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PA-MC3

User Manual

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Have any queries? Our expert engineers are here to help!



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SAFETY PRECAUTIONS

When installing and using your Progressive Automations linear actuator, basic safety precautions should always be followed. Please read all safety precautions thoroughly and be familiar with all functions of the product before use. Apply all other relevant precautions when operating electrical and moving mechanical devices.

DANGER

To reduce the risk of electrical shock and injuries:

- Do not attempt to modify or repair the actuator.
- Avoid using the actuator in environments with explosive gases or flammable materials.
- Avoid using the actuator beyond its specified Ingress Protection rating.
- Make sure that the power source is properly grounded. Neglecting proper grounding can result in a dangerous electrical hazard.

WARNING

To reduce personal harm and injury:

- Follow recommended load ratings and specifications for the actuator.
- Avoid leaving the actuator unattended during operation.
- Avoid operating the actuator in areas with high levels of airborne contaminants.
- Ensure a clear path for full extension and retraction of the actuator.
- Keep hands and body parts clear of the actuator while it is in motion.
- Exercise caution around pinch points and moving components during the actuator's operation.
- Keep all loose clothing, jewelry, and personal items away from the actuator's moving parts.

Operating Notes

Warranty

Any attempts to disassemble or tamper with the actuator's internal components or operation outside of the advertised usage limitations will result in voiding the product's warranty. For more information on our warranty terms, visit:

<https://www.progressiveautomations.com/pages/warranty-terms>

Force Restrictions

Linear actuators must be used within the specified force rating outlined in this documentation. Load must be evenly distributed. Exceeding the recommended force rating may result in failure of the linear actuator. It may also damage the product and void the warranty. Please note that the weight of the load does not always equal the total force due to mechanical advantage, wherein the force may increase or decrease depending on the application.

Operation Time

Linear actuators must be operated within the specified operation time and frequency. Exceeding the duty cycle rating can significantly reduce the actuator's expected lifespan and will void the warranty.

SPECIFICATIONS

Rated Load Configurations (Imperial)

Rated Load (lbs)			Current (mA)		Speed ¹ (inch/sec)	
Dynamic	Static	Back Drive	No Load	Full Load	No Load	Full Load
6	14	6.9	≤ 80	≤ 200	1.18	0.70
18	19	13.9	≤ 80	≤ 200	0.36	0.26
27	27	16.8	≤ 80	≤ 200	0.24	0.17

Rated Load Configurations (Metric)

Rated Load (N)			Current (mA)		Speed ¹ (mm/sec)	
Dynamic	Static	Back Drive	No Load	Full Load	No Load	Full Load
26	62.2	30.7	≤ 80	≤ 200	30.0	18.0
80	84.5	61.8	≤ 80	≤ 200	9.2	6.7
122	122	74.7	≤ 80	≤ 200	6.2	4.4

¹Speed specifications have a ±10% tolerance.

