



PROMATION ENGINEERING

Precision Actuation for Industry

Data Sheet

P1 Series

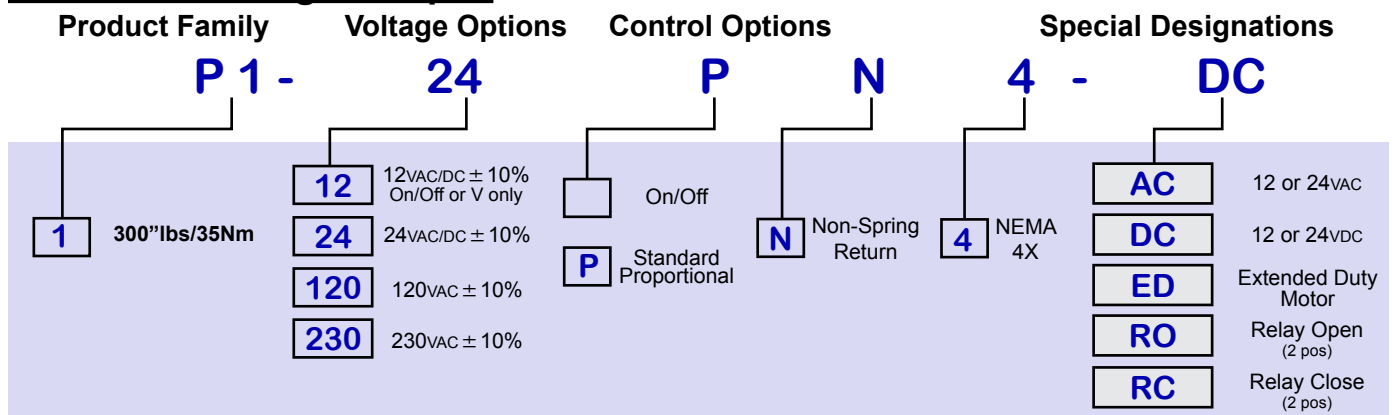
On/Off/Jog/Proportional
ISO5211 F03/F05 8P14

Actuator Specifications	P1			
Torque "lb/Nm	300"lbs/35Nm			
Supply Voltage	12vac/dc	24vac/dc	120vac	230vac
Max Inrush Current	2.0A	1.1A	0.6A	0.4A
Running Current	1.9A	1.1A	0.6A	0.3A
Motor	DC Brush Type		Split Phase Capacitor	
Runtime (90°@60Hz/vdc)	15 sec		12 sec	
Runtime (90°@50Hz)	15 sec		13 sec	
Duty Cycle	75%		25%	
Motor Starts	1200 per hour			
Weight	5lbs/3kg			
Mechanical Connections	ISO5211 F03/F05 8pt 14mm			
Electrical Entry	(2) 1/2" NPT			
Electrical Terminations	14-18ga			
Environmental Rating	NEMA 4/4X			
Manual Override	8mm Socket Drive			
Control	On/Off-Jog, Proportional			
Actuator Case material	Aluminum Alloy, Powder coated			
Motor Protection	230°F/110°C Thermal F* Class *Totally Enclosed Non-Ventilated Motors			
Ambient Temperature Operating Range	-22°F to +125°F -30°C to +52°C			

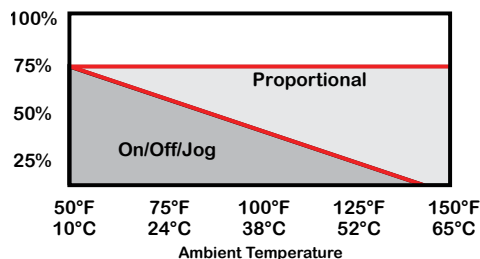


An electric actuator designed for load requirements of up to **300"lbs**. The actuator comes standard with two auxiliary switches (shared common, rated at 3A 250V Max), an internal low power heater, a NEMA 4X environmental rating, and in 12VAC/DC, 24VAC/DC, 120VAC or 230VAC supply voltages. The P1 mechanical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

Product Ordering Example:



Duty cycle graph



Note: Not all combinations are possible. Please consult factory.

