PROGRESSIVE AUTOMATIONS
FORWARD THINKING

PA-CB2

Datasheet

Document Ver 2.03

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Safety Precautions

When installing and using your Progressive Automations Control Box, basic safety precautions should always be taken. 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 devices.

⚠ DANGER

To mitigate the risk of damages and injuries:

- Do not attempt to modify or repair the Control Box.
- Avoid using the Control Box beyond its specified Ingress Protection rating.
- Avoid programing the Control Box (changing mode of operation or adding removing remotes) under load or connected to a load. Always disconnect it from any load before programming or changing settings.

⚠ WARNING

To reduce the risk of burns, fire, electrical shock, and injury to persons:

- Ensure the applied power to the Control Box has correct polarity, meets the minimum requirements, and has a regulated output.
- Follow recommended load ratings and specifications for the Control Box.
- Avoid operating the Control Box where there may be high electromagnetic interference.
- Ensure that the Control Box and controlled device is visible to the user during operation, with no obstructions or potential for bodily harm.
- Progressive Automations does not assume any liability for preventing damage or bodily harm when using the Control Box. All necessary precautions must be taken by the user to ensure safe operation.

Operating Notes

Warranty
Any attempts to disassemble or tamper with the Control Box's internal components or operation outside of the advertised usage limitations will result in immediate voiding of the product's warranty. For more information on our warranty terms, visit: https://www.progressiveautomations.com/pages/warranty-terms.

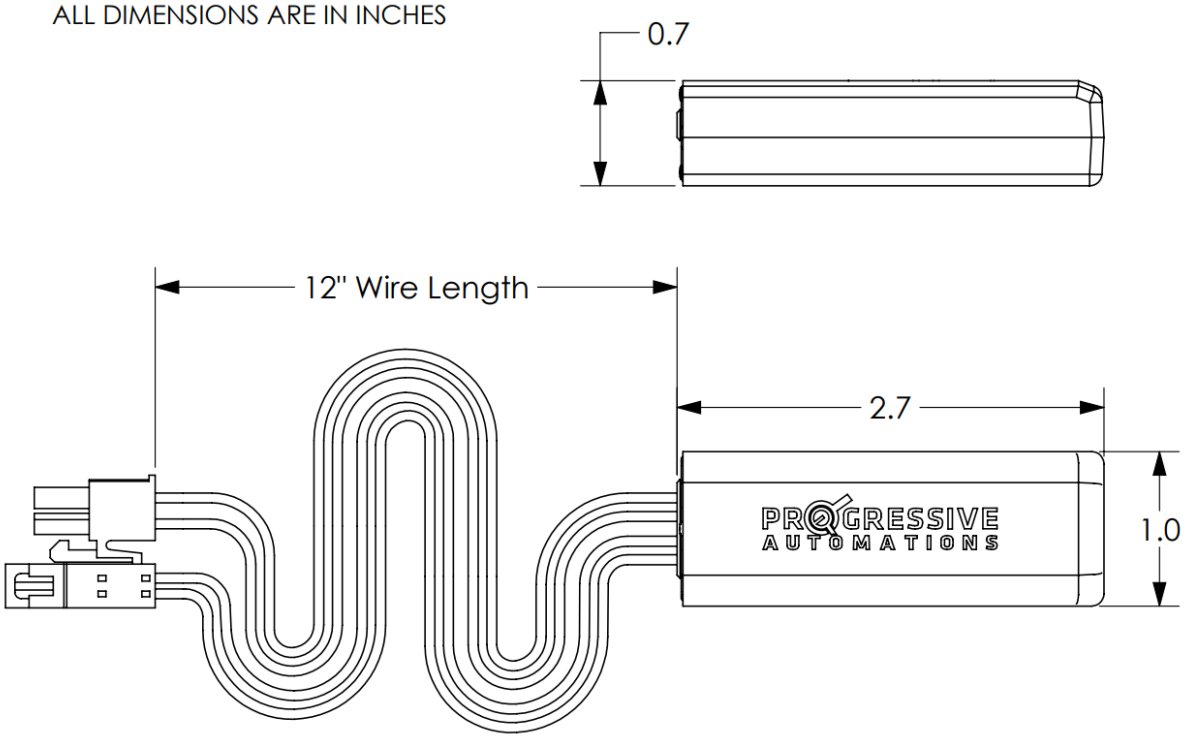
Specifications
This Control Box must be used within the specified power, voltage and current input and current output ratings outlined in this documentation. Load must be evenly distributed within an application. Exceeding the recommended ratings may result in failure of the Control Box or permanent damage. Providing reverse voltage input to the Control Box may damage the product and void the warranty.

