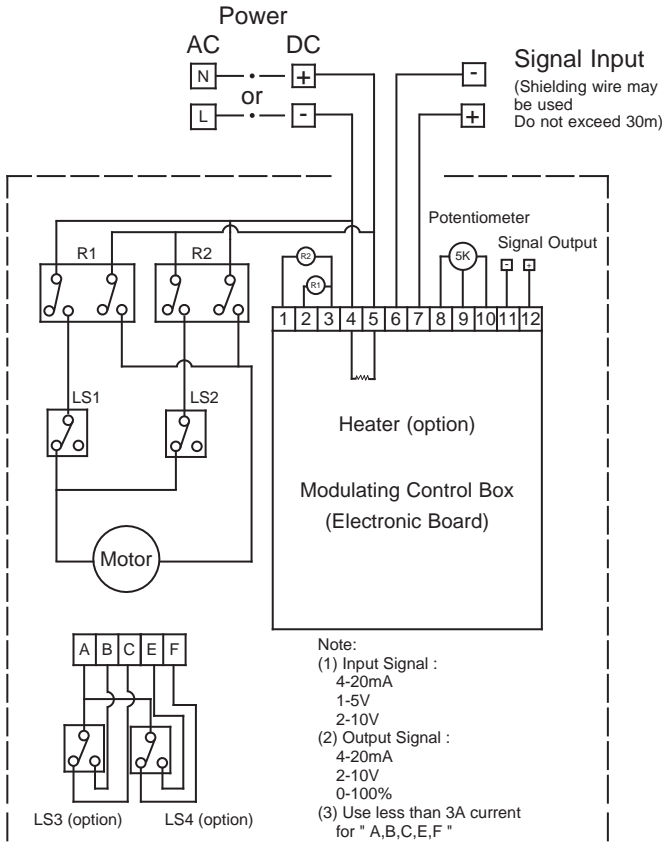


**Wiring Diagram
M-10 & M-16 110V/220V AC
Modulating Service**

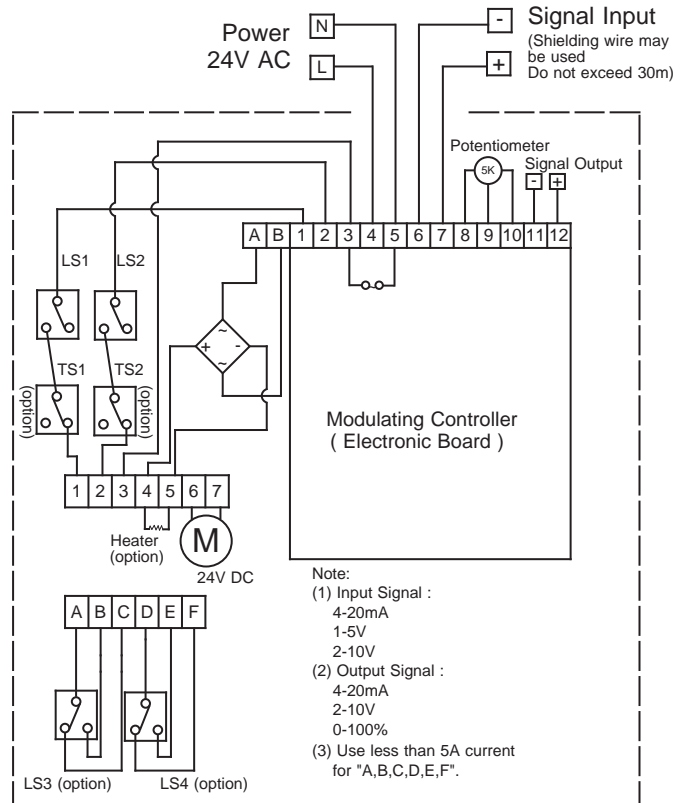


*Note:
 NFB -- Power Brake
 O.L. -- Overload Protector
 CS -- Selector Switch or Relay
 LS -- Limit Switch
 TS -- Torque Switch (option)
 (1) "N" or "+" connect to 1
 (2) "L" or "-" 7 connect to 3 for OPEN
 (3) "L" or "-" 7 connect to 4 for CLOSE
 (4) Fully Open Lamp ON
 (5) Fully Close Lamp ON
 (6) "L" or "-" connect to 7 for HEATER (option)
 (7) Fully Close Lamp ON
 (8) Fully Open Lamp ON
 (9) Fully Close Lamp ON
 (10) Fully Open Lamp ON
 (11) Fully Close Lamp ON
 (12) Fully Open Lamp ON
 (13) Fully Close Lamp ON
 (14) Fully Open Lamp ON

