P2 Series
P3 Series

Actuator Specifications Torque lb/Nm	P2 800"lbs/90Nm			P3 1300"lbs/150Nm		
Supply Voltage	24vac	120vac	230vac	24vac	120vac	230vac
Max Inrush Current	5.0A	3.0A	1.5A	5.0A	3.0A	1.5A
Running Current	3.0A	1.0A	0.5A	3.0A	1.0A	0.5A
Runtime (90°@60/50Hz)	15sec	15sec/17sec		22sec	22sec/26sec	
Weight	25lbs/11kg					
Mechanical Connections	ISO5211					
Electrical Entry	(2) 3/4" NPT					
Electrical Terminations	12 - 18 Ga.					
Environmental Rating	4, 4X					
Manual Override	5" HandWheel					
Control	On/Off, Proportional					
Case material	Aluminum Alloy, Powder Coated					
Motor Protection 120vac or 230vac Operation	Split Phase Capacitor 275ºF/135ºC Thermal F Class					
Motor Protection 24v (AC or DC) Operation	DC Brush Type 275ºF/135ºC Thermal F Class					
Ambient Temperature Operating Range	-22ºF to +150ºF -30ºC to +65ºC					

An electric actuator designed for load requirements ranging from 800 to 1300"lbs. The actuator comes standard with two auxiliary switches (Form C), an internal low power heater, a NEMA 4X environmental rating, and in 24vac, 120vac or 230vac supply voltages. The P2/3 mechanical connections are ISO5211 compliant. The P2/3 Series can be ordered as an on/off or two position model that can also be used in bump/jog applications. Or it can be ordered with an advanced internal proportional control card that accepts a wide range of control signals, generates multiple feedback signals, and has look-ahead fault prevention.

P 2 - 120 P N 4 - (Options*)

2	800"lbs / 90Nm 15 seconds 90°@ 60Hz Weight = 25lbs / 11kg	**24**	24vac ±10% 5.0A Inrush 3.0A Running	**-**	On/Off 25-50% Duty Cycle*	**N** Non-Spring Return	**4** NEMA 4X
		120	120vac ±10% 3.0A Inrush 1.0A Running	**P**	Proportional Controlled**	**S** Spring Return	**7** NEMA 4/6/7
		230	230vac ±10% 1.5A Inrush 0.5A Running				
3	1300"lbs / 150Nm 22 seconds 90°@ 60Hz Weight = 25lbs / 11kg	**24**	24vac ±10% 5.0A Inrush 3.0A Running	**-**	On/Off 25-50% Duty Cycle*	**N** Non-Spring Return	**4** NEMA 4X
		120	120vac ±10% 3.0A Inrush 1.0A Running	**P**	Proportional Controlled**	**S** Spring Return	**7** NEMA 4/6/7
		230	230vac ±10% 1.5A Inrush 0.5A Running				

Options *(Not all combinations are possible - see tables Page 4)*

- **C** Chain Wheel Override System 12' (3.6M) Loop Length Std or specify
- **L** Local HOA Control
- **X** 3rd and 4th Auxiliary Switch (Form C)
- **M** Multiple control of On/Off actuators from a common point (parallel)
- **P1** Feedback Potentiometer P1=1K ohm, P5=5K ohm P10=10K Ohm

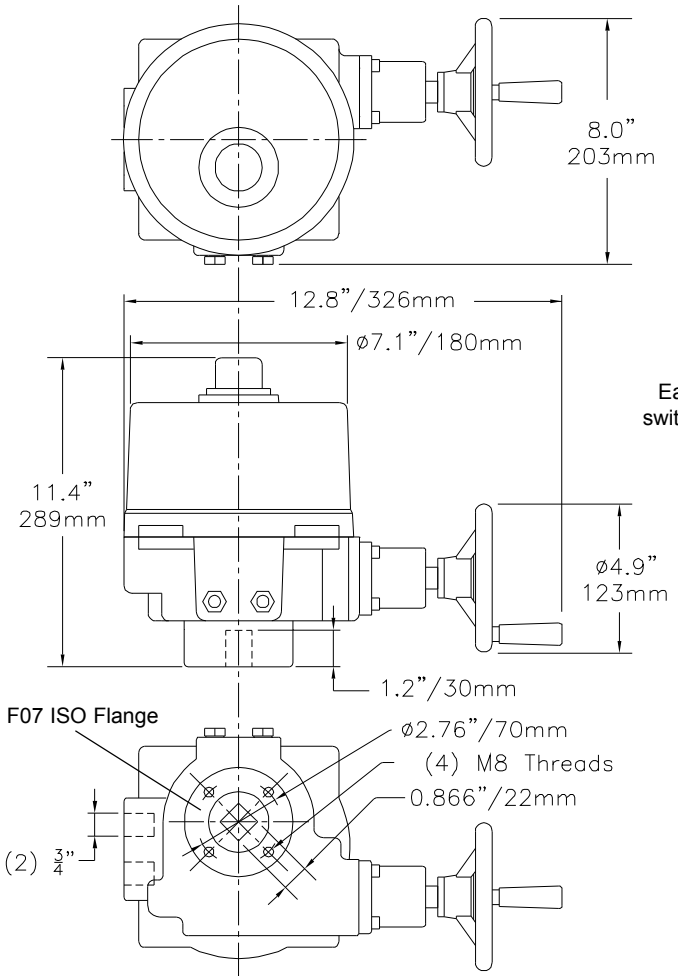
* Duty cycle is defined as the ratio of run time vs. off time. (Application dependent)