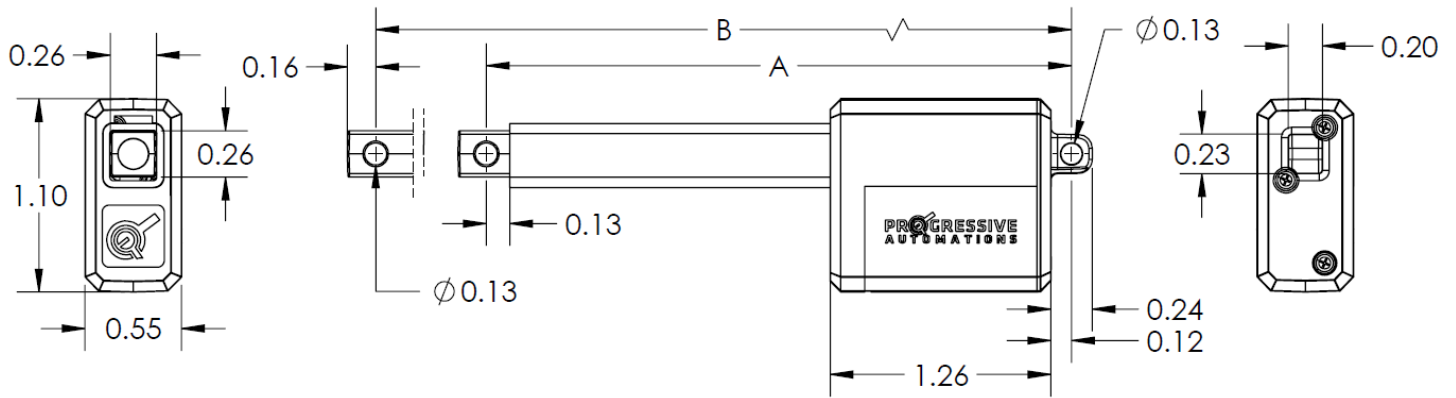
Specifications

	Imperial	Metric
Input Voltage	12 VDC	
Stroke	0.4" to 4.0"	10 mm to 100 mm
Feedback	None or Potentiometer (coming soon)	
Duty Cycle	20% (5 minutes on, 20 minutes off)	
Overload Protection	No	
PWM Compatibility	Yes	
Operational Temperature	14°F to 122°F	-10°C to 50°C
Operating Noise	< 55 dB from 5 ft	< 55 dB from 1.5 m
Limit Switch	Yes - Built-in (non-adjustable)	
Cable Length	12"	305 mm
Cable Gauge	22 AWG	0.33 mm ²
Connector	Molex SL 2-Pin Connector (Standard), Molex SL 5-Pin Connector (Potentiometer)	
Front Mounting Hole Size	0.13" ± 0.004"	3.25 ± 0.1 mm
Rear Mounting Hole Size	0.13" ± 0.004"	3.25 ± 0.1 mm
Actuator Type	Micro	
Motor Type	Brushed DC Motor	
Screw Type	ACME	
Stroke Rod Material	Reinforced Plastic	
Housing Material	Reinforced Plastic	
Compatible Mounting Bracket	BRK-MC3	

DIMENSIONS (IMPERIAL)

Note: All dimensions are listed in inches.

Diagram



Hole to Hole Length

Stroke Length	0.4"	2"	4"
A (Fully Retracted)	1.75	3.35	5.35
B (Fully Extended)	2.15	5.35	9.35

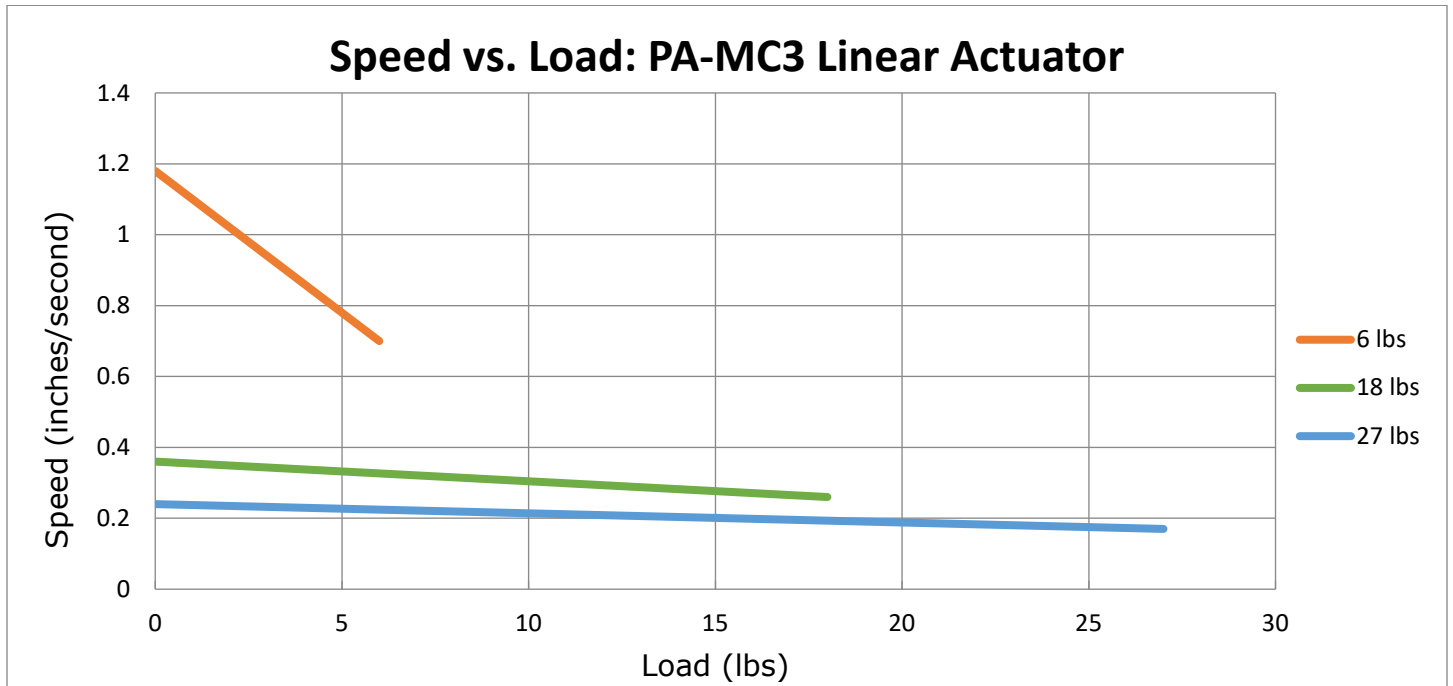
0.4" ≤ Stroke Length ≤ 4"