Specifications

Number of Channels	1
Input Voltage	10.0VDC - 14.5VDC
Output Voltage	10.0VDC - 14.5VDC
Current	3.5 A
Efficiency	99% at Control Box, 96% at Connector
Ambient Current Draw	2.3mA
Standby Response Time	50mS
Sleep Mode Response Time	90mS
Duty Cycle	100%
Operational Temperature	-10°C to 70°C (14°F to 158°F)
Housing Color	Black / Blue
Housing Material	ABS Plastic
Kit Includes	1x Control Box (with wires and connectors), 1x Wireless Remote
Wireless Frequency	433.92 MHz
Wireless Range	60 Ft
Wireless Remote Functions	Up, Down, Programming Modes, Stop
Remote Battery Type	12V 27A Alkaline
Dimensions (LxWxH)	2.7" x 1.0" x 0.7" (excluding cables)
Unit Weight	0.08 lbs
Features	• Automatic Power Saving Mode (2.3mA @12VDC) with • Instant Wake Up (Single press, 90mS response time) • Wireless Remote Mode Selection • Wireless Remote Pairing • Pair Up to 4 Remotes • Smooth Motion Mode • Momentary and Non-momentary Control • LED Indicator • High Efficiency
Safety Features	• Overload Protection • Reverse Input Voltage Protection
Warranty	18 Months

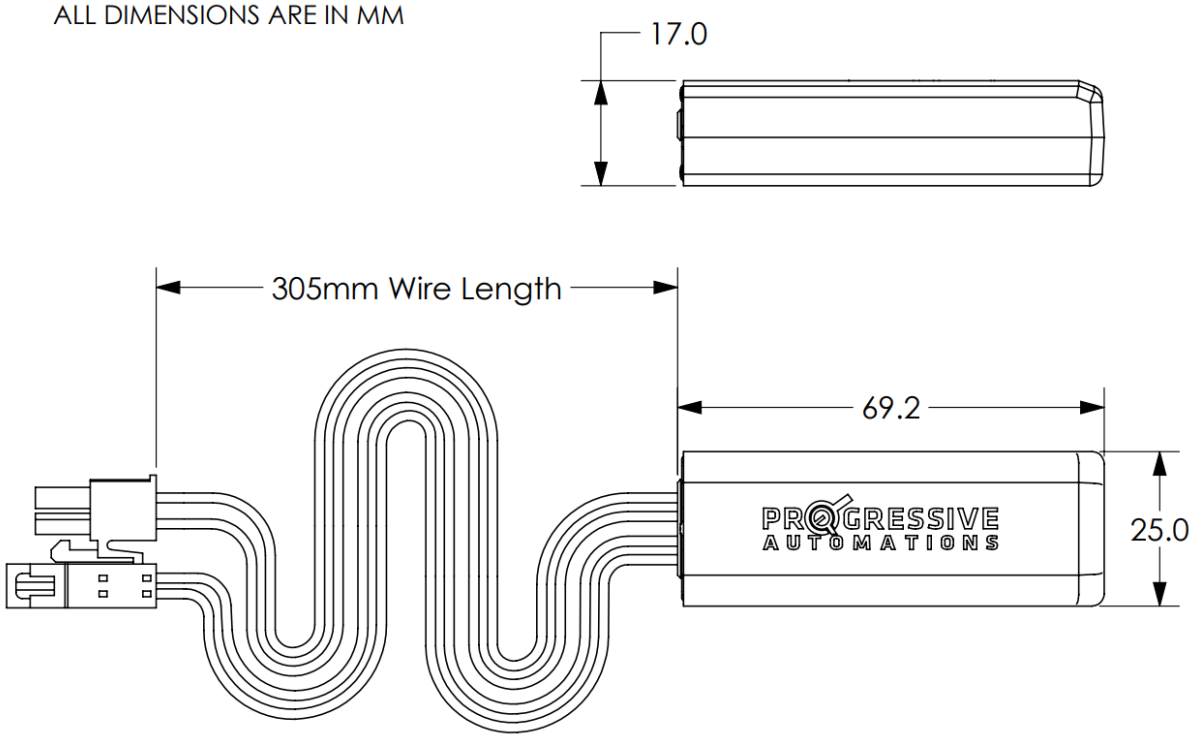
Dimensional Drawing (Imperial)