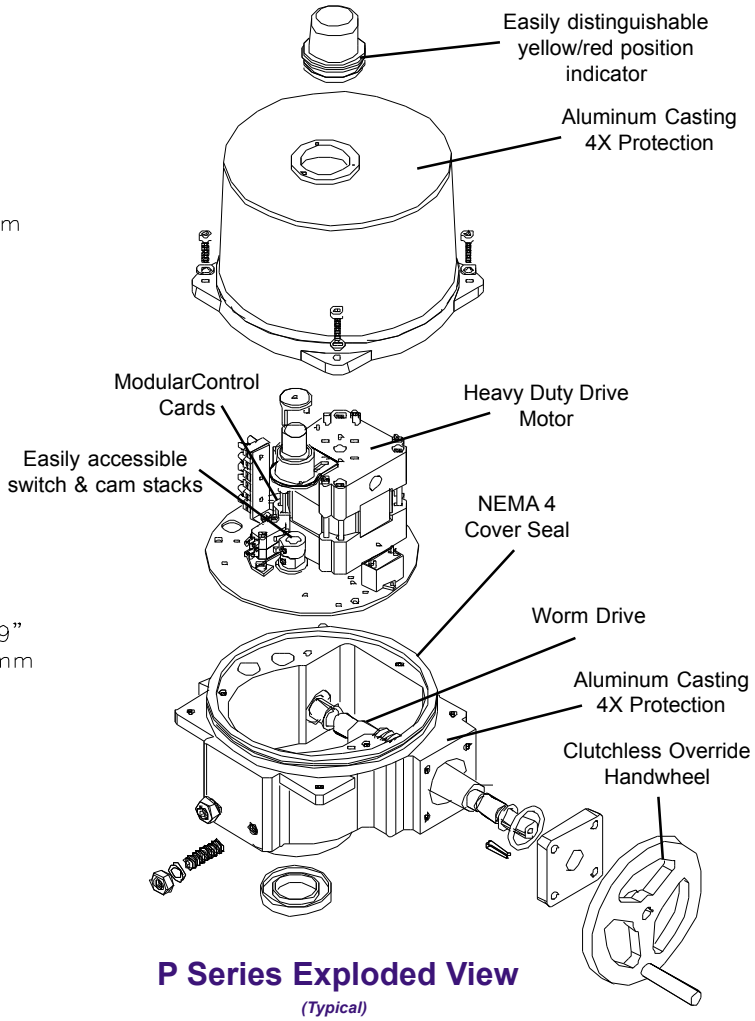
** Contolled Duty cycle is a proprietary function. (Please contact your local distributor for information)

Application Notes:

1. These actuators are designed to be used in either a horizontal or upright position. Do NOT mount the actuator with the top below a horizontal position.
2. When installing conduit, use proper techniques for entry into the actuator. Use drip loops to prevent conduit condensate from entering the actuator.
3. Both NPT conduit ports MUST use proper equipment to protect the NEMA 4x integrity of the housing.
4. The internal heater is to be used in ALL applications.
5. Do NOT install the actuator outdoors or in humid environments unless it is powered up and the heater is functioning.
6. Use proper wire size to prevent actuator failure (see chart below for proper wire sizing).
7. Mechanical travel stops are factory calibrated for 90 degree operation. These stops are NOT designed to adjust mechanical rotation by more than +/- 3 degrees.