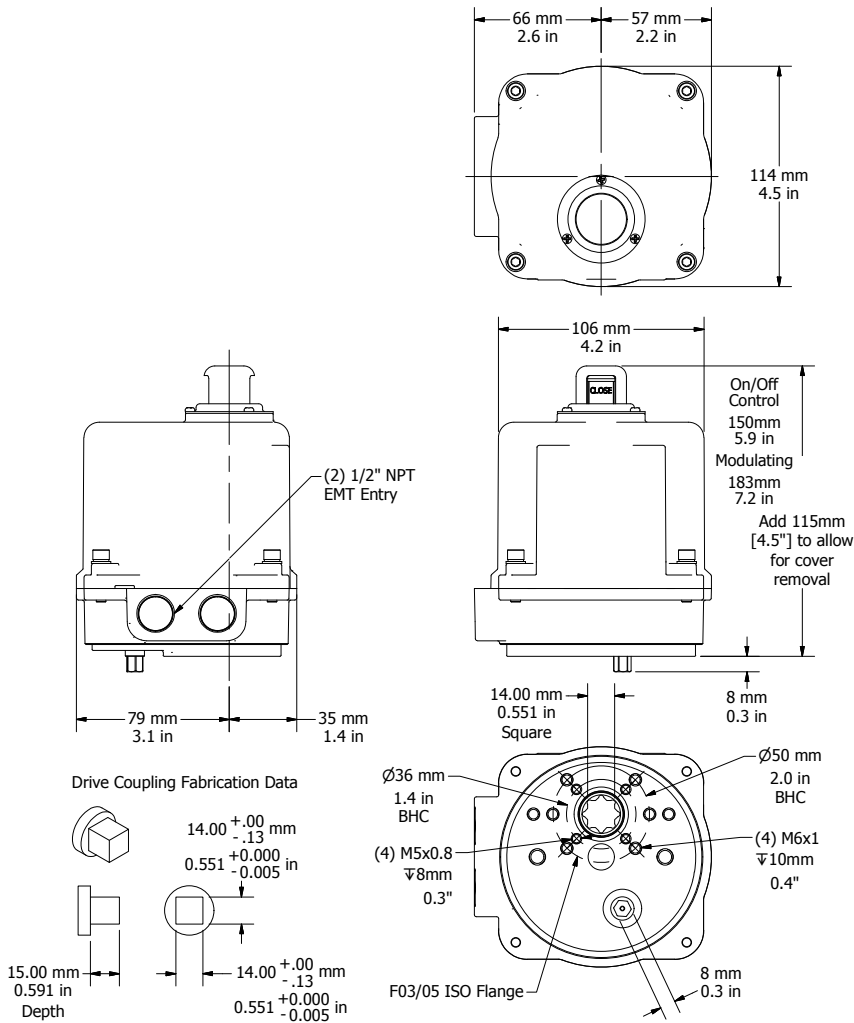
- Duty cycle is defined as the ratio of total time vs. run time, and is a function of environmental conditions including ambient temperature, supply voltage and control signal stability
- Duty Cycle rating on all 12/24VAC/VDC actuators is 75%.
- Duty Cycle rating on all proportional control actuators is managed (75% maximum).



