

# PROMATION ENGINEERING

*Precision Actuation for Industry*



**RUGGED  
INDUSTRIAL  
ELECTRIC  
ACTUATORS**



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Precision Actuation for Industry

ProMation Engineering offers a full range of industrial actuators that are designed and constructed to meet the demands of the most demanding installations and applications.

## Printed Circuit Board Mounted Components

Anti-Condensation Heater (Standard Equipment)

Incoming Connections

Form C Auxiliary and Limit Switches

Single Connection for Motor

Epicyclic Gearing

Mechanical End Stops

Easy to see yellow/red 360° Position Indicator

NEMA 4/4X/IP67 Rated Powder Coated Aluminum Enclosure

Color-Coded Aluminum Cams

Clutch-less Manual Override

## Quarter Turn Actuators

from 135 to 40,000 in lbs



**P1**

Torque Value:  
135 in lbs-445 in lbs  
15 Nm-50 Nm



**P2-3**

Torque Value:  
600 in lbs-1335 in lbs  
67 Nm-150 Nm



**P4-6**

Torque Value:  
2200 in lbs-5750 in lbs  
248 Nm-650 Nm



**P7-8**

Torque Value:  
8900 in lbs-13250 in lbs  
1000 Nm-1500 Nm



**P9-13**

Torque Value:  
17500 in lbs-40000 in lbs  
2000 Nm-4500 Nm

## Engineered for Installation Ease, Reduced Maintenance, and Exceptional Reliability

### Multiple mounting designs to reduce assembly costs

- Multiple mount patterns on P2-P6 actuators
- ISO 5211 and Imperial Mount patterns

### Industrial Grade Components and Design Increase Reliability

- Carbon steel permanently lubricated gearing
- 15A Industrial Switches mounted on PCB
- Thermally protected NEMA Class F motor
- Stainless steel hardware

### Industrial Design reduces failure modes

- No Clutch
- Reduced electrical connections
- No Motor Brake
- Modular control components

### Many Different Control Modes to fit your Application

- Several Modulating Control Options
  - Standard Controller
  - Premium Controller
  - High Resolution Controller
- Modbus
- Multiple Open/Close Control Options
  - Single wire control—Hot control signal to Open, no control signal to Close, no control signal to Open
  - 5.1v to 24v DC or 24-230v AC control to Open or Close regardless of line power.
- Three location stops: 0-45-90, 0-90-180, or three custom degree stop points
- Up to 270° rotation Open/Close or Modulating
- Timer function for autonomous operation
- Potentiometer or 4-20mA Feedback for position sensing
- Wireless control for Open/Close control

## Fail-safe Actuators

from 400 to 5000 in lbs



**UM/UL Series**  
400 in lbs - 5000 in lbs  
45 Nm - 565 Nm



**PA - PE**  
445 in lbs - 3185 in lbs  
50 Nm - 360 Nm

### P-Series Quarter Turn Actuators

Industrial actuators featuring epicyclic gear drives and high reliability internal connections. Two Mounting patterns are available –ISO 5211 and Imperial. All P-Series actuators come with a standard anti-condensation heater, 2 auxiliary switches, clutchless manual override handwheel and NEMA 4/4X/IP67 enclosure.

## Quarter Turn Actuators

Product family	Torque Output		Actuator Run Time (sec)		ISO 5211 Mount		Imperial Mount		Shipping Weight
	In lbs	Nm	Draw (amps)	120AC 60 Hz	ISO Pattern	Receiver (mm)	BHC (in)	Receiver (in)	Weight (lbs/kg)
PZ6	55	6	0.3	8	F03/F05	14Sq	*	*	4/2
PZ15	135	15	0.3	19	F03/F05	14 Sq	*	*	4/2
P1	300	35	0.7	12	F03/F05	14 Sq	1.71/3.25	9/16 x 3/8 DD	5/3
P1.A	445	50	0.7	27	F05/F07	17 Sq	3.25	9/16 x 3/8 DD	7/4
P1.B	135	15	0.6	8	F03/F05	14 Sq	*	*	5/3
P1.C	135	15	1.8A at 24V	*	F03/F05	14 Sq	*	*	5/3
P2	800	90	1.2	17	F07/F10	22 Sq	3.25	3/4 x 1/2 DD	26/12
P3	1,335	150	1.2	26	F07/F10	22 Sq	3.25	3/4 x 1/2 DD	26/12
P4	3,500	400	2.1	19	F10/F12	36 Sq	3.25/5.0	Rnd 1.125	47/22
P5	4,400	500	2.0	26	F10/F12	36 Sq	5.0	Rnd 1.125	47/22
P6	5,750	650	2.4	34	F10/F12	36 Sq	5.0	Rnd 1.125	47/22
P7	8,900	1,000	4.2	50	F12	36 Sq	5.0/6.5	Rnd 1.375	82/37
P8	13,200	1,500	4.2	51	F14	36 Sq	5.0/6.5	Rnd 1.625	82/37
P9	17,500	2,000	3	62	F16	Rnd 75	*	*	145/66
P10	22,000	2,500	3.2	62	F16	Rnd 75	*	*	145/66
P11	26,500	3,000	3.6	62	F16	Rnd 75	*	*	157/72
P12	31,000	3,500	3.8	62	F16	Rnd 75	*	*	157/72
P13	40,000	4,500	3.7	88	F25	Rnd 75	*	*	240/109

Running Amps: 120 VAC unless otherwise noted

\* = Not applicable

Voltage Options	Family	Voltages
Low Voltage Modification	P1-P6	12 VAC or 24 VDC
Low Voltage Modification	P1-P8	24 VAC or 24 VDC
3 Phase Modification	P2-P13	3 Phase 230v, 315v, 380v, 440v, 480v (doesn't include MCC)

