



# PROMATION ENGINEERING

Precision Actuation for Industry  
...Partners, Above and Beyond

Data Sheet

## P1 Series

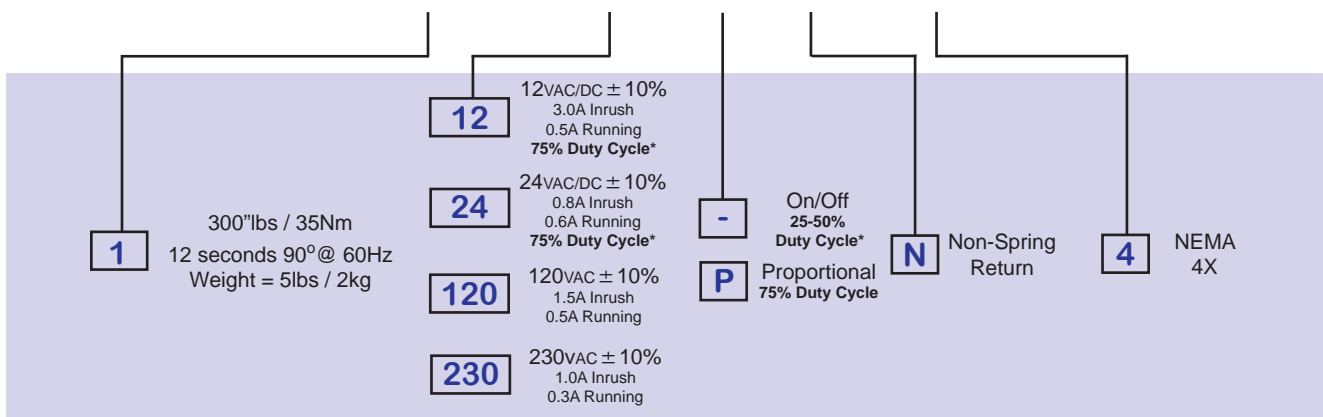
12v, 24v, 120v, 230v  
ISO5211 F05 8P14

Actuator Specifications	P1			
	300"lbs / 35Nm			
Torque lb/Nm	300"lbs / 35Nm			
Supply Voltage	12vac/dc	24vac/dc	120vac	230vac
Max Inrush Current	3.0A	0.8A	1.5A	1.0A
Running Current	0.5A	0.6A	0.5A	0.3A
Runtime (90°@60/50Hz)	15 sec		12/13 sec	
Weight	5lbs / 2kg			
Mechanical Connections	ISO5211 F03/F05 8pt 14mm			
Electrical Entry	(2) 1/2" NPT			
Electrical Terminations	14 - 18 Ga.			
Environmental Rating	4, 4X			
Manual Override	8mm Socket Drive			
Control	On/Off-Jog, Proportional			
Case material	Aluminum Alloy, Powder Coated			
Motor Protection	Split Phase Capacitor			
120/230vac Operation (On/Off)	275°F/135°C Thermal H Class			
120/230vac Operation (Mod)	DC Brush Type			
12/24vac/dc (All)	275°F/135°C Thermal H Class			
Ambient Temperature	-22°F to +150°F			
Operating Range	-30°C to +65°C			



An electric actuator designed for load requirements of up to 300"lbs. The actuator comes standard with two auxiliary switches (shared common, rated at 3A 250V Max), an internal low power heater, a NEMA 4X environmental rating, and in 12VAC/DC, 24VAC/DC, 120VAC or 230VAC supply voltages. The P1 mechanical connections are ISO5211 compliant, utilizing an F03/F05 bolt pattern and an 8 point 14mm female drive. The P1 Series is available as on/off or two position models that can also be used in bump/jog applications. Or it can be ordered with an internal proportional control card that accepts a wide range of control signals and generates multiple feedback signals.

### P 1 - 120 P N 4



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ISO F03/05 Mounting Detail, 8mm socket override and 8 point 14mm female drive on P1 Series actuators.