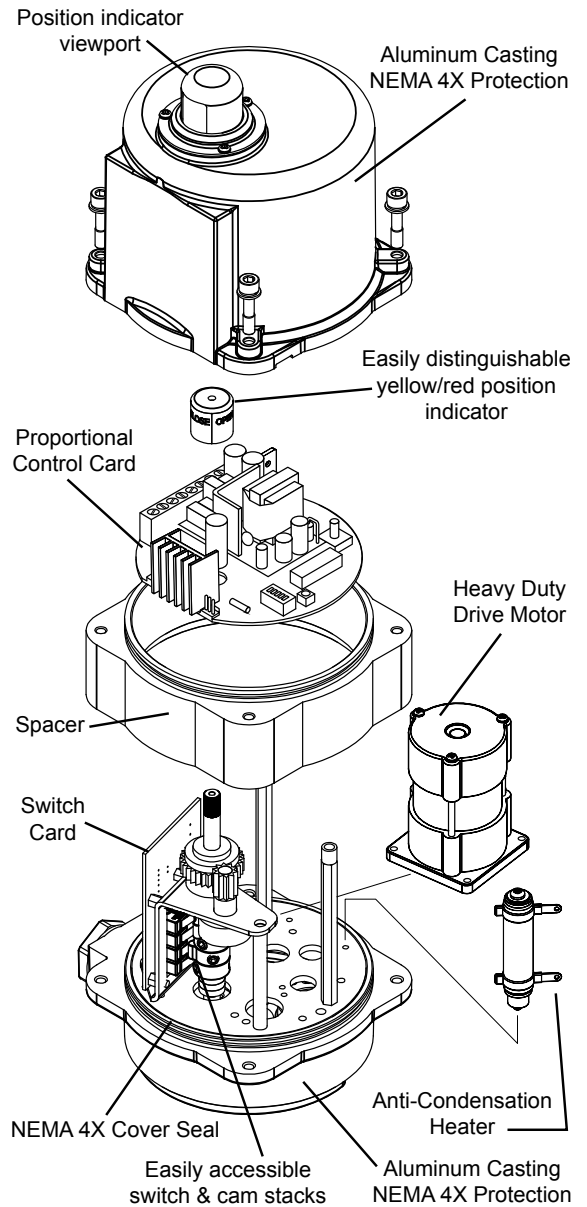
SD15_P1_Ver O_100915

P1 Series Dimensional Data

P1 Series Views (Typical)



P Series Exploded View (P1-120PN4 shown)



Application Notes:

1. These actuators are to be mounted **ONLY** between a horizontal and upright 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 anti-condensate heater is to be used in **ALL** applications.
5. **Do not install or store the actuator outdoors or in humid environments without power to the heater.**
6. Use proper wire size to prevent actuator failure (see wire sizing chart).
7. **Do not parallel wire multiple actuators together without utilizing isolation relays!** If this is your intention, please contact ProMation Engineering for a multiple actuator parallel wiring diagram.

Switch/Cam Arrangement

The INCLUDED auxiliary switches SW3 & SW4 are for terminals marked A-F on the Switchcard and those set points may be modified to suit your application. SW1 and SW2 are for actuator positioning and are factory set. The red bar indicates when that contact makes with the common.

	CW			CCW		
	-5°	0°	5°	85°	90°	95°
F				Not Closed		
E	Closed					
C	Not Open					
B				Open		
A	Common Switch Terminal					

SW4 CW AUX
(Factory Set - Adj)

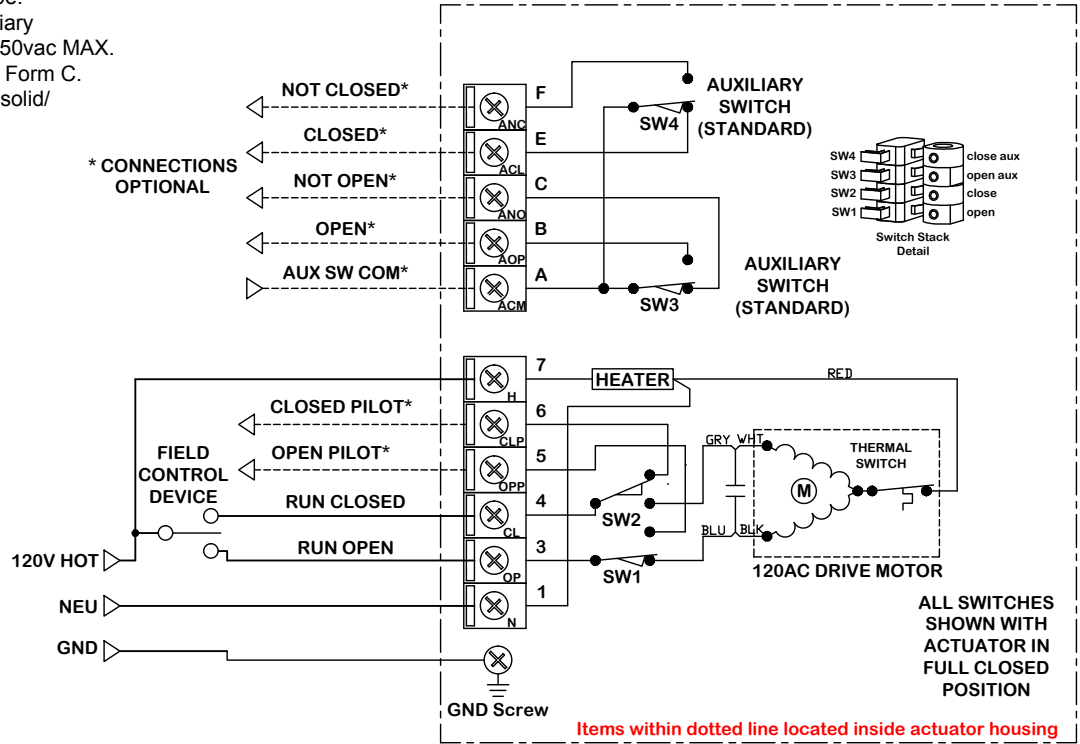
SW3 CCW AUX
(Factory Set - Adj)

Used by
Controller

Wiring Diagram 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.