Control Options	Family	Voltages
Standard Control	P1, P1A	24 VDC, or 24, 120, or 230 VAC
Premium Control	P2-P13	24, 120, or 230 VAC
High Resolution Control	P2-P13 One line	24 VDC Standard Optional for 24, 120, or 230 VAC

Options with Product Suffix (Factory Installed Only)		
Item	Family	Description
-ED	P1, P1A, P2-P8	Extended Duty Motor, 120 VAC, or 230 VAC only, 75% Duty Cycle—on/off/jog
-ED	P9-P13	Extended Duty Motor, 120 VAC or 230 VAC only, 50 % Duty Cycle—on/off/jog
-TS	P2-P9	Torque Switch Assembly (on/off/jog or Select Proportional Controllers)
-MCC	P2-p13	Motor Control Center for 3 Phase Voltage
-68	P2-P8	IP68, tested to 0.7 kgf/cm <sup>2</sup> for 72 hours



## Options and Accessories

### P1 Series Options (Factory Installed Only)

Item	Description
MOD 0-45-90 DEG	Actuator modification for 0-45-90° rotation. Available on 120 VAC or 230 VAC only, (unit will not support field use of auxiliary switches)
MOD 0-90-180 DEG	Actuator modification for 0-90-180° rotation. Available on 120 VAC or 230 VAC only, (unit will not support field use of auxiliary switches)
MOD 0-180 DEG	Actuator modification for 0-180° rotation. Available on on/off/jog models only.
OPT-COLD P1	Cold weather Positive Temperature Coefficient (PTC) auxiliary heater kit. Factory installed, 120 VAC or 230 VAC on/off/jog type actuators. 10 W internal heater.
OPT-P1-1-10K	Factory installed option consists of a 1k-10KΩ feedback potentiometer connected to a convenient 3 terminal block.
OPT-RO-P1	Relay to Open or Relay to Close.
OPT-THERMOSTAT-P1	Integral thermostat for heater control—turns existing heater on at 0°C (+32°F), off at 10°C (+50°F)
OPT-TIMER-LI-P1	Timer set for duration and frequency to slow cycle time or continuous open/close time cycle.

### Commonly Used Options for P2-P13 (Factory Installed Only)

Item	Description
OPTION-X	Additional third and fourth auxiliary switch set
OPT-P213-1-10K	Factory installed option consists of a 1k-10kΩ feedback potentiometer connected to a convenient 3 terminal block.
OPT-ROP213	Relay to Open
OPT-RCP213	Relay to close
OPT-DRP213	Dual Relay to isolate incoming control signal for Open/Closed position (5-24VDC to 120/230VDC)
OPT-TIMER-LI-P213	Timer set for duration and frequency to slow cycle time or continuous open /close cycle time.
OPT-COLD-P213	Cold weather auxiliary heater to -40°C/F On at 0°C (+32°F), off at 10°C (+50°F)
OPT-420FB	4-20mA feedback generator for on/off/jog, 24 VAC, 24 VDC, 120 VAC, or 230 VAC
MOD 0-45-90 OR MOD 0-90-180	0° or 45° or 90° OR 0° or 90° or 180°, 3 position stop points in rotation
MOD 0-180	0° or 180°, 2 position stop points in rotation

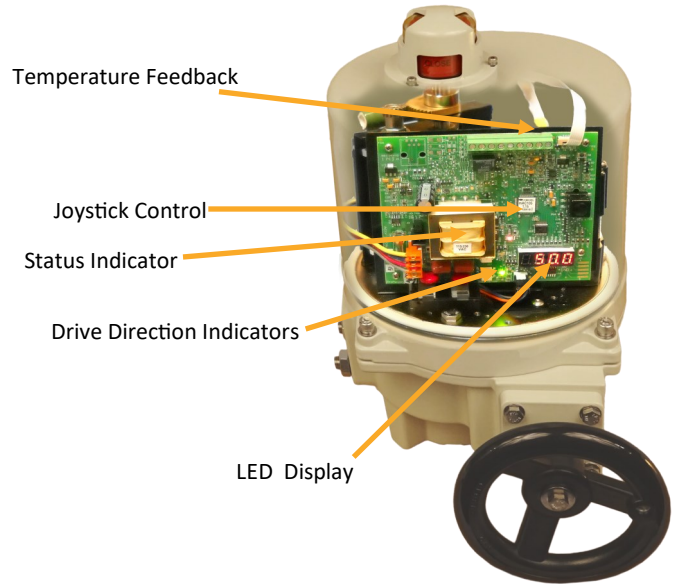
### P Series Options and Accessories

Not all options are available for all actuators and not all accessories work currently with other accessories. Other options are available. Please contact your ProMation representative for product and application assistance.

## Modulating Control Options

ProMation Engineering offers a wide range of control for nearly all products.

ProMation offers full modulating control utilizing multiple input and feedback signals. Different control packages offer different resolution settings for different applications. The high resolution controller has additional filter and circuitry that give high accuracy while reducing actuator hunting around a setpoint. Other features include fault indicators, data logging and direction indicators to name a few. Modbus communications are also available.



Feature	Parameter	Standard	Premium	High Resolution
Power Indicator	On/off LED	✓	✓	✓
Drive CW Indicator	On/off LED	✓	✓	✓
Drive CCW Indicator	On/off LED	✓	✓	✓
Programmable Loss of Signal Positioning	Stay in Place; Go Open: Go Closed	✓	✓	✓
Resolution	Percent	1%	0.5%	0.25%
Input and Feedback Signal	1-5 VDC	✓	✓	✓
	2-10 VDC	✓	✓	✓
	4-20 VDC	✓	✓	✓
	0-10 VDC		✓	✓
Feedback	DC Voltage Supply	✓	✓	✓
	Loop Current			10-24 VDC
Diagnostic and Fault Indicators	Motor Stall		✓	✓
	Low Voltage		✓	✓
	High Current		✓	Adjustable to limit torque (DC only)
	Motor Temperature		✓	✓
	Cycle Count		✓	
	AutoCal Fail		✓	
	Incorrect Input			✓
Auto Calibration			✓	
Self Tuning Feedback Signal			✓	✓
Datta Logger			✓	
Alarm Contact Output			✓	
Alphanumeric Display			✓	

### P2-P8 Series explosion Proof Quarter Turn Actuators

Industrial actuators featuring epicyclic gear drives and high reliability internal connections. All P2-P8 explosion proof actuators come with a standard anti-condensation heater, 2 auxiliary switches, clutchless manual override hand wheel and NEMA 7/9 enclosure.