ALL DIMENSIONS ARE IN INCHES

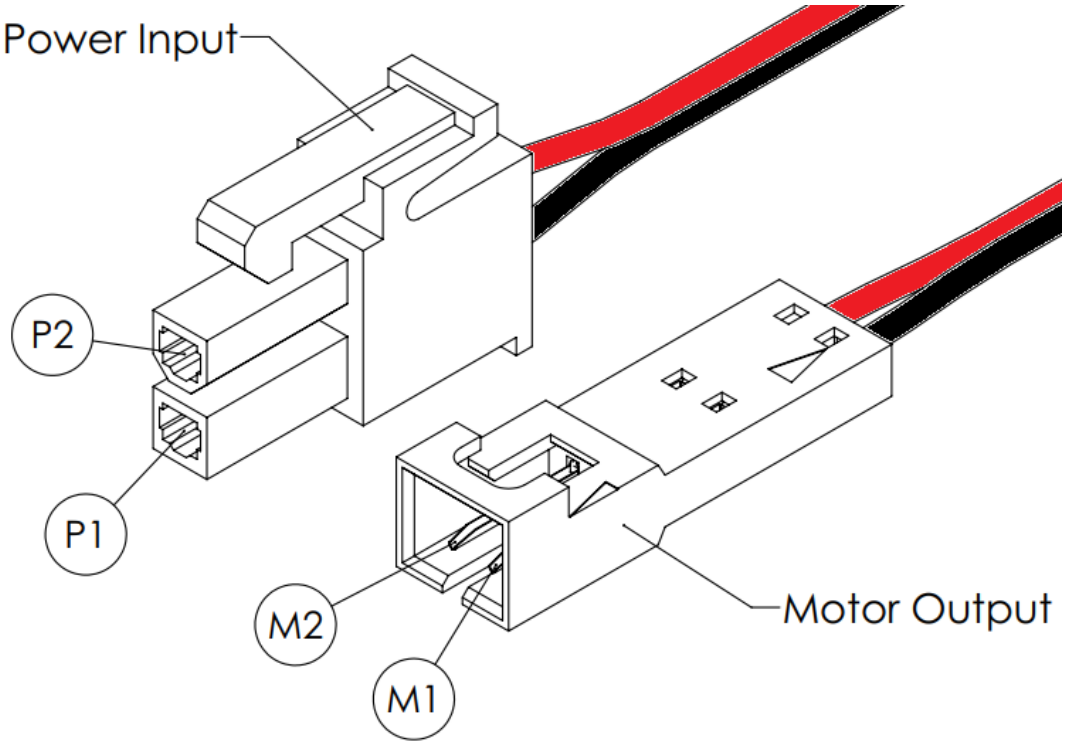


Dimensional Drawing (Metric)

ALL DIMENSIONS ARE IN MM



Connectors



Function

Pin Location	Function	Wire Color	Wire Gauge
P2	Power Input VCC / +	Red	22 AWG
P1	Power Input COM / -	Black	22 AWG
M2	Motor Output Positive	Red	22 AWG
M1	Motor Output Negative	Black	22 AWG

Parts List

	Part Name	Part Number	Mating Part Number
Power Input Housing	Molex Mini-Fit	39012020	39013023
Power Input Terminals	Molex Mini-Fit Female Tin Terminal	39000041	39000220
Motor Output Housing	Molex SL Wire-to-Wire Housing 2.54mm Series	70107001	50579402 / 2.54mm Header
Motor Output Terminals	Molex SL Male Tin Terminal	16020107	16020102 / 2.54mm Female Terminal

