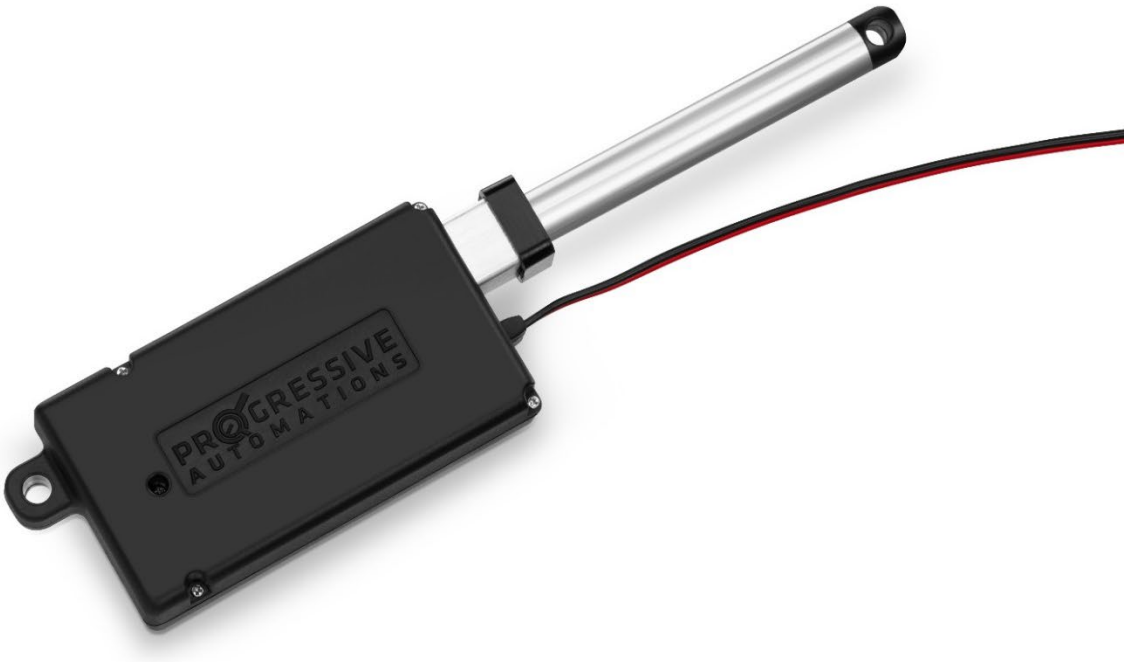
PROGRESSIVE AUTOMATIONS

FORWARD THINKING



Scan for more information

PA-MC2

User Manual

V1.2

TABLE OF CONTENTS

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 (A)		Speed[1] (inch/sec)	
Dynamic	Static	Back Drive	No Load	Full Load	No Load	Full Load
9	9	≥ 18	≤ 200 mA	≤ 650 mA	2.09	1.02
18	18	≥ 36	≤ 200 mA	≤ 500 mA	0.75	0.43
56	56	≥ 112	≤ 200 mA	≤ 500 mA	0.19	0.12

[1]Speed specifications have a ±10% tolerance.

RATED LOAD CONFIGURATIONS (METRIC)

Rated Load (N)			Current (A)		Speed[1] (mm/sec)	
Dynamic	Static	Back Drive	No Load	Full Load	No Load	Full Load
40	40	≥ 80	≤ 200 mA	≤ 650 mA	53	26
80	80	≥ 160	≤ 200 mA	≤ 500 mA	19	11
250	250	≥ 500	≤ 200 mA	≤ 500 mA	4.8	3

[1]Speed specifications have a ±10% tolerance.