\* Duty cycle is defined as the ratio of run time vs. off time, and is a function of environmental conditions including ambient temperature, supply voltage and control signal stability. Note: Duty Cycle rating on ALL proportional control and all 12/24VAC/VDC actuators is 75%. All others are 25-50% depending on the application.

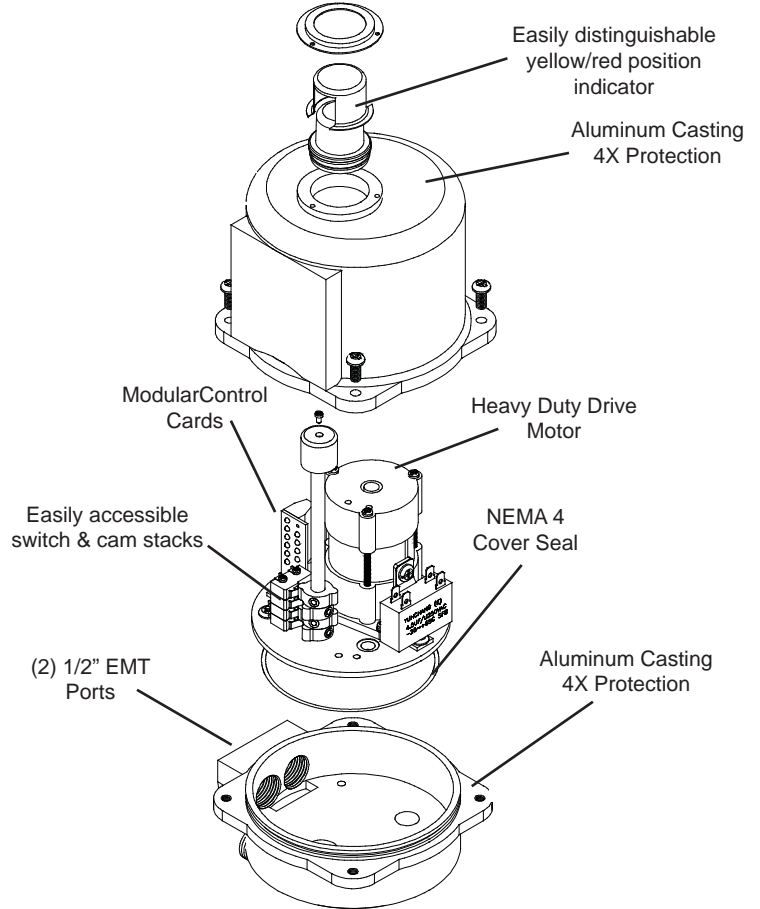
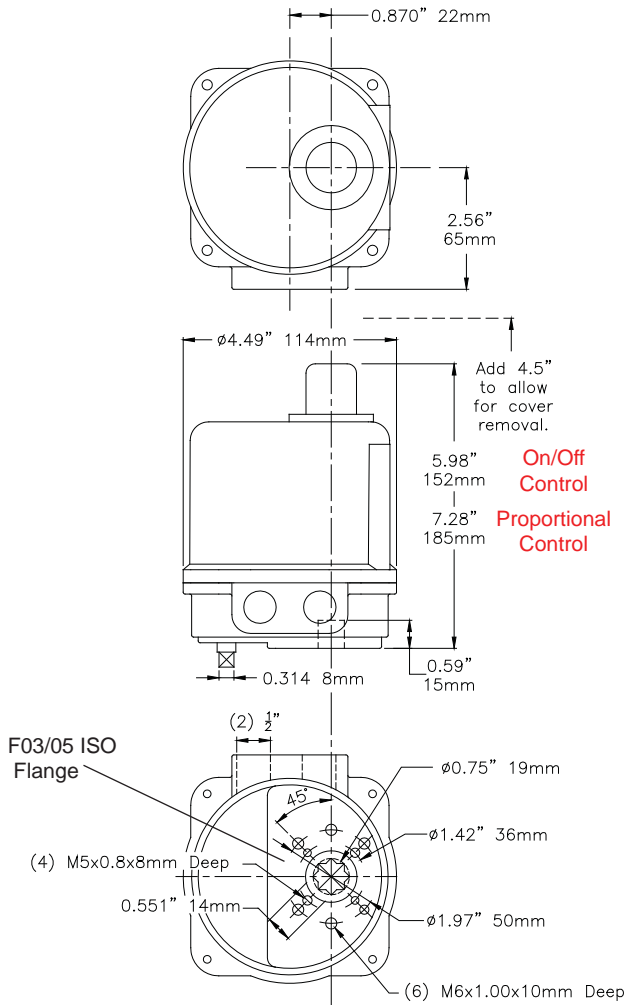