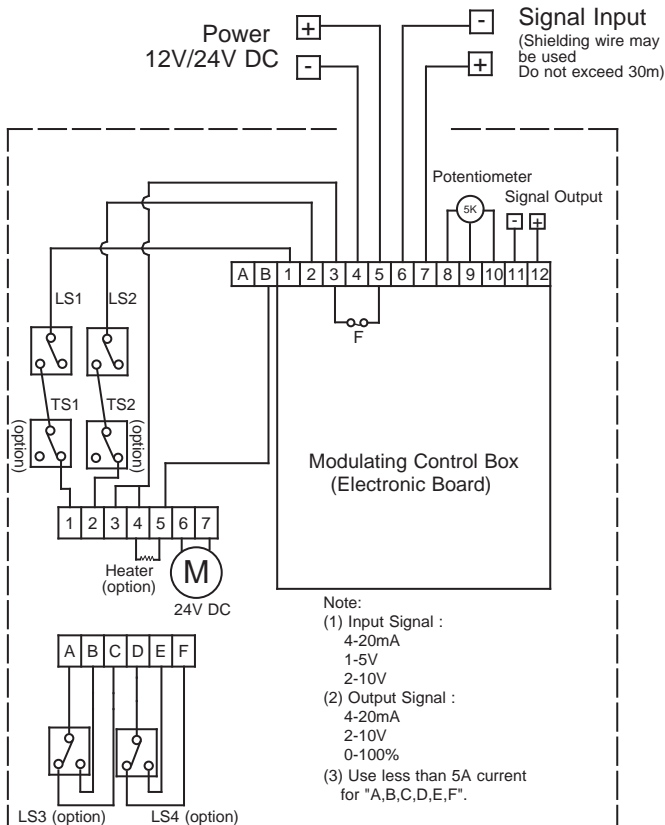
Wiring Diagram
M-10 & M-16 12V/24V AC/DC
Modulating Service



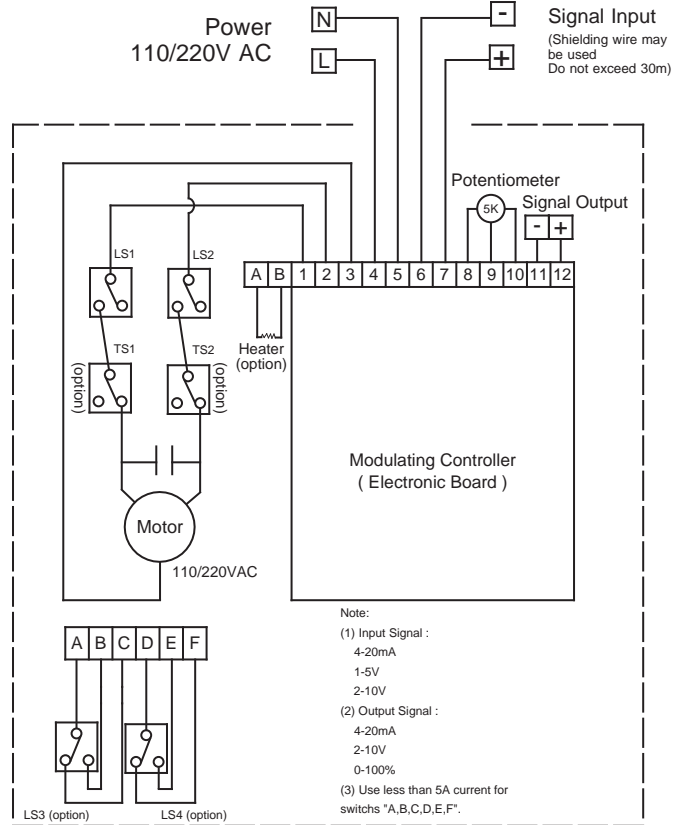
Wiring Diagram
M-20 ~ M-60 24V AC
Modulating Service



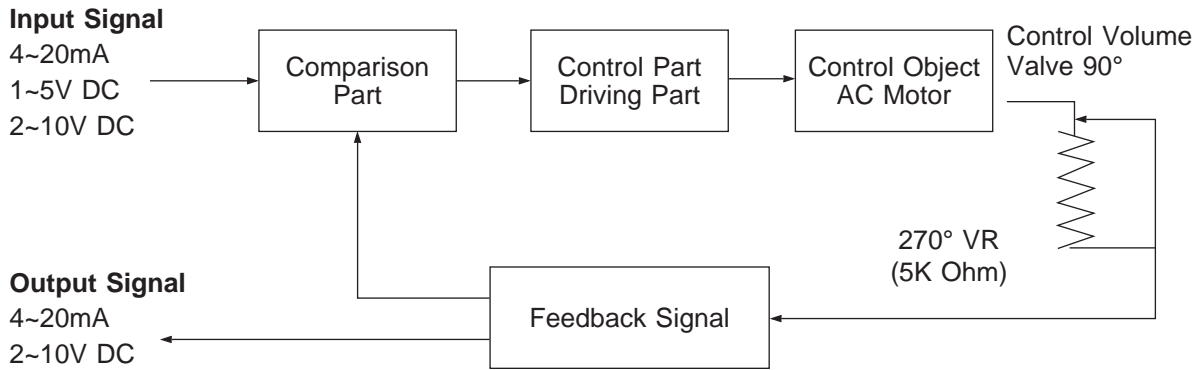
Wiring Diagram
M-20 ~ M-60 24V DC
Modulating Service



