

PROMATION ENGINEERING

Precision Actuation for Industry

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.

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 right fail safe solutions for your application.



ULE-AVN7-EPBA
U-Series SuperCap



PAO-CW-1202S4
Mechanical
Spring Return



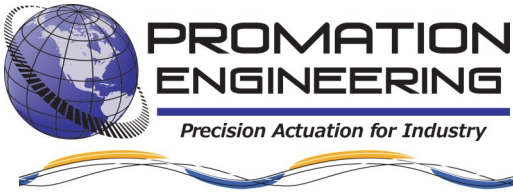
PBU-104-120-4
External Battery Backup

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 (24vdc, 24-230VAC)**

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	8.4x9.2x8	214x233x204	19/8.6
UMC	600	68	3.3	0.65	4	3-10	F05/07	17	8.4x9.2x8	214x233x204	19/8.6
UMD	1,200	136	3.3	0.65	8	7-20	F05/07	17	8.4x9.2x8	214x233x204	19/8.6
ULC	600	68	3.3	0.65	4	3-10	F07/10	27	8.5x11.25x8.8	216x286x223	26/11.8
ULD	1,200	136	3.3	0.65	8	7-20	F07/10	27	8.5x11.25x8.8	216x286x223	26/11.8
ULE	2,500	282	3.3	0.65	14	12-36	F07/10	27	8.5x11.25x8.8	216x286x223	27/12.2
ULF	5,000	565	3.3	0.65	33	27-85	F07/10	27	8.5x11.25x8.8	216x286x223	28/12.7

Fail Safe Solutions—Spring Return

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.



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

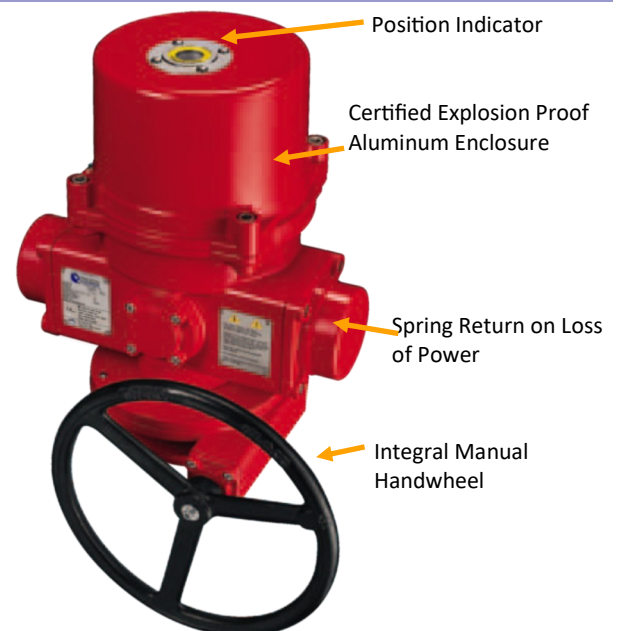
Options common to PA-PD Series (Factory Installed Only)

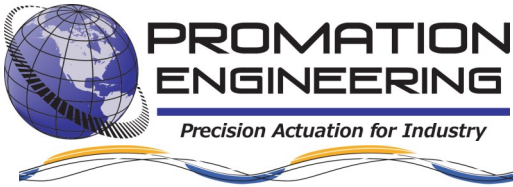
Low Voltage Modification	24 VAC or 24VDC (12V option NOT AVAILABLE)
3 Phase Voltage Modification	3 Phase 230V, 315V, 380V, 440V, or 480V with custom transformer enclosure
Proportional Control—P	Standard Proportional Controller 120 VAC or 230 VAC (24 V option NOT AVAILABLE)
OPT-COLD-PAD	Cold weather auxiliary 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 failsafe actuation.





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)
PBU100-120-4	PBU600-120P-4	P1-P3	120 VAC	120 VAC	RBC-35	14.50/368.3	25/11
PBU100-24A-4	PBU600-24AP-4	P1-P2	24 VAC	120 VAC	RBC-35	14.50/368.3	39/18
PBU102-120-4	PBU602-120P-4	P4-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	P3-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.



D Series Spring Return Actuators

Spring return actuators designed for use on valves and dampers. Featuring field adjustable open and close rates and auto switching power supplies which accept AC or DC from 24V to 230V. The D Series actuators are available Standard or Hazardous (Class 1 Division 1) location enclosures.

Part Number	Torque (in/lbs)	Torque (Nm)	Runtime (sec) Field Selectable	Spring Drive Speed (sec, 90°)	Control	Height (in/mm)	Weight (lbs/kg)
D2-310S4-0	45/90	5/10	5/15/30/60/120	3 or 10 (Sel)	On/off/jog	3.15/80	10/5
D2-310S4-2	45/90	5/10	5/15/30/60/120	3 or 10 (Sel)	On/off/jog w/aux	4.72/120	11/5
D3-310S4-0	133	15	5/15/30/60/120	3 or 10 (Sel)	On/off/jog	3.15/80	10/5
D3-310S4-2	133	15	5/15/30/60/120	3 or 10 (Sel)	On/off/jog w/aux	4.72/120	11/5
D4-20S4-0	265	30	40/60/90/120/150	20 (Fixed)	On/off/jog	4.57/116	24/11
D4-20S4-2	265	30	40/60/90/120/150	20 (Fixed)	On/off/jog w/aux	6.14/156	25/11
D5-20S4-0	445	50	40/60/90/120/150	20 (Fixed)	On/off/jog	4.57/116	24/11
D5-20S4-2	445	50	40/60/90/120/150	20 (Fixed)	On/off/jog w/aux	6.14/156	25/11