Operating Instructions

Wireless Remote

LED Indicator and Error Detection

Status	LED Action	Other Action	Error Reset
Initial Power-Up	Blink once		
Motor Output ON	ON		
Wireless Pairing Mode	Slow blinking		
Mode Change / Pairing Complete	Momentary fast blinking		
Error Detected:			
• Overload: When Motor Output is ON, output current is greater than 4Amps	Fast blinking	Motor Output OFF	• Remove power • Ensure Motor / Linear Actuator is not overloaded, and draws less than 4Amps • Reapply power to Control Box
• Over Voltage: Power Input voltage is greater than 18VDC	Fast blinking	Motor Output OFF	• Remove power • Ensure Power Input voltage is within requirements • Reapply power to Control Box
• Reverse Input Voltage: Input Voltage / Control Box Power positive and negative terminals incorrectly applied	OFF	Control Box OFF	• Remove power • Ensure Power Input has the correct polarity • Reapply power to Control Box

Normal Mode

Normal Model allows the user to control the connected linear actuator. Ensure Control Box is connected to a power source that is capable of the linear actuator's full load voltage and current requirements. Ensure the linear actuators are free from obstruction before operation.

- UP: Extend actuator
- DN: Retract actuator
- M: Programming Mode
- S: Stop actuator
- Pressing any button while an actuator is extending or retracting will stop the actuator.

Programming Mode

Programming Mode allows the user to program the Control Box settings.

1. Apply power to Control Box.
2. Entering Programming Mode: Press and hold the M button for 7 seconds, then release the button.
3. Programming Mode: Pressing a button will initiate a specific programming mode, see Operating Instructions.
4. Exiting Programming Mode:
    a. Pressing M button once will return to Normal Mode.
    b. Normal Mode will resume after 15 seconds if no buttons are pressed while in Programming Mode.

Wireless Remote Pairing Mode

The Control Box is paired with the 1x Wireless Remote included and can be paired with up to 4 Wireless Remotes in total.

Deleting Paired Wireless Remote

- If more than 4 Wireless Remotes are paired, the oldest paired Wireless Remote will be deleted.
- A single Wireless Remote can be paired up to four times to delete all other paired Wireless Remotes.

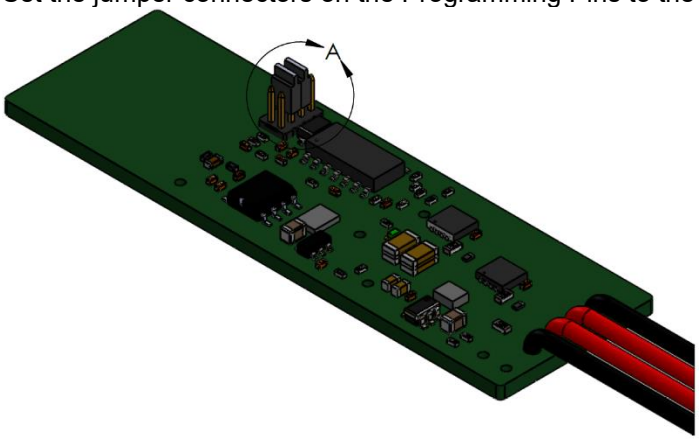
Pairing Using a Paired Wireless Remote (Do Not Need Control Box Access)

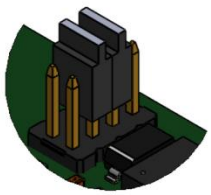
1. On the paired Wireless Remote:
    a. Enter Programming Mode (see Operating Instructions).
    b. Press the DN button once.
    c. You have now entered Pairing Mode.
        i. Normal Mode will resume after 15 seconds if no buttons are pressed.
2. On the new Wireless Remote that is being paired:
    a. Press any button once.
    b. The new Wireless Remote has been paired.
    c. Normal Mode will resume automatically.

Pairing Using Control Box Jumper Pins (Need to Open Control Box)

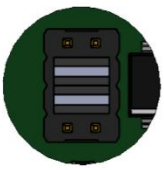
The following pairing method must be used if there are no paired Wireless Remotes. It will require the Control Box cover to be removed using a screwdriver.