P2/3 Series Dimensional Data





P Series Exploded View

(Typical)

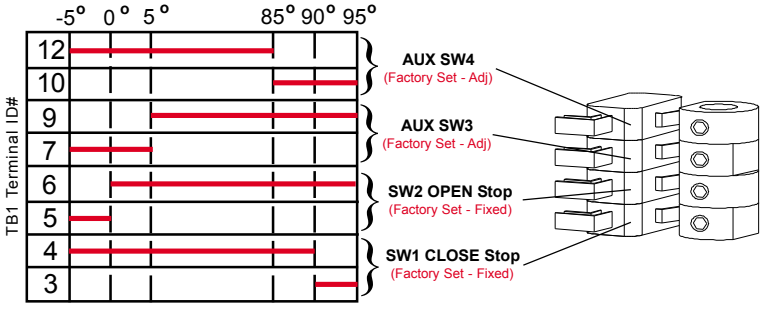
Wire sizing data is provided in the table below to assist in the selection of the proper wire size for ProMation P2/3 series actuators using various wire sizes over distance. Please make sure to reference the correct voltage and do not exceed the indicated length of the wire run for each model.

Wire Sizing Data

MAX distance between Actuator and Supply (feet)			
Wire Gage	P2/3-24 5.0A	P2/3-120 3.0A	P2/3-230 1.5A
18		275	1056
16	52	433	1659
14	84	699	2681
12	128	1070	4100
10	218	1818	6970
8	326	2714	10403

Switch sequencing data is provided in the table below to show the change-of-state points during the rotation of the actuator from OPEN to CLOSED and back again. Switches for terminals 3 thru 6 are set at the factory and should NOT be changed. The INCLUDED auxiliary switches SW3 & SW4 are for terminals 7 thru 12 and those setpoints may be modified if need be. When so optioned, SW5 & SW6 auxiliary switches are initially set to function the same as auxiliary switches SW3 & SW4.

Switch Logic Map and Switch/Cam Arrangement



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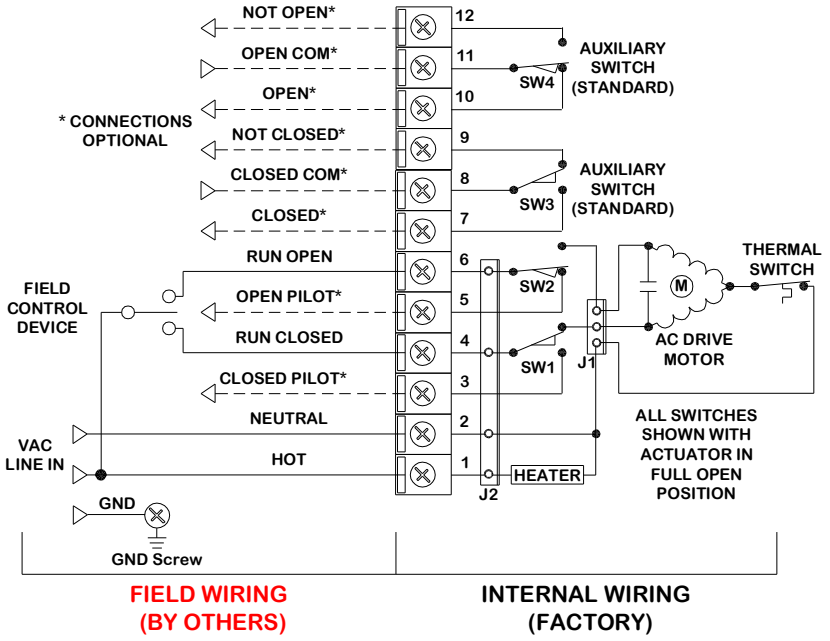
Wiring Diagrams for P Series -

On/Off/Jog Control

Field Control Device may be relay contact, Switch or Triac type. Pilot device 10A MAX. Auxiliary switches are rated 10A @ 250vac MAX. Terminals 7-12 are dry type Form C. Terminals accept 12-18ga solid/stranded wire.



Proportional Control

Control Signal Inputs (selectable and programmable):
0-10vdc, 1-5vdc, 2-10vdc, 0-20mA, 4-20mA
Common can be ground referenced or isolated from ground.

