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:**

<table>
<thead>
<tr>
<th>Product Family</th>
<th>Voltage Options</th>
<th>Control Options</th>
<th>Special Designations</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>12</td>
<td>On/Off</td>
<td>AC</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>Standard</td>
<td>DC</td>
</tr>
<tr>
<td></td>
<td>120</td>
<td>Non-Spring Return</td>
<td>ED</td>
</tr>
<tr>
<td></td>
<td>230</td>
<td>300&quot;lbs/35Nm</td>
<td>RO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RC</td>
</tr>
</tbody>
</table>

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

**Actuator Specifications**

<table>
<thead>
<tr>
<th>Torque &quot;lb/Nm</th>
<th>300&quot;lbs/35Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Voltage</td>
<td>12vac/dc</td>
</tr>
<tr>
<td></td>
<td>120vac</td>
</tr>
<tr>
<td>Max Inrush Current</td>
<td>2.0A</td>
</tr>
<tr>
<td>Running Current</td>
<td>1.9A</td>
</tr>
<tr>
<td>Motor (90°@60Hz/vdc)</td>
<td>15 sec</td>
</tr>
<tr>
<td>Runtime (90°@50Hz)</td>
<td>15 sec</td>
</tr>
<tr>
<td>Duty Cycle</td>
<td>75%</td>
</tr>
<tr>
<td>Motor Starts</td>
<td>1200 per hour</td>
</tr>
<tr>
<td>Weight</td>
<td>5lbs/3kg</td>
</tr>
<tr>
<td>Mechanical Connections</td>
<td>ISO5211 F03/F05 8pt 14mm</td>
</tr>
<tr>
<td>Electrical Entry</td>
<td>(2) 1/2&quot; NPT</td>
</tr>
<tr>
<td>Electrical Terminations</td>
<td>14-18ga</td>
</tr>
<tr>
<td>Environmental Rating</td>
<td>NEMA 4/4X</td>
</tr>
<tr>
<td>Manual Override</td>
<td>8mm Socket Drive</td>
</tr>
<tr>
<td>Control</td>
<td>On/Off-Jog, Proportional</td>
</tr>
<tr>
<td>Actuator Case material</td>
<td>Aluminum Alloy, Powder coated</td>
</tr>
<tr>
<td>Motor Protection</td>
<td>230°F/110°C Thermal F* Class</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>-22°F to +125°F</td>
</tr>
<tr>
<td>Operating Range</td>
<td>-30°C to +52°C</td>
</tr>
</tbody>
</table>

- 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).
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.

On/Off Switch/Cam arrangement shown
**Wiring Diagram for P1 Series**

- 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 ProMotion 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.

**ProMotion Standard Controller:**

The ProMotion 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

**Proportional Control:**

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

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

Factory set with common isolated from ground. Ground reference is possible. Max Load: 250 ohms

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<tr>
<th>Signal</th>
<th>Input Impedance</th>
<th>Sensitivity</th>
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<tr>
<td>2-10vdc</td>
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</tr>
<tr>
<td>1-5vdc</td>
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<td>80mV</td>
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<tr>
<td>4-20mA</td>
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<td>250μA</td>
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All Proportional Control Card Terminals accept 16-22 ga 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).

**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.