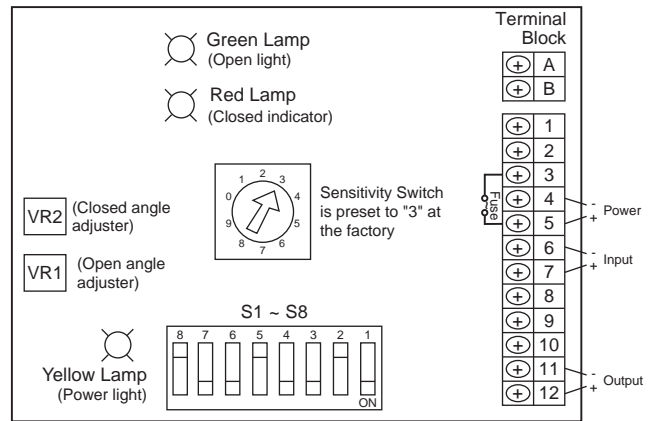
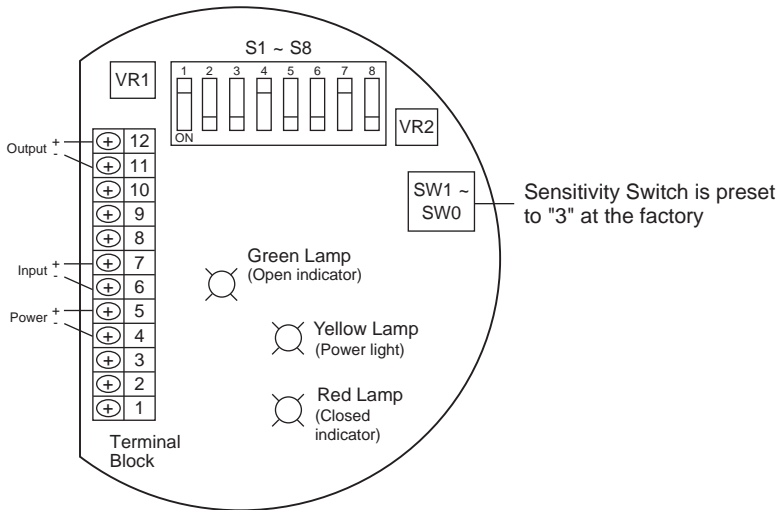
Wiring Diagram
M-20 ~ M-60 110V/220V AC
Modulating Service



Modulating Control Board



Modulating Control Board for M10, M16



Modulating Control Board for M20 ~ M60

Switch Settings

ATTENTION: TURN POWER OFF BEFORE CHANGING THE FOLLOWING SETTINGS:

S1,2: INPUT SIGNAL SELECT
 " 4~20mA " set 1-ON / 2-OFF
 " 1~5V " set 1-OFF / 2-OFF
 " 2~10V " set 1-OFF / 2-ON

S3,4,5: OUTPUT SIGNAL SELECT
 "2-10V" set 3-ON / 4-OFF / 5-ON
 "4-20mA" set 3-OFF / 4-ON / 5-OFF

S6: Valve is fully-open when the input signal is 4mA, 2V or 1V and valve is fully-closed when the input signal is 20mA, 10V or 5V, set 6-ON
 Valve is fully-closed when the input signal is 4mA, 2V or 1V and valve is fully-open when the input signal is 20mA, 10V or 5V, set 6-OFF

S7,8: POSITION SELECT (when the feedback signal fails)
 "valve fully-closed" set 7-OFF / 8-ON
 "valve fully-open" set 7-ON / 8-OFF
 "valve stops" set 7-ON / 8-ON

SW1~0: Sensitivity Switch

The 0~90° rotation can be divided into incremental movements as follows:

Setting	1	2	3	4	5	6	7	8	9	0
# of incremental movements	80	73	66	59	52	45	38	31	24	17

Ordering Information

Series	Model	Current	Enclosure	Duty	Cycle Time	Option
AE - Actuator Electric	M10 M16 M20 M25 M30 M40 M50 M60	A - 24V AC B - 110V AC C - 220V AC D - 12V DC E - 24V DC	4 - NEMA 4, 4X	0 - None 25 - 25% 75 - 75%	8 12 15 16 20 22 24 34 35 46	0 - None T - Thermometer H - Heater S1 - 1 extra switch S2 - 2 extra switches 3 - Three-Phase* Modulating Control Boards ** M1 - 4~20mA in, 2~10V out M2 - 4~20mA in, 4~20mA out M3 - 1~5V in, 2~10V out M4 - 1~5V in, 4~20mA out M5 - 2~10V in, 2~10V out M6 - 2~10V in, 4~20mA out

* Three-Phase available on M20 through M60 only

** Modulating control boards used with 75% duty cycle only

Due to continuous product development, information may change without notice.



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