Simplified wiring under the cover makes field connections easier and less prone to loose connections and wiring errors.

## 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).

## P1 Series Dimensional Data



## P1 Series Exploded View

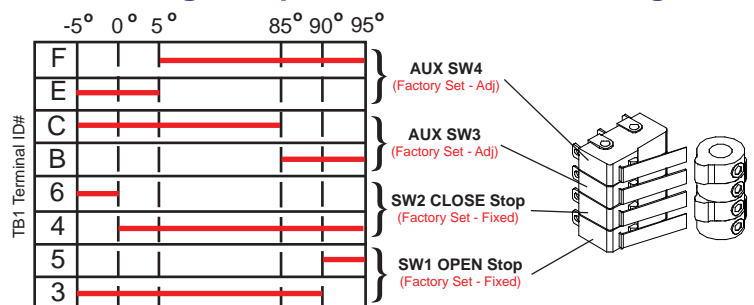
Wire sizing data is provided in the table below to assist in the selection of the proper wire size for ProMation P1 series actuators using various wire sizes over distance. Please make sure to reference the correct voltage and do not exceed the indicated length of the wire run for each model.

## Wire Sizing Data

MAX distance between Actuator and Supply (feet)				
Wire Gage	P1-12 3.0A	P1-24 0.8A	P1-120 1.5A	P1-230 1.0A
18	28	207	551	1584
16	43	328	866	2489
14	70	524	1399	4021
12	107	802	2139	6150

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 A thru F and those setpoints may be modified if need be.