Product Family	Torque (in lbs)	Torque (Nm)	Draw (Amps)	Runtime	ISO 5211	8pt double square	Height (in/mm)	Weight (lbs/kg)
PX1-120N7	300	35	0.6	12	F03/F05	14	6.6/168	4/2
PX1.A-120N7	450	50	0.6	24	F05/F07	17	8.5/215	7/3
P2-120N7	800	90	1.0	15	F07	22	14.1/359	40/18
P3-120N7	1,335	150	1.2	22	F07	22	14.1/359	40/18
P4-120N7	3,500	400	1.9	16	F10	35	15.3/389	58/26
P5-120N7	4,400	500	2.0	22	F10	35	15.3/389	58/26
P6-120N7	5,750	650	2.1	28	F10	35	15.3/389	58/26
P7-120N7	8,900	1,000	3.1	46	F12	36	18.8/478	93/42
P8-120N7	13,250	1,500	3.3	46	F12	36	18.8/478	93/42

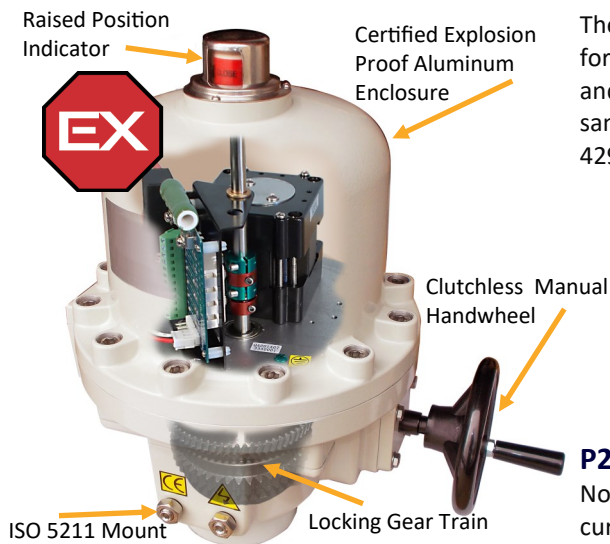
### Explosion Proof

The ProMation Engineering explosion/ignition proof actuators are certified for use in hazardous locations per UL 1203 and CSA 22.2 No. 30 and No. 31, and meets NEMA 7 and 9 criteria: The hazardous location actuators share the same electronic and mechanical components as our standard location (UL 429/CSA 22.2 No. 139 ) products.

**Class I, Division 1, Groups C and D**  
**Class II, Division 1, Groups E, F, and G**  
**Class III; T6**  
**Ex d IIB Gb T6, Ex tb IIIC T85°C Db**  
**Class I, Zone 1, AEx d IIB Gb T6**

### P2-P8 Series of Explosion Proof Options and Accessories

Not all options are available for all actuators and not all accessories work concurrently with other accessories. Please contact the factory for product and application assistance.



### Hazardous Location Options P2-P8 (Factory Installed Only)

Low Voltage Modification	24 VAC or VDC
High Voltage Modification	230 VAC Single Pulse
Proportional Control—P	ProMation Premium Proportional Controller 24 VAC, 120 VAC, or 230 VAC
-TS P2-P8	Torque Switch <b>(not available for P2/P3 with Proportional Control)</b>
MOD 0-45-90 DEG	0-45-90 degree rotation
MOD 0-90-180 DEG	0-90-180 degree rotation
MOD 0-180 DEG	0-180 degree rotation <b>(on/off only)</b>
OPTION-X	Third and fourth Auxiliary Switch set

### ProMation Fail Safe Actuators

ProMation is the only manufacturer with full set of electrical and mechanical fail safe options utilized in a wide range of critical functions. ProMation fail safe solutions are used in many different applications from simple isolation valves to mission-critical heat exchangers. Call ProMation to help choose the

## ProMation Failsafe Products

Failsafe actuators operate after line power has been lost at the actuator to drive to a predetermined position—either open or close.



**ULE-AVN7-EPBA**  
U-Series with SuperCap



**PAO-CW-120254**  
Mechanical  
Spring Return



**PBU-104-120-4**  
Battery Backup

### Three types of ProMation failsafe operation:

- Rechargeable electric actuators where the energy is supplied by internal supercapacitors
- Mechanical spring return actuators where the energy is supplied by compressed springs
- Freestanding devices where the energy is supplied by batteries

### Typical Applications:

- Hydrogen Flow Control
- Heat Exchanger Inflow Control
- Boiler Fuel/Air Supply
- Holding Tank Outflow Control
- Isolation Valve
- LACT Skids
- 3 Phase Separators
- Emergency Ventilation Systems



## Fail Safe Solutions—SuperCap

### U-Series Actuators:

#### Complete Multifunctional Actuators

- **Multiple Field Selectable Control Configurations**
  - 2 wire on/off/jog
  - Single wire on/off
  - Three position
  - Multi-turn, clockwise or counterclockwise
  - Proportional
    - 4-20mA / 0-10 VDC
  - MODBUS RTU/TCP
- **Front Panel LED Display**
- **Supercapacitor Option for Loss of Power**
- **Torque Range 400 to 5000 in lbs (68 to 565 Nm)**
- **Universal Power Input (24 VDC, 24-230 VAC)**

#### The U-Series Actuators

The U-Series actuators are ProMation’s most advanced actuator providing **100% Continuous Duty Cycle** using a DC Brushless Motor. Standard Controls include 2 wire/single wire On/OFF, analogue modulation (4-20mA and 0-10VDC) and MODBUS RTU/TCP. The U-Series is Class 1, Division 2, explosion-proof, non-incendive certified for Gas Groups A, B, C, D. The U-Series has an optional fail-safe capability using supercapacitor back up for loss of line power.