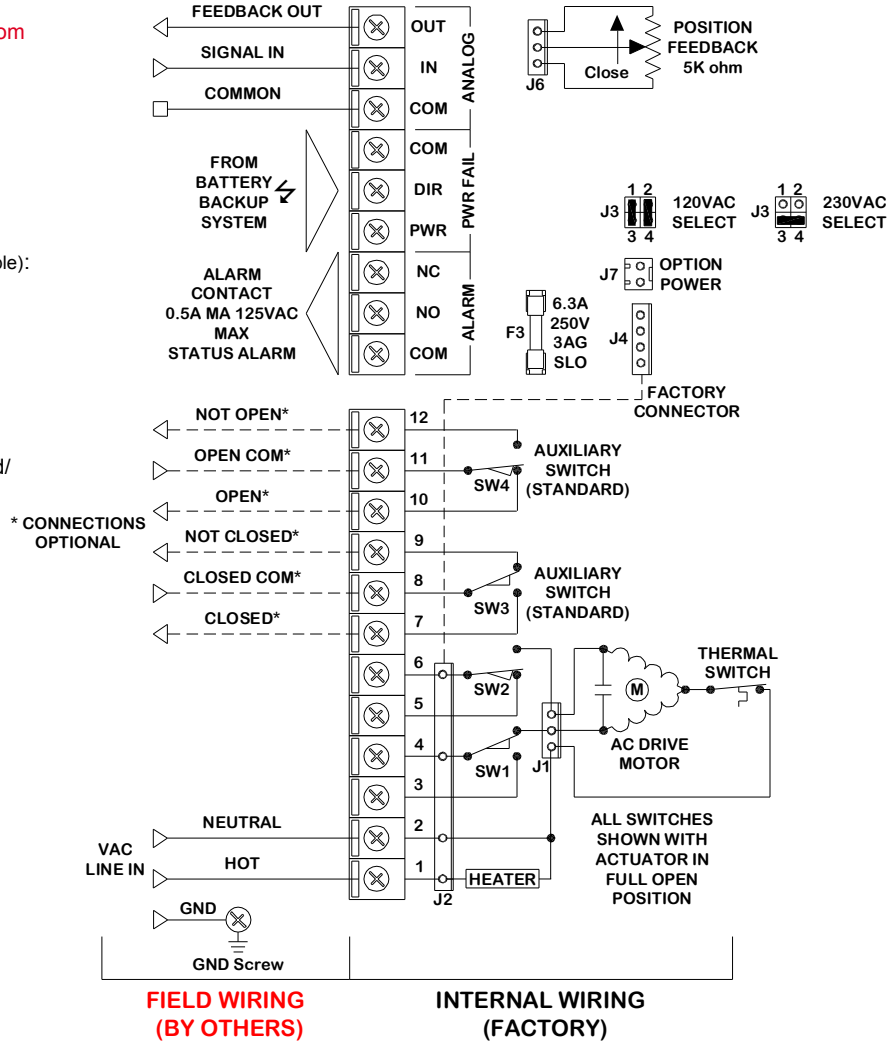
Input impedance: 135k ohms (0-10vdc)
250k ohms (0-5vdc)
250 ohms (4-20mA)

Sensitivity: 50mV (0-10vdc)
20mV (1-5vdc)
80uA (4-20mA)

Feedback Signal Output (selectable and programmable):
1-5vdc, 0-10vdc, 2-10vdc, 4-20mA
Referenced to the common terminal.
Max Load: 500 ohms

Alarm contacts and PWR FAIL connections are detailed in the OPTIONS Manual.

Main Switch Card Terminals accept 12-18ga solid/stranded wire.
Proportional Control Card Terminals accept 14-22ga solid/stranded wire.