SAMPLE DIAGRAM

Refer to the proper IOM for your actuator for the correct wiring diagram or visit www.promationei.com.

Wire Sizing Data

Wire sizing data is provided 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.

MAX distance between Actuator and Supply (feet)				
Actuator/ Voltage	P1 12V	P1 24V	P1 120VAC	P1 230VAC
Wires Gage	2.0A	1.1A	0.6A	0.4A
18	41	150	1377	3960
16	65	236	2165	6223
14	105	381	3497	10052

Proportional Control

ProMation Standard Controller:

The ProMation Engineering Standard controller is a robust proportional controller. It supports a full array of control and feedback signals, offers manual calibration of input

and feedback signals, and has drive direction indicators. It can be set for direct or reverse acting. The small form factor allows for full proportional control in tight spaces.

Proportional Control Featuring:

- Full array of control and feedback signals
- Manual calibration
- Direct or Reverse Acting
- High resolution
- Drive direction indicators



P1-120PN4

Control Signal Inputs

(selectable using program menu):
2-10vdc, 1-5vdc, 4-20mA

Factory set with common isolated from ground. Ground reference is possible.

Feedback Signal Output

(Can be different than input):
0-10vdc, 1-5vdc,
2-10vdc, 4-20mA

Max Load: 250 ohms

Signal	Input Impedance	Sensitivity
2-10vdc	30k ohms	150mV
1-5vdc	250k ohms	80mV
4-20mA	250 ohms	250µA

All Proportional Control Card Terminals accept 16-22ga solid/stranded wire.



AVAILABLE OPTIONS (Factory Installed)

- Standard Proportional Controller option. Converts 2 position to proportional control.
- Advanced Proportional Controller option. Converts 2 position to proportional control.
- Extended Duty Motor - 75% Duty Cycle
- Single Wire Control Relay (Internal) Units operate NORMALLY CLOSED - ENERGIZE TO OPEN
- Single Wire Control Relay (Internal) Units operate NORMALLY OPEN- ENERGIZE TO CLOSED
- 0-45-90 degree rotation option. Mid-point is center-off position.
- 0-90-180 degree rotation option. Mid-point is center-off position.
- 0-180 degree rotation option. No Mid-point position is offered. (On/Off/Jog only)
- Stainless Steel enclosure option.
- Cold weather auxiliary heater option. Thermostatically controlled, On 32°F, Off at 50°F, auto reset, hermetically sealed, 120/230vac On/Off/Jog type actuators. 175W Internal Heater, 2A power consumption.
- 1k ohm position feedback potentiometer.
- 5k ohm position feedback potentiometer.
- 10k ohm position feedback potentiometer.
- 4-20mA feedback generator for On/Off/Jog actuators.
- Integral Thermostat for Heater Control - turns on at 32°F, turns off at 50°F
- Adjustable Timer, Dual Set Point Timer (Duration and Frequency) (Contact factory for application assistance)
- Local Control Stations - direct or remote mounted, for on/off or proportional actuators. (See catalog for additional Local Control Stations)
- Proportional Control Signal override capability (OPEN OR CLOSED).
- Auxiliary Switch set. Provides 3rd and 4th auxiliary switches (Form C x 2).



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



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

ProMation Product Line



**PL Series
Linear Drive**

**Up to 4400lbs
down/up force.**
Up to 100mm (4")
stem travel



**P Series
Non-Spring Return**

**55"lbs through
40,000"lbs.**
Quarter-Turn, with
manual Override



**PA~PD Series
Spring Return**

**445"lbs through
2300"lbs.**
Quarter-Turn, available
with or without manual
override handwheel.



**PBU Battery
Back-Up Systems**

**Provides power
sufficient to drive
P Series actuators**
Electric fail-safe option
for P Series & PL Series

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ProMation Engineering follows a policy of continual product updates and enhancements. Our website is the best place to obtain the latest product documentation, including the wiring diagrams for these controllers. Visit us at www.promationei.com or use the QR code below to link to the site.



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