## Switch Logic Map and Switch/Cam Arrangement

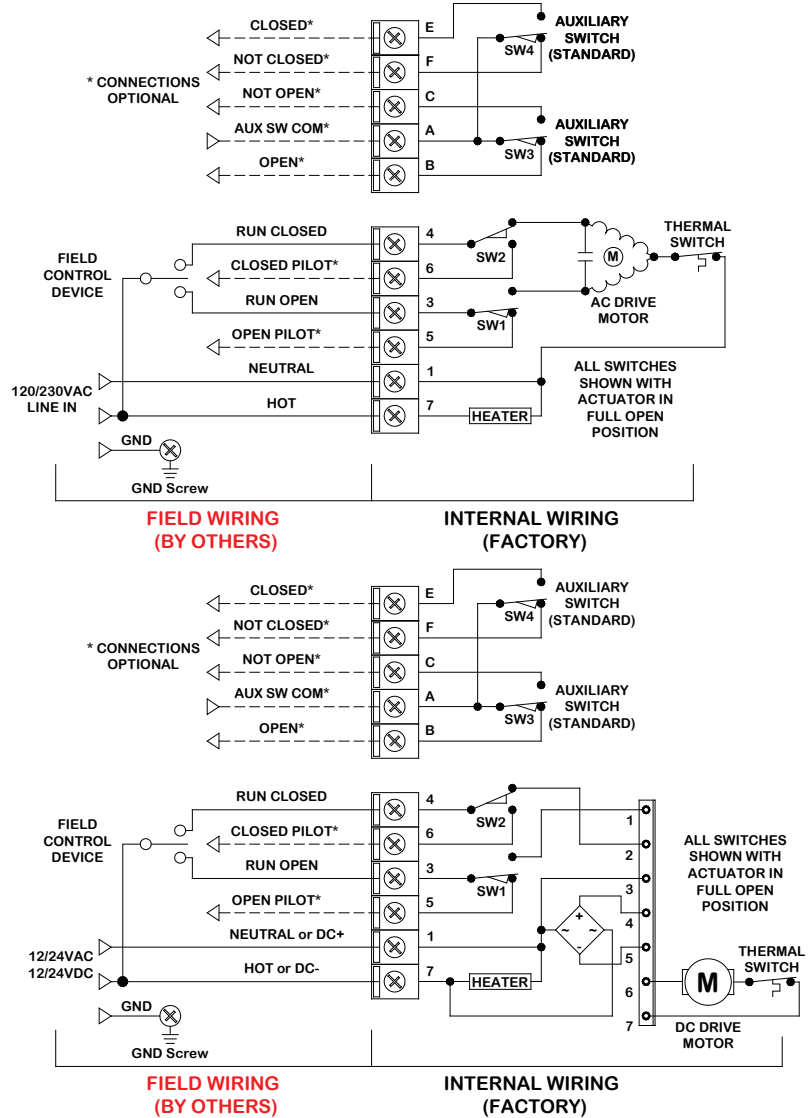


# Wiring Diagrams for P1 Series -

## On/Off/Jog Control

Field Control Device may be relay contact, Switch or Triac type. Pilot device 3A MAX. Auxiliary switches are rated 3A @ 250vac MAX. Terminals A-F are dry type Form C. Terminals accept 14-18ga solid/stranded wire.

Parallel control of multiple On/Off actuators requires isolation relays. (Refer to Technical Wiring Supplement)

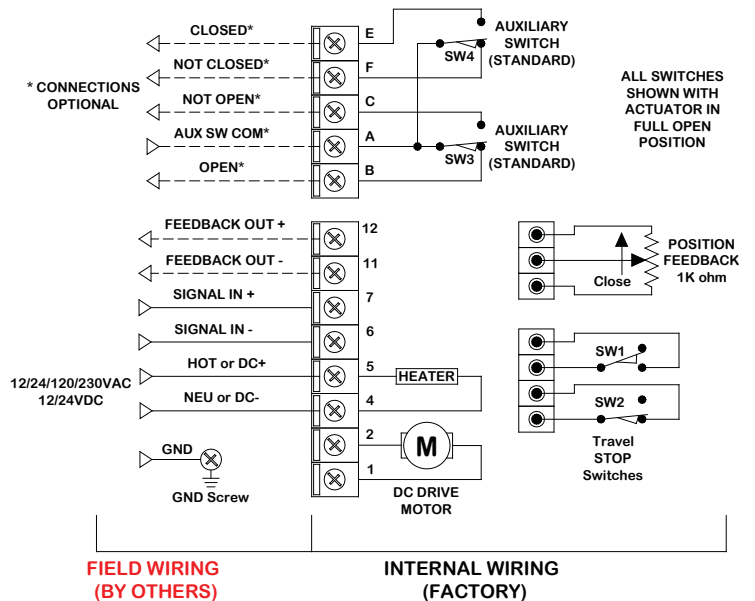


## Proportional Control

Control Signal Inputs (selectable and programmable):  
 2-10vdc, 1-5vdc, 4-20mA  
**Common cannot be ground referenced. Signal return MUST be isolated from ground.**  
 Input impedance: 100k ohms (2-10vdc)  
 200k ohms (1-5vdc)  
 250 ohms (4-20mA)  
 Sensitivity: 100mV (2-10vdc)  
 50mV (1-5vdc)  
 80uA (4-20mA)  
 Feedback Signal Output (selectable):  
 2-10vdc or 4-20mA  
 Referenced to Signal Return terminals.  
 Max Load: 500 ohms

There are no alarm on fail functions on this controller.

Terminals accept 14-18ga solid/stranded wire.



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