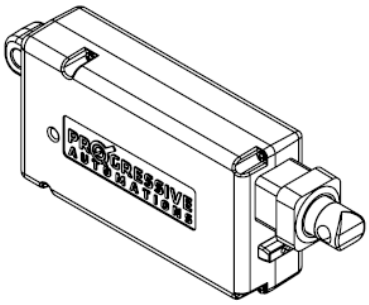
SPECIFICATIONS

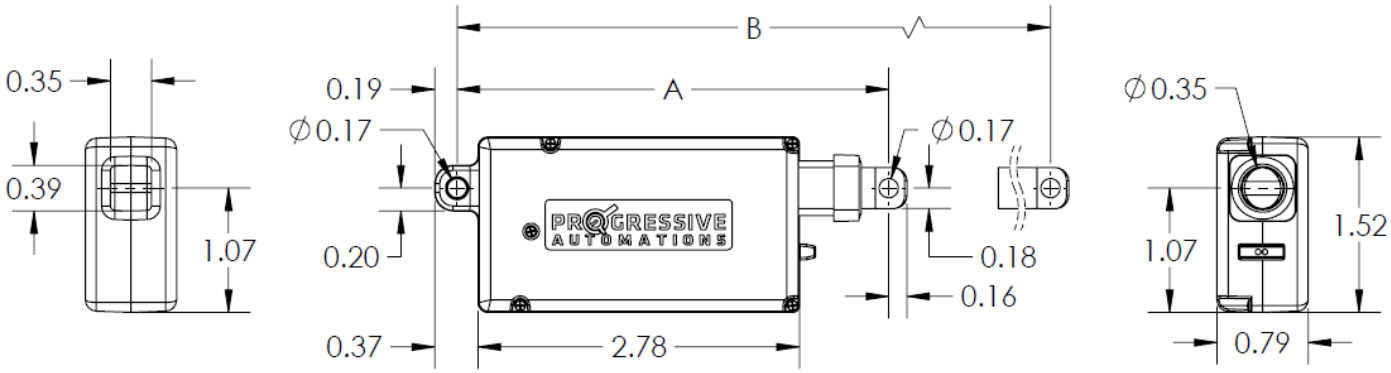
	Imperial	Metric
Input Voltage	12 VDC	12 VDC
Stroke	2.0" to 8.0"	51 mm to 203 mm
Feedback	None or Potentiometer (Coming Soon)	
Duty Cycle	20% (5 minutes on, 20 minutes off)	
Weather Protection	IP54	
Overload Protection	Yes	
PWM Compatibility	Yes	
Operational Temperature	14ºF to 122ºF	-10ºC to 50ºC
Operating Noise	< 60 dB from 5 ft	< 60 dB from 1.5 m
Limit Switch	Yes – Built-in Current Detection	
Cable Length	12"	305 mm
Cable Gauge	22 AWG	0.33 mm^2
Connector	2-Pin SL Connector (Standard) 5-Pin SL Connector (Potentiometer)	
Front Mounting Hole Size	0.17" ± 0.004"	4.20 ± 0.1 mm
Rear Mounting Hole Size	0.17" ± 0.004"	4.20 ± 0.1 mm
Actuator Type	Micro	
Motor Type	Brushed DC	
Screw Type	ACME	
Stroke Rod Material	Stainless Steel	
Housing Material	Reinforced Plastic	
Gear Material	Metal	
Compatible Mounting Brackets	BRK-MC1 (Excluding L-Bracket)	

DIMENSIONS (IMPERIAL)

Note: All dimensions are listed in inches.

DIAGRAM





HOLE TO HOLE LENGTH

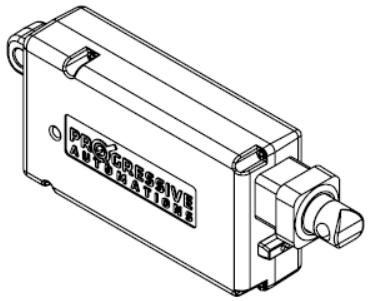
Stroke Length	2	4	6	8
A (Fully Retracted)	3.73	5.73	7.73	9.73
B (Fully Extended)	5.73	9.73	13.73	17.73

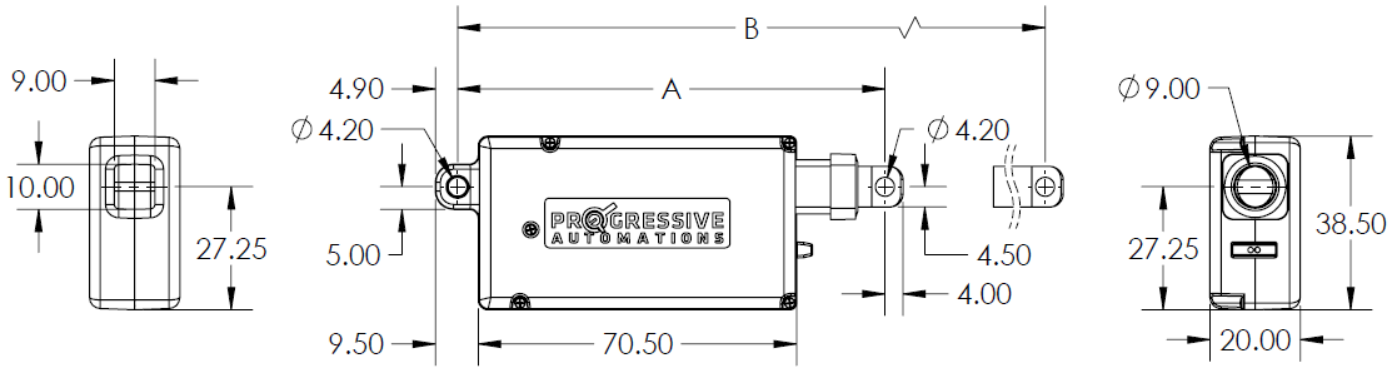
2" ≤ Stroke Length ≤ 8"
A (Fully Retracted) = Stroke Length + 1.73"
B (Fully Extended) = Stroke Length x 2 + 1.73"

DIMENSIONS (METRIC)

Note: All dimensions are listed in millimetres.