The U-Series has universal power input (12 VDC, 24 VDC, 24 VAC, 100-240VAC) as well as only low voltage (12VDC, 24 VDC, or 24VAC).

The U-Series actuator is available with five different torque options. The UL Series has torque output between 600 and 5000 in-lbs. with ISO 5211 F07 and F10 mounting. The UM series, roughly 20% smaller than the UL, has torque output of 400 to 1200 in-lbs with ISO 5211 F05 and F07 mounting .



**UL and CE Certified**  
**Class 1, Div 2, Groups A, B, C, D**

Group	Hazardous Material in Surrounding Atmosphere
A	Acetylene
B	Hydrogen, ethylene oxide, etc.
C	Hydrogen sulfide, ethylene, etc.
D	Gasoline, natural gas, etc.

Product Family	Torque Output		High voltage Draw	Low voltage Draw	Stroke Speed (in seconds)		Mount Info		Size		Shipping Weight
	In lbs	Nm	amps	amps	Default 90°	90° Range	ISO 5211	dbl sq drive	Inches	mm	lbs/kg
UMB	400	45	3.3	0.65	2.5	1.8-6	F05/07	17 mm	8.4x9.2x8	214x233x204	19/8.6
UMC	600	68	3.3	0.65	4	3-10	F05/07	17 mm	8.4x9.2x8	214x233x204	19/8.6
UMD	1,200	136	3.3	0.65	8	7-20	F05/07	17 mm	8.4x9.2x8	214x233x204	19/8.6
ULC	600	68	3.3	0.65	4	3-10	F07/10	27 mm	8.5x11.25x8.8	216x286x223	26/11.8
ULD	1,200	136	3.3	0.65	8	7-20	F07/10	27 mm	8.5x11.25x8.8	216x286x223	26/11.8
ULE	2,500	282	3.3	0.65	14	12-36	F07/10	27 mm	8.5x11.25x8.8	216x286x223	27/12.2
ULF	5,000	565	3.3	0.65	33	27-85	F07/10	27 mm	8.5x11.25x8.8	216x286x223	28/12.7

### PA-PD Series Mechanical Fail Safe Actuators

The PA-PD Series Spring Return Actuators utilize springs to drive rack and pinion gears. Available with and without non-clutchable manual override handwheel. Specify **CW** or **CCW** model when ordering, **they are not interchangeable**. The PA-PD Series actuators are available **Standard or Hazardous (Class 1 Division 1)** location enclosures.

## Fail Safe Solutions—Spring Return

Product Family	Torque Output		Draw	Actuator Run Time (sec)			Spring Return Time (sec)		Mounting Information		Height	Shipping Weight
	In lbs	Nm	amps	50 Hz	60 Hz	VDC	120V/230V	24V	ISO 5211	8pt dbl sq	in/mm	lbs/kg
PA	445	50	1.0	9	7	7	3	3	F07	17mm	17/425	65/30
PB	1,150	130	3.8	9	7	8	8	3	F10	22mm	20/503	124/57
PC	1,750	200	3.8	13	11	11	12	3	F12	27mm	23/577	209/95
PD	2,300	260	3.8	17	14	17	12	3	F12	27mm	25/577	209/95
PE	3,185	360	3.8	23	24	24	23	8	F12	36 mm	29/743	228/103

### With Manual Override

PAO	445	50	1.0	9	7	7	3	3	F07	17mm	21.1/55	88/40
PBO	1,150	130	3.8	9	7	8	8	3	F10	22mm	25.3/638	184/84
PCO	1,750	200	3.8	13	11	11	12	3	F12	27mm	29.1/732	297/135
PDO	2,300	260	3.8	17	14	17	12	3	F12	27mm	29.1/732	297/135
PEO	3,185	360	3.8	23	24	24	23	8	F12	36 mm	33.5/852	336/152

Running Amps: 120 VAC@ 60 Hz. Actuator Run Times are given for 120 VAC and 24 VDC

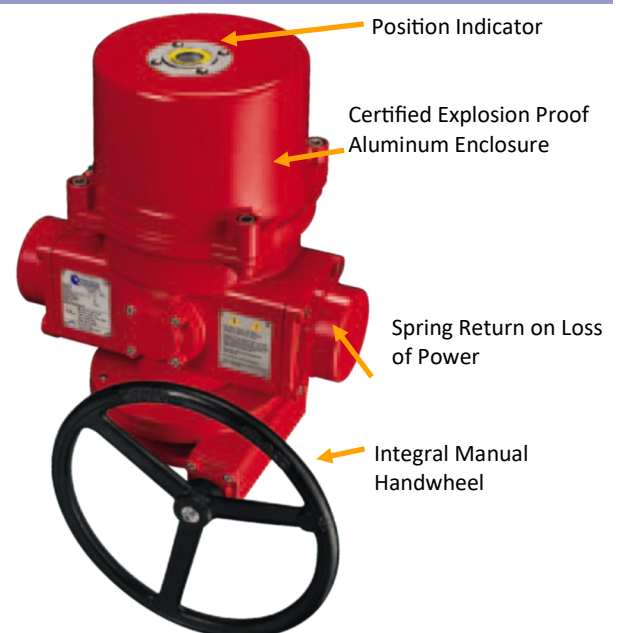
### Options common to PA-PD Series (Factory Installed Only)

Low Voltage Modification	24 VAC or 24VDC (12V option NOT AVAILABLE)
3 Phase Voltage Modification	3 Phase 230V, 315V, 380V, 440V, or 480V with custom transformer enclosure
Proportional Control—P	Standard Proportional Controller 120 VAC or 230 VAC (24 V option NOT AVAILABLE)
OPT-COLD-PAD	Cold weather auxiliary heater: On at 0°C (+32°F), off at 10°C (+50°F)
OPTION-X-PA	2 additional Auxiliary Switches

## Spring Return Explosion Proof Actuators

### Hazardous Location Applications

ProMation Engineering actuators spring return mechanical fail-safe actuators have critical applications in isolation and shut off valves in the Oil and Gas industry in midstream processing, tank isolation, and gas delivery, to name just a few applications. Below grade applications in Waste Water Treatment, Mining, and Chemical Processing many times require explosion proof actuators.



