

μ InProve-CEATM

Compact Electric Actuator

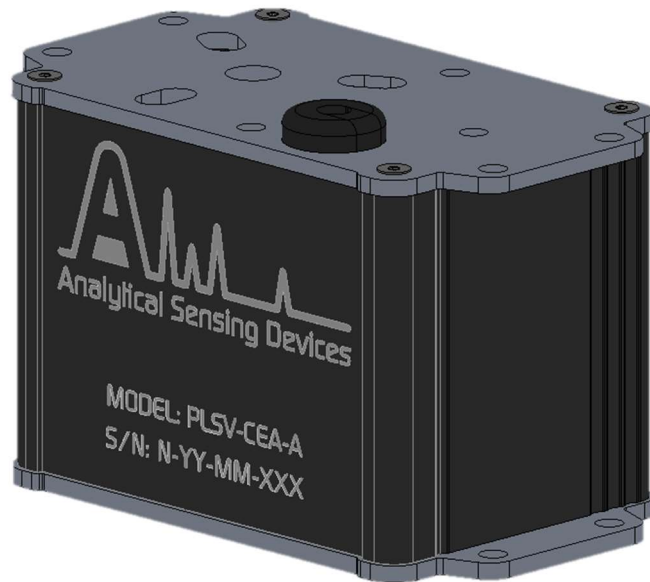


USER'S MANUAL

**REVISION:
CEA-UM-001**



INTRODUCTION



Made specifically to work with the PLSV valve technology
Most compact electrical actuator on the market
High life span: over 1 000 000 cycles in optimal conditions

FEATURES:

- Two Positions
- High-speed actuation
- Self-calibrating for different valve models
- Microprocessor controlled motor
- Opto Isolated Digital Inputs
- Positive voltage operation
 - Can be controlled by a variety of hardware products

1.0 CEA HARDWARE

1.1 GENERAL SPECIFICATIONS

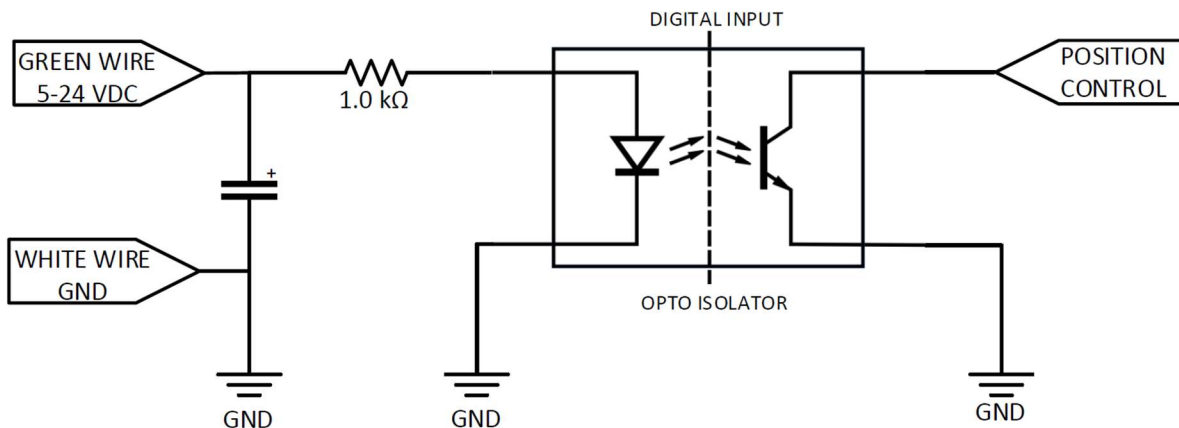
| SPECIFICATION | VALUE |
|----------------------------------|--|
| Weight | Actuator only: 350 g Actuator + PLSV-06: 530 g Actuator + PLSV-10 or PLSV14: 600 g |
| Operating temperature | 0°C to 50°C |
| Storage temperature | -20°C to 60°C |
| Operating ambient humidity range | 0% to 95%, non-condensing |
| Ingress protection rating | IP20 |
| CE, ROHS CONFORM | |

1.2 ELECTRICAL SPECIFICATIONS