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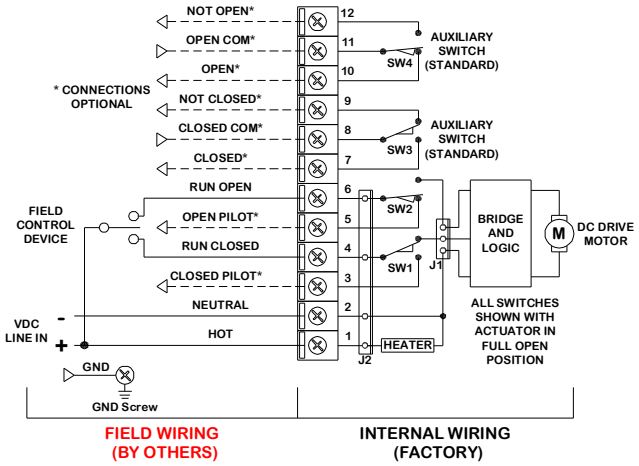
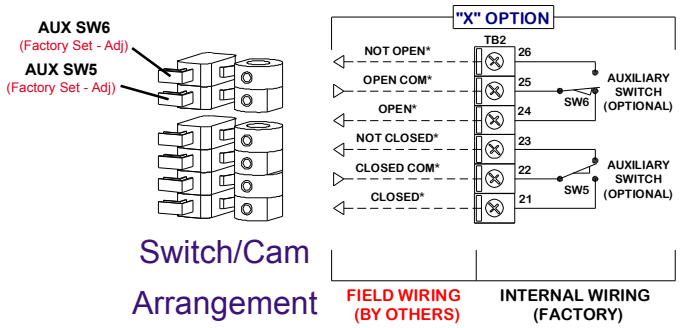
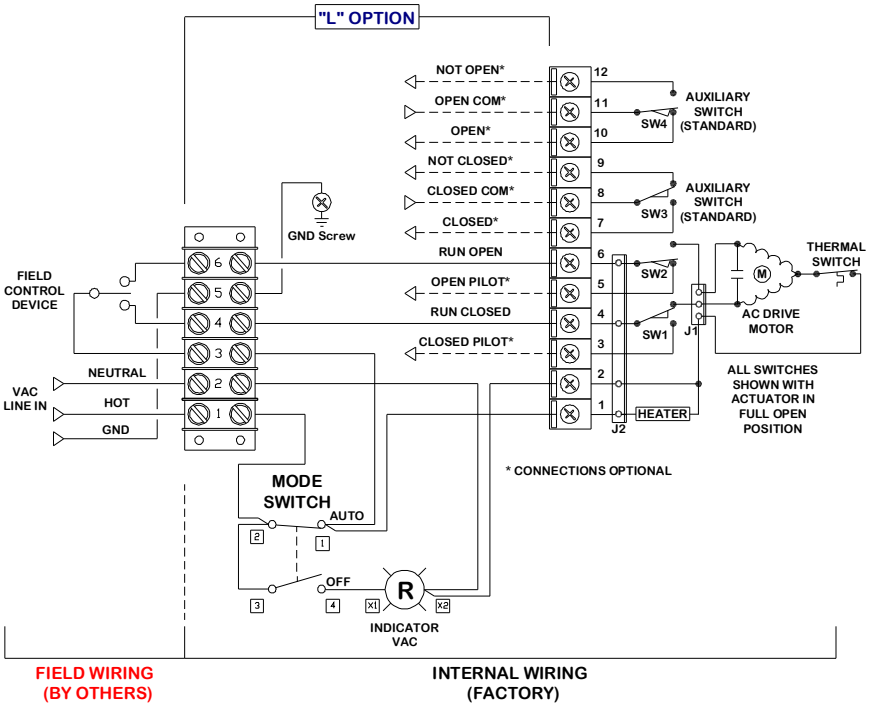


The above wiring diagram shows connections for 24vdc operation, possible on P2 through P8 series actuators for On/Off applications only. It is not possible to run 24vac proportional control actuators on DC supplies.



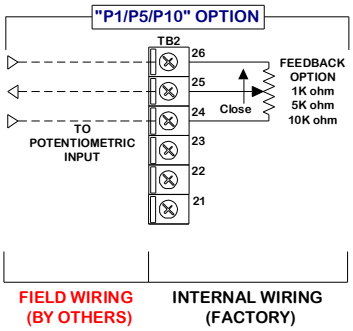
The X Option consists of 3rd & 4th auxiliary switches factory mounted. This is NOT a field installed option. This option can be used with On/Off and Proportional control actuators. It is available on P2 thru P12 series actuators.



The L Option is a local control for Off-Auto Operation.
This option allows the actuator to be positioned manually with the override handwheel. This option can be factory or field installed. This option can be used with On/Off and Proportional control actuators. It is available on P2 thru P12 series actuators. The use of this option requires the electrical contractor to make conduit entries into the electrical box of the option. These entries cannot be made at the factory due to unknown box entry attitudes.

The C Option is a mechanical Chain Wheel system that converts the manual override handwheel to a chain driven override for use in applications where the actuator is mounted at a distance above the floor. (See the options guide for details).

The M Option allows multiple On/Off actuators to operate correctly in parallel off a single control switch or relay contact. Without the use of this option multiple actuators MUST use isolation relays on each leg for proper operation. (See the options guide for details).



The P# Option is a potentiometric feedback for On/Off actuators. This is NOT a field installed option. This option can be used only with On/Off actuators. It is available on P2 thru P12 series actuators. This option requires the selection of 1k, 5k or 10k ohm resistance values.

These tables indicate which options are available in On/Off and Proportional control actuators, as well as which options are compatable with each other.

On/Off Options Compatability					
	C	L	X	M	P1,5,10
C	-	yes	yes	yes	yes
L	yes	-	yes	n/a	yes
X	yes	yes	-	yes	n/a
M	yes	n/a	yes	-	yes
P1,5,10	yes	yes	n/a	yes	-

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