### Power Backup Units (PBU) for Electric Fail Safe

PBUs are designed for P and PL series actuators. Replaceable sealed lead-acid battery packs provide backup power for positive positioning in critical applications. Standard with NEMA 4/4X enclosure. Some assembly is required and customer is required to make field connections.



## Fail Safe Solutions—Battery

On/Off/Jog Part Number	Proportional Part Number	For Actuator Series	Output Voltage	Required Supply Voltage	Replacement Battery	Height (in/mm)	Weight (lbs/kg)
PBU102-120-4	PBU602-120P-4	P1-P6	120 VAC	120 VAC	RBC-110	16.04/407.4	30/14
PBU102-230-4	PBU602-230P-4	P1-P6	230 VAC	230 VAC	RBC-51	16.04/407.4	30/14
PBU102-24A-4	PBU602-24AP-4	P1-P6	24 VAC	120 VAC	RBC-110	16.04/407.4	45/20
PBU104-120-4	PBU604-120P-4	P7-P13	120 VAC	120 VAC	RBC-17	16.04/407.4	30/14
PBU104-230-4	PBU604-230P-4	P7-P13	230 VAC	230 VAC	RBC-51	16.04/407.4	30/14

Control Signals can be 2-10 VDC **OR** 4-20 mA and are field selectable. 230 VAC versions not available in PBU100 or PBU60

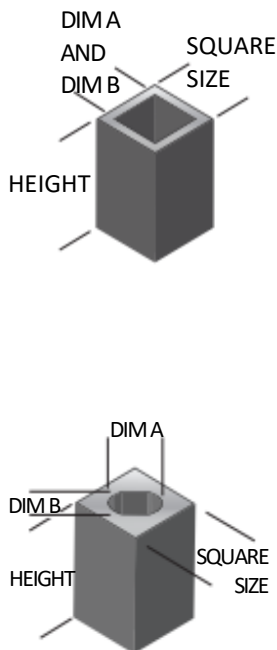
### Options common to PBU Series (Factory Installed Only)

OPT-COLD-PBU	Cold weather auxiliary heater. On at +32°F, off at +50°F. (Contact ProMation)
OPT-PBU-MON	Remote Status Monitoring option.

## Drive Inserts



The ProMation quarter-turn ISO 5211 mount products have oversized female double square output couplings. Drive inserts allow the user to easily mate nearly any actuator to your application using one of the many standard sizes shown below.



Part Number	Square	SQ/DD	DIM A	DIM B	Height	Material
INS14SQ11X14.8	14	SQ	11	11	14.8	CF-8-304 SS
INS14SQ9X14.8	14	SQ	9	9	14.8	CF-8-304 SS
INS17SQ11X20	17	SQ	11	11	20	SUS304 SS
INS17SQ14X16	17	SQ	14	14	16	CF-8-304-SS
INS22DD14.10X30	22	DD	<b>14.2</b>	<b>10</b>	30	S45C
INS22DD16.11X29	22	DD	<b>16.4</b>	<b>11.2</b>	29.5	S45C
INS22DD19.13X29	22	DD	<b>19.3</b>	<b>13.2</b>	29.5	S45C
INS22SQ11X25	22	SQ	11	11	25	SUS304 SS
INS22SQ14X25	22	SQ	14	14	25	SUS304 SS
INS22SQ17X30	22	SQ	17	17	30	SUS304 SS
INS22SQ19X25	22	SQ	19	19	25	SUS304 SS
INS27SQ22X25	27	SQ	22	22	25	SUS304 SS
INS35DD22.16X21	35	DD	<b>21.1</b>	<b>16</b>	39.5	S45C
INS35DD30.22X33	35	DD	<b>30.2</b>	<b>22</b>	39.5	S45C
INS35SQ19X39	36	SQ	19	19	39.5	S45C
INS35SQ22X39.5	36	SQ	22	22	39.5	S45C
INS35SQ27X40	36	SQ	27	27	40	SUS304 SS
INS36SQ27X45	36	SQ	27	27	45	SUS304 SS

### Local Control Stations (LCS)

ProMation LCSs are designed to be remotely located or directly mounted to the actuator. Standard with NEMA 4 steel enclosure. Customer is required to make field connections.

**Customers with proportional actuators specify when ordering: 4-20mA or DC 2-10V control.**



LCS Models	LA	LD	LF	LG	LJ	LK
Product	All	All	P1, PA-PD	P2-P8	P1,PA-PD	P2-P8
On/off/jog Actuators only	✓	✓				
Proportional Actuators only			✓	✓	✓	✓

### Standard LCS Component Features: Common to LCS models listed (Factory Installed Only)

Local/off/Remote Mode Switch	✓	✓	✓	✓	✓	✓
Close-Stop-Open Switch	✓	✓				
Close/Open Indicator Lights		✓	✓	✓	✓	✓
End of Travel (EOT) outputs to Controller		✓			✓	✓
Mode Switch Position Signal to Controller		✓	✓	✓	✓	✓
Illuminated Power Indicator			✓	✓	✓	

### LCS Options

ProMation can configure LCSs to fit your specific needs. Below are the general options that can be changed from our standard LCS offerings. All prices are determined by the scope of the project. Please contact ProMation for application assistance.