DIAGRAM





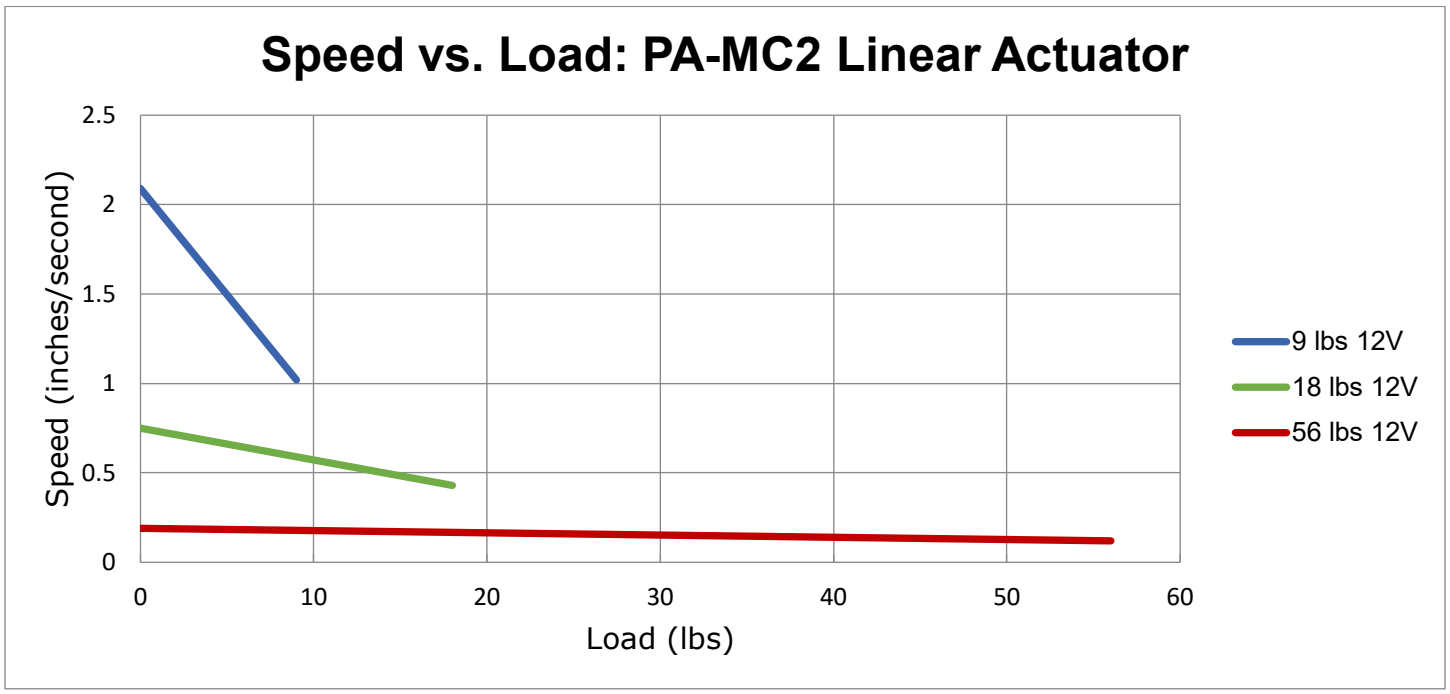
HOLE TO HOLE LENGTH

Stroke Length	51	102	152	203
A (Fully Retracted)	95	146	196	247
B (Fully Extended)	146	248	348	450