A (Fully Retracted) = Stroke Length + 1.35"

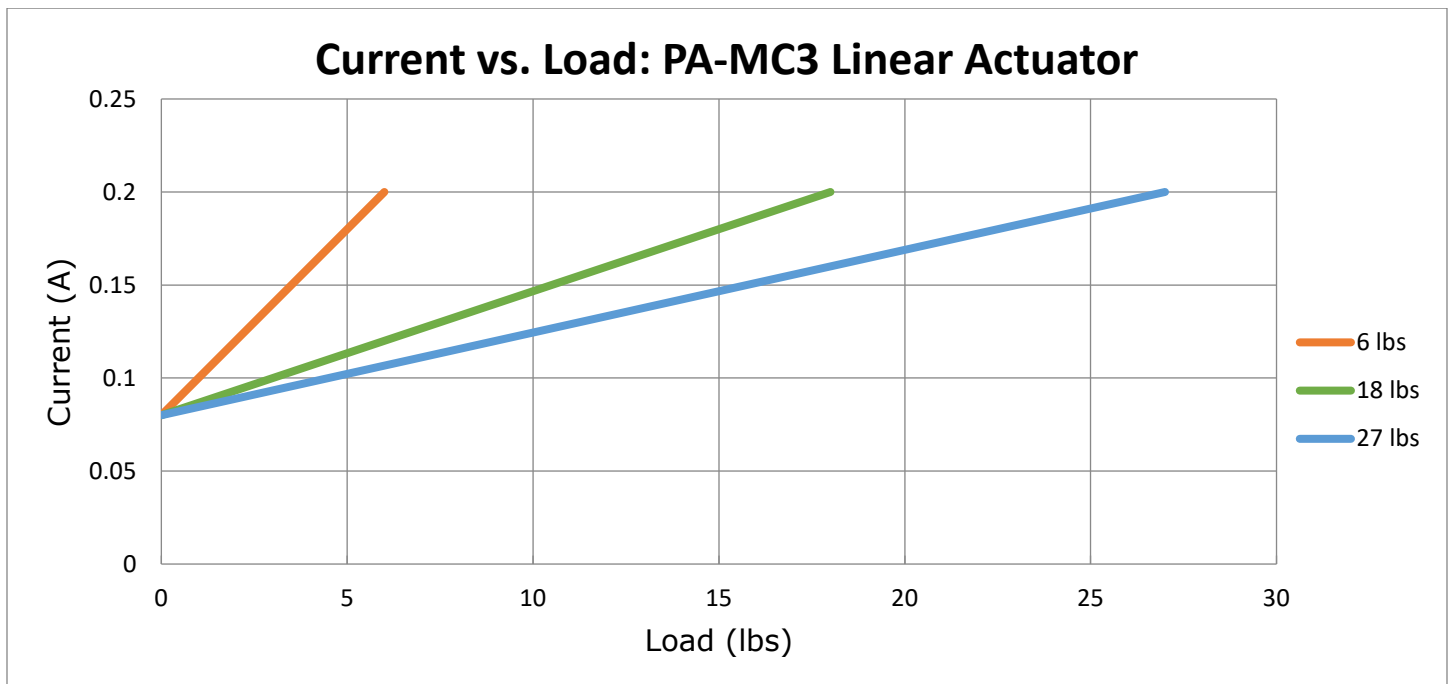
B (Fully Extended) = Stroke Length x 2 + 1.35"

PERFORMANCE GRAPHS (IMPERIAL)