Option	Description
Actuator Type	Nearly all our actuators can be optioned with a LCS. LCS can be assembled for ProMation actuators as well as other brand electric actuators.
Control Mounting	Direct Mount (to the actuator) or Remote Mount
Supply Voltage	Supply Voltages including 12 VAC/VDC, 24 VAC/VDC, 120 VAC, 230 VAC, and 3 phase. 3 phase voltages: 230, 315, 380, 440, 480, 575. Not all voltages are compatible with all actuators
Control Type	4-20mA, 2-10VDC, 0-10VDC, 1-5VDC, or 0-135ohm
Enclosure Type	Painted Steel NEMA 4, Stainless Steel NEMA 4/4X, or Fiberglass NEMA 4/4X
Mode Select Switch	2 position knob, 3 position knob, 2 position key, 3 position key, no knob, or custom
Movement Select	2 position switch, variable position potentiometer, no device, or custom
Visual Indicators	Indicator colors: red, green, blue, yellow, and white LEDs are available
Actuator Contacts	Pass through auxiliary switches, end of travel outputs.
Mode Feedback	Remote, Auto, and Monitor modes with Dry Contacts (relays).
Position Readout	4-20 mA or 0-100% Signal Input and Outputs
Other Custom Components	External modular power cabling, remote location of proportional controller (in the LCS enclosure), custom indicators, switches, contact locks, and enclosures upon request

## **We are committed to our reps and distributors**

**We provide the best customer service in the industry. This means that:**

- We answer the phone.
- We are experienced professionals with expertise in electric actuation and control.
- We respond to quote requests within 2 hours.
- We reply to your technical questions within an hour.
- We resolve RMAs within 30 days (most RMAs within a week).

**We value our relationships with our reps and distributors as business partners. This means that:**

- We stock frequently purchased items and parts. Forecasting from our reps and distributors helps us ensure we have needed stock.
- We offer discounted pricing on large stock orders and projects.
- We refer end-users to premier stocking distributors.
- We have extensive product documentation available on our website to download without needing to create an account or to sign in, ensuring that end-users can access needed documents.

**352.544-8436**

**[Sales@promationei.com](mailto:Sales@promationei.com)**

**[promationei.com](http://promationei.com)**



# PROMATION ENGINEERING

Precision Actuation for Industry

## Product Family Matrix

The ProMation Product Family Matrix gives a quick overview of the entire line at a glance. Please contact ProMation with questions or to request a quote for your specific application.

ACTUATOR FAMILY	Torque Output		Voltage Options					Mount	Control				Fail-safe		Environment										
	In lbs (force lbs)	Nm (force kN)	12 AC	12 DC	24 AC	24 DC	120 AC		230 AC	3 PHASE	ISO 5211	IMPERIAL	ON/OFF/LOG	PROPORTIONAL	HIGH RES. DISPLAY	MODBUS	LCS	SuperCap/Internal	Spring Return	NEMA 4/4X/IP67	IP 68	Class I, Div 1, Groups C, D	Class I, Div 1, Groups E, F, G	Class II, Div 1, Groups A, B, C, D	Class I, Div 2, Groups A, B, C, D
QUARTER TURN	PZ6	135			✓		✓	✓	✓	✓	✓	✓							✓						
	PZ15	135			✓		✓	✓	✓	✓	✓	✓							✓						
	P1	300	35	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓				✓		✓	✓			
	P1.A	445	50	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓				✓		✓	✓			
	P1.B	135	15	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						✓			✓			
	P1.C	135	15		✓		✓			✓		✓							✓				✓		
	P2	800	90	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓		
	P3	1,335	150	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓		
	P4	3,500	400	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓		
	P5	4,400	500	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓		
	P6	5,750	650	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓		
	P7	8,900	1,000			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓		
	P8	13,250	1,500			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓		
P9	17,500	2,000					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓			✓			
P10	22,000	2,500					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓			✓			
P11	26,500	3,000					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓			✓			
P12	31,000	3,500					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓			✓			
P13	40,000	4,500					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓			✓			
U-SERIES	UMB	400	45		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		④					✓*	
	UM/ULC	600	68		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		④					✓*	
	UM/ULD	1,200	136		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		④					✓*	
	ULE	2,500	282		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		④					✓*	
	ULF	5,000	565		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		④					✓*	
SPRING RETURN	PA/PAO	445	50			✓	✓	✓	✓	✓	✓	✓	✓		✓			✓	✓		✓	✓			
	PB/PBO	1,150	130			✓	✓	✓	✓	✓	✓	✓	✓		✓			✓	✓		✓	✓			
	PC/PCO	1,750	200			✓	✓	✓	✓	✓	✓	✓	✓		✓			✓	✓		✓	✓			
	PD/PDO	2,300	260			✓	✓	✓	✓	✓	✓	✓	✓		✓			✓	✓		✓	✓			

\* standard with every actuator ④ only available with NEMA 4 Enclosure

Not all combinations are available at the same time for items in bold. Please contact ProMation for further details.