1. Disconnect the power and linear actuators from the Control Box.
2. Disassemble the Control Box
    a. Remove the two screws securing the front cover.
    b. Carefully lift off the front cover and seal, guiding the wires back through the seal holes to avoid damage.
    c. Slide the control board out of the enclosure.
3. Set the jumper connectors on the Programming Pins to the position shown below to enter Pairing Mode.



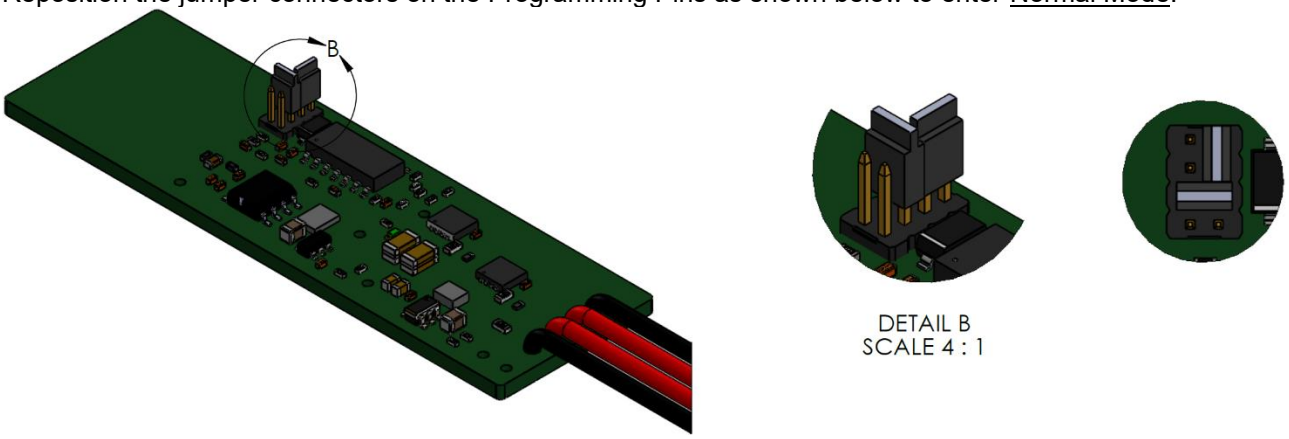


DETAIL A
SCALE 4 : 1



4. Reconnect power to the Control Box. The LED on the circuit board will flash slowly, indicating it is in Pairing Mode. It remains in this mode until the jumper connectors are reconfigured.
5. Pair each new Wireless Remote:
    a. Press any button on the remote once.
    b. The LED will flash quickly to confirm successful pairing.
    c. Repeat for all new Wireless Remotes.

6. Disconnect power from the Control Box once all Wireless Remotes have been paired.
7. Reposition the jumper connectors on the Programming Pins as shown below to enter Normal Mode.



8. Reassemble the Control Box
    a. Slide the control board into the enclosure, making sure it follows the tracks on the inside walls.
    b. Carefully push the front cover and seal onto the enclosure, pulling the wires through the seal holes so they aren't pinched or bent.
    c. Secure the front cover with the two screws.

Momentary / Non-Momentary Control

Non-Momentary Control (Default)
Press UP or DN once. The actuator will keep moving until a button is pressed again or the actuator reaches its travel limit. When the actuator reaches its travel limit, the Control Box will power it off automatically.

Momentary Control
Hold UP or DN to operate the actuator. Movement stops when you release the button or reach the travel limit.

Changing Control Setting
1. Enter Programming Mode (see Operating Instructions).
2. Press the UP button once to switch between Momentary and Non-Momentary control.
3. Normal Mode automatically resumes.

Smooth Motion Control (OFF by default)

Smooth Motion gradually ramps the actuator's speed when it starts or stops, ensuring smoother operation. By default, Smooth Motion is OFF for immediate starts and stops, which is useful for precise positioning.

Changing Control Setting
1. Enter Programming Mode (see Operating Instructions).
2. Press the S button once to toggle Smooth Motion ON or OFF.
3. Normal Mode automatically resumes after pressing the button.