Speed vs. Load

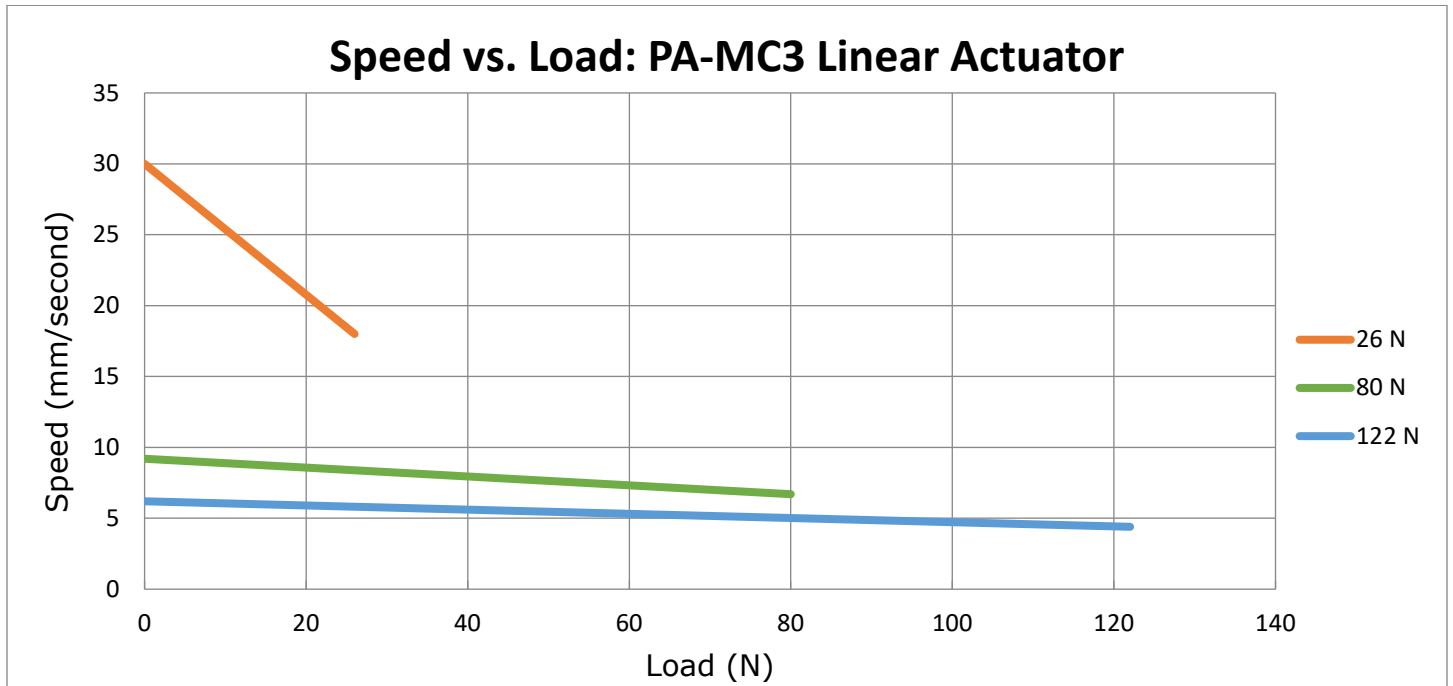


Current vs. Load

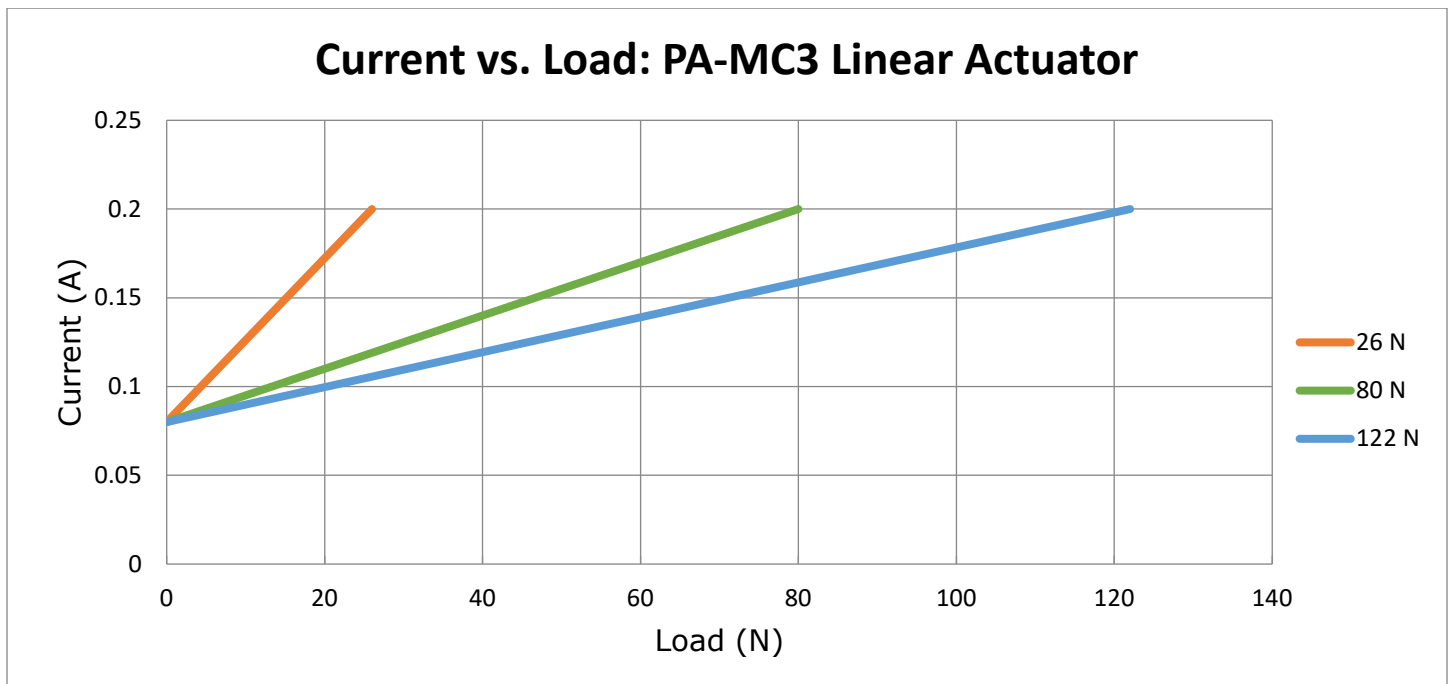


PERFORMANCE GRAPHS (METRIC)

Speed vs. Load

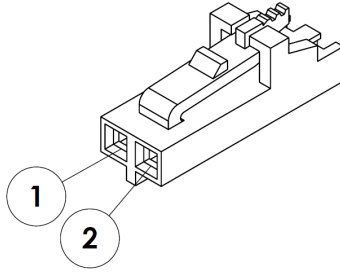


Current vs. Load



CONNECTORS

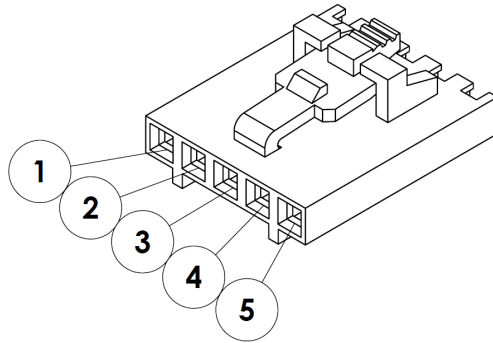
Standard – 2-Pin Connector



Pin Location	1	2
Function	Motor - (Retract)	Motor + (Extend)
Wire Color	Black	Red
Wire Gauge	22 AWG	22 AWG

	Force (lbs)	Part Name	Part Number	Mating Part Number
Housing	All	Molex SL Crimp Housing, Single Row, Positive Latch, 2 Circuits, Black	50579402	701070001
Terminals	All	Molex SL Female Terminal, 22-24 AWG	16020086 (Reel) 16020102 (Bag)	16020107 (Reel) 16020114 (Bag)

Potentiometer – 5-Pin Connector



Pin Location	1	2	3	4	5
Function	Potentiometer VCC	Motor - (Retract)	Motor + (Extend)	Potentiometer Wiper	Potentiometer GND
Wire Color	Yellow	Black	Red	Purple	Orange
Wire Gauge	22 AWG	22 AWG	22 AWG	22 AWG	22 AWG

	Force (lbs)	Part Name	Part Number	Mating Part Number
Housing	All	Molex SL Crimp Housing, Single Row, Positive Latch, 5 Circuits, Black	50579405	701070004
Terminals	All	Molex SL Female Terminal, 22-24 AWG	16020086 (Reel) 16020102 (Bag)	16020107 (Reel) 16020114 (Bag)