Company: \_\_\_\_\_ Contact: \_\_\_\_\_

email: \_\_\_\_\_ Phone: \_\_\_\_\_

Project: \_\_\_\_\_ Location: \_\_\_\_\_

Valve     Damper    Size: \_\_\_\_\_    Type: \_\_\_\_\_

Manufacturer: \_\_\_\_\_

Type of Actuator needed:

Dual Acting →  On/off/jog     4-20mA     0-10VDC  
 Proportional     1-5VDC     2-10VDC

Fail-safe →  Spring Return     P-Series (P1-P13) + PBU  
 U-Series

Torque requirement: \_\_\_\_\_  in-lb     ft-lb     Nm    *Include safety factor (minimum 25%)*

Voltage:     12VDC     24VAC/VDC     120VAC     230VAC     3 phase \_\_\_\_\_ VAC

Explosion Proof:     Class 1, Div 1     Class 1, Div. 2

### P-Series (Dual Acting)

Product	Nm	in-lb	ISO Mount	Product	Nm	in-lb	ISO Mount	Product	Nm	in-lb	ISO Mount
PZ6	6	55	F03/F05	P2	90	800	F07/F10	P8	1500	13350	F12 or F14
PZ15	15	135	F03/F05	P3	150	1335	F07/F10	P9	2000	17800	F14 or F16
P1.B (8 sec cycle)	15	135	F03/F05	P4	400	3500	F10/F12	P10	2500	22250	F14 or F16
P1.C (3 sec cycle)	15	135	F03/F05	P5	500	4400	F10/F12	P11	3000	26500	F14 or F16
P1	35	300	F03/F05	P6	650	5800	F10/F12	P12	3500	31150	F14 or F16
P1.A	50	445	F05/F07	P7	1000	8900	F12 or F14	P13	4500	40500	F16/F25

### Spring Return

Manual Override (O)     Clockwise (CW), fail closed     Counter clockwise (CCW), fail open

Product	Nm	in-lb	Product	Nm	in-lb
PA (O)	50	445	PC (O)	200	1750
PB (O)	130	1150	PD (O)	260	2300

### U-Series

Supercapacitor     Clockwise (CW), fail closed     Counter clockwise (CCW), fail open

Product	Nm	in-lb	Stroke Speed	ISO Mount
UMB	45	400	1.8-6 seconds	F05/F07
UMC	68	600	3-10 seconds	F05/F07
UMD	136	1200	7-20 seconds	F05/F07
ULC	68	600	3-10 seconds	F07/F10
ULD	136	1200	7-20 seconds	F07/F10
ULE	282	2500	12-36 seconds	F07/F10
ULF	565	5000	27-85 seconds	F07/F10

### Common Options:

Torque switch     IP68     2 extra aux. switches     0-180°     0-45-90°     0-90-180°  
On/off feedback signal →  4-20mA     1-5VDC     2-10VDC  
 Cold weather kit     Extended duty motor     Conformal anti-corrosive coating  
 Relay open     Relay closed     Dual relay     Local Control Station     Motor Control Center



# PROMATION ENGINEERING

*Precision Actuation for Industry*

## ProMation Engineering Standard Terms and Conditions of Sale and Warranty (Standard Terms)

**I) General** Until otherwise arranged, in writing, the following conditions are valid. The Seller as referred to herein is ProMation Engineering, Inc. (Seller). Buyer is the entity ordering or purchasing ProMation Products or Services (ProMation Products) offered and delivered by Seller or its designated agents. The issuance of a Sales Order for ProMation Products (Order) by Buyer shall constitute an acceptance of conditions contained herein unless otherwise agreed to in writing. The conditions herein are valid from the date of a Sales Order.

**II) Price** 1) Prices are net, FOB Brooksville, FL (Incoterms® 2010) in US currency for sales made by Seller. 2) Freight and packaging (wooden crates, pallets, etc) will be charged at cost for each shipment. 3) Seller reserves the right to make partial deliveries, which can be invoiced separately. 4) Additional items such as associated equipment, application specific field wiring diagrams, engineering fees, installation fees, and commissioning fees are not included in List Prices.

**III) Payment Terms** 1) Invoices are payable in US currency for sales made by Seller within 30 days from the date of invoice without any deductions. 2) Accounts with balances exceeding 60 days will be subject to an interest charge of 2% per month. 3) Failure to comply with Payment Terms contained herein may subject Buyer to restricted shipments or COD status.

**IV) Title and Risk** Title in and property to the goods shall not pass to the Buyer until the Seller has received payment in full.

**V) Damage/Loss in Transit** Seller assumes no liability for damage or loss of shipment. All shipments should be unpacked and examined immediately upon receipt. Any external evidence of loss or damage must be noted on the freight bill or carrier's receipt and signed by the carrier's agent at the time of delivery. Seller requires a method, such as utilizing digital photographic images, to identify and record existing or perceived damage. Failure to do so will result in the carrier's refusal to honor the claim. Buyer then should notify Seller with copy of freight bill or damage report so Seller can file claim for loss or damage in transit with the carrier. If damage does not become apparent until shipment is unpacked, customer must make a request for inspection by the carrier's agent and file with the carrier within 15 days after receipt of product and notify Seller. Seller is not liable for consequential damages resulting from the installation of damaged product.

**VI) Delivery** Seller will make every reasonable attempt to adhere to its delivery promise(s), but does not accept cancellation of contract or liability for any direct or indirect losses which may arise, for any reason whatsoever, due to Seller's failure to adhere to such promise(s).

**VII) Termination of Order** On termination of Order(s) by Buyer, Seller at the time of termination may have components on order, inventory, work in progress, etc. for remaining Products associated with the Order. Buyer will accept or reimburse Seller for completed, partially completed or other components and parts associated with the Order. Buyer will accept an itemized invoice to account for any direct or indirect costs incurred by Seller had the Order not been terminated.

**VIII) Return of Goods** 1) Goods received by the Buyer cannot be returned unless previously agreed upon with Seller. Buyer must acquire Return Material Authorization (RMA) number from Seller prior to return of the goods. At this time Buyer will also receive instructions to where product(s) will be returned. Only products returned to proper location with RMA number displayed on outside of shipment will be considered for credit. UNDER NO CIRCUMSTANCES SHALL PRODUCT BE RETURNED TO SELLER WITHOUT APPROPRIATE DOCUMENTATION AND ADHERENCE TO THE RMA PROCEDURES. 2) Only goods in original packaging can be accepted. Goods returned must be in condition for resale as new equipment to qualify for credit. Failure to properly package returned goods may void warranty. A minimum restocking fee for returned goods of 30% of invoice value will be applied at the discretion of the Seller. ProMation Engineering, Inc. 16138 Flight Path Drive Brooksville, FL 34604 Phone (352) 544-8436 Fax (352) 544-8439 www.promationei.com Terms and Warranty NA 05 22 15 3) Return material must be shipped to Seller prepaid by Buyer. Buyer is responsible for return shipping charges unless returned material is subject to section IX Warranty and all covenants therein. 4) Returns resulting from errors by the Seller will not be subject to restocking charges.