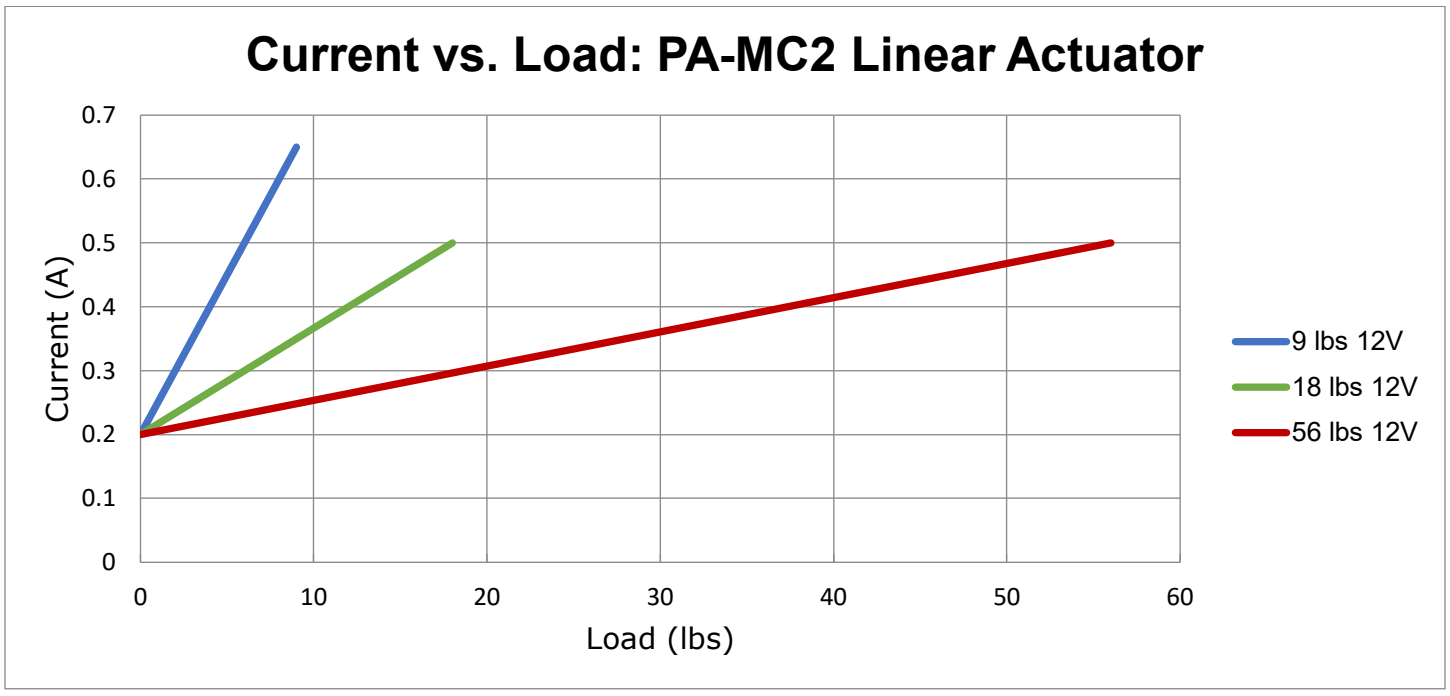
51 mm ≤ Stroke Length ≤ 203 mm
A (Fully Retracted) = Stroke Length + 44 mm
B (Fully Extended) = Stroke Length x 2 + 44 mm

PERFORMANCE GRAPHS

SPEED VS LOAD

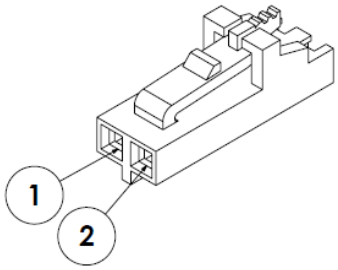


CURRENT VS LOAD



CONNECTORS

STANDARD - 2-PIN SL CONNECTOR

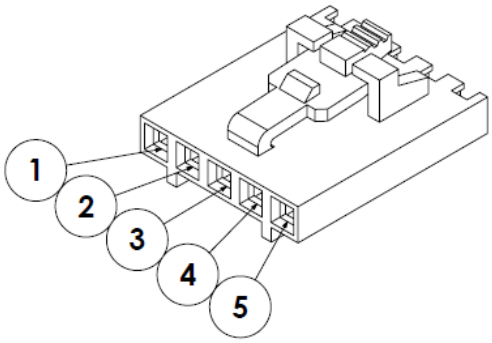


Pin Location	1	2
Function	Motor - (Retract)	Motor + (Extend)
Wire Color	Black	Red
Wire Gauge	22 AWG	22 AWG

	Force (lbs)	Part Name	Part Number	Mating Part Number
Housing	All	SL Crimp Housing, Single Row, Version G, Positive Latch, 2 Circuits, Black	50579402	701070001
Terminals	All	SL Crimp Terminal, Series 70058, Female, 24-22 AWG, with Tin (Sn) Plated Contact	16020086 (Reel) 16020102 (Bag)	16020107 (Reel) 16020114 (Bag)

CONNECTORS

POTENTIOMETER - 5-PIN SL 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	SL Crimp Housing, Single Row, Version G, Positive Latch, 5 Circuits, Black	50579405	701070004
Terminals	All	SL Crimp Terminal, Series 70058, Female, 24-22 AWG, with Tin (Sn) Plated Contact	16020086 (Reel) 16020102 (Bag)	16020107 (Reel) 16020114 (Bag)