**IX) Warranty** Seller warrants to the original Buyer, all equipment of its own manufacture to be free of defects caused by faulty material or defective workmanship and will, at its option, exchange or repair, free of charge, FOB its factory, such part or parts thereof that prove defective under normal use within 18 months from date of invoice. Any warranty claim must be made within eighteen (18) months from the date of invoice and if not so made, Seller shall be under no obligation or warranty to Buyer.

**General Warranty Terms** 1) The warranty shall be null and void should the Buyer or any other persons modify or repair or otherwise alter any part or function of ProMation Products from factory set conditions and specifications. 2) Buyer intending to return goods consents to section VIII Return of Goods and the covenants therein and is required to obtain a Return Material Authorization (RMA) number from Seller. Buyer is required in all cases to complete the warranty process. 3) Repaired, replaced or exchanged product will be warranted for the Repair Warranty Period (6 months) in effect as of the date the repaired, exchanged or replaced product is shipped by Seller, or the remainder of the original warranty, whichever is longer. 4) Products found to be defective for which warranty is applicable will be replaced or repaired at Seller's discretion. Seller is not responsible for charges resulting from the removal and/or replacement of product. 5) Before removing a product from the installation, Buyer will contact an AUTHORIZED ProMation Technical Support Technician or Customer Service. 6) If deemed necessary, RMA # will be issued for return of the product by the Support Technician. 7) Carefully package the ProMation Product(s) for shipping, and clearly mark the RMA# on the outside of the package. Without the RMA# clearly marked, the package will be refused at the receiving point. Failure to properly package RMA products may void warranty. 8) ProMation Product returned without proper RMA# documentation will void the warranty contained herein. 9) Ship the product to the designated service facility as directed by ProMation Customer Service. 10) Warranty products are shipped from Seller's facility at Seller's expense to Buyer's designated delivery point via GROUND shipment. Other shipping methods are available at the expense of the recipient. 11) Warranty covers the product only, and does NOT cover labor associated with troubleshooting, removal or replacement of such product. 12) Products ordered in an attempt to circumvent the warranty process may NOT be reimbursed if, upon receipt of a returned product, it is determined that the product defect is not covered under warranty.

**X) Liability disclaimer** The liability of the Seller is defined exclusively in Section IX. Seller shall be under no obligation to Buyer except as set forth in this Section below. Any other Buyer claims toward Seller, irrespective upon which legal basis the same are made, especially those concerning ProMation Product misuse, misapplication, or contradictory specifications are excluded and expressly disclaimed. Buyers only have rights to claim for damage which occurs on ProMation Products. In particular, the Seller does not accept any liability for costs incurred for determination of the causes of damage, for expert opinions, for indirect or resulting damage (including damage resulting from faults) of any kind, such as loss of use, downtimes, loss of profit or returns, etc. The Seller does not accept any liability for damage resulting from or contributed by the Buyer or any other persons when:

1) ProMation Products are installed or used without compliance with applicable local, regional or international legal, regulatory or institutional regulations or standards; 2) ProMation Products are used without compliance with Seller specifications implied or written, product data sheets, installation and operation manuals or similar documentation; 3) ProMation Products are used by personnel who have not received suitable instruction and training; 4) ProMation Products are modified or repaired without the written approval from Seller. When requested to do so, the buyer shall immediately release Seller in full from any possible third party claims resulting in connection with the circumstances listed above. This also applies to claims in connection with product liability. ProMation Engineering, Inc. 16138 Flight Path Drive Brooksville, FL 34604 Phone (352) 544-8436 Fax (352) 544-8439 www.promationei.com Terms and Warranty NA 05 22 15

**XI) Force majeure** Neither the Seller nor the Buyer accept liability for damage of any kind if obstacles occur which they are unable to prevent in spite of all due care, irrespective of whether these occur at the site of the Seller, the Buyer or a third party. Such obstacles are, for example, epidemics, mobilization, war, uprisings, serious operational problems, accidents, labor disputes, delayed or faulty delivery of the required raw materials, semi-finished or finished goods, off-spec rejection of important work pieces, institutional measures or injunctions, natural hazards or any other circumstances which are, to a large extent, not within the scope of control of the Seller or the Buyer. However, payment may not be retained or delayed for product(s) delivered to Buyer with reference to such circumstances. In such cases, both parties shall undertake all effective measures, which can be expected of them to prevent damage, or if damage occurs, to minimize the scope of this damage as far as possible.

**XII) Non-Stock and Non-Catalog Items** Products not listed in the current ProMation Price Guide or catalogs or those requiring modification are considered to be Special Product items and subject to conditions stipulated to Buyer by Seller. Special Products may be subject, but not limited to, longer delivery times; minimum order quantities; special handling charges; cancellation charges once an order is placed; restricted return policies or restricted shipping policies.

**XIII) Proper Law and Jurisdiction** For sales made by Seller such shall in all respects be governed by U.S. laws, the laws of the State of Florida or the laws of the State of manufacture.

**XIV) Breach/Attorney's Fees** In the event Buyer fails to provide payment in full to Seller in accordance with Seller's invoicing within thirty (30) days from the date of invoice, without any deductions or should Buyer breach this agreement with respect to Terms and Conditions of Sale and Warranty in any respect, Buyer shall be responsible to reimburse Seller for any and all costs incurred as a result of Buyer's failure to provide payment or breach of this agreement to include any and all attorney's fees incurred by Seller, whether incurred prior to litigation, during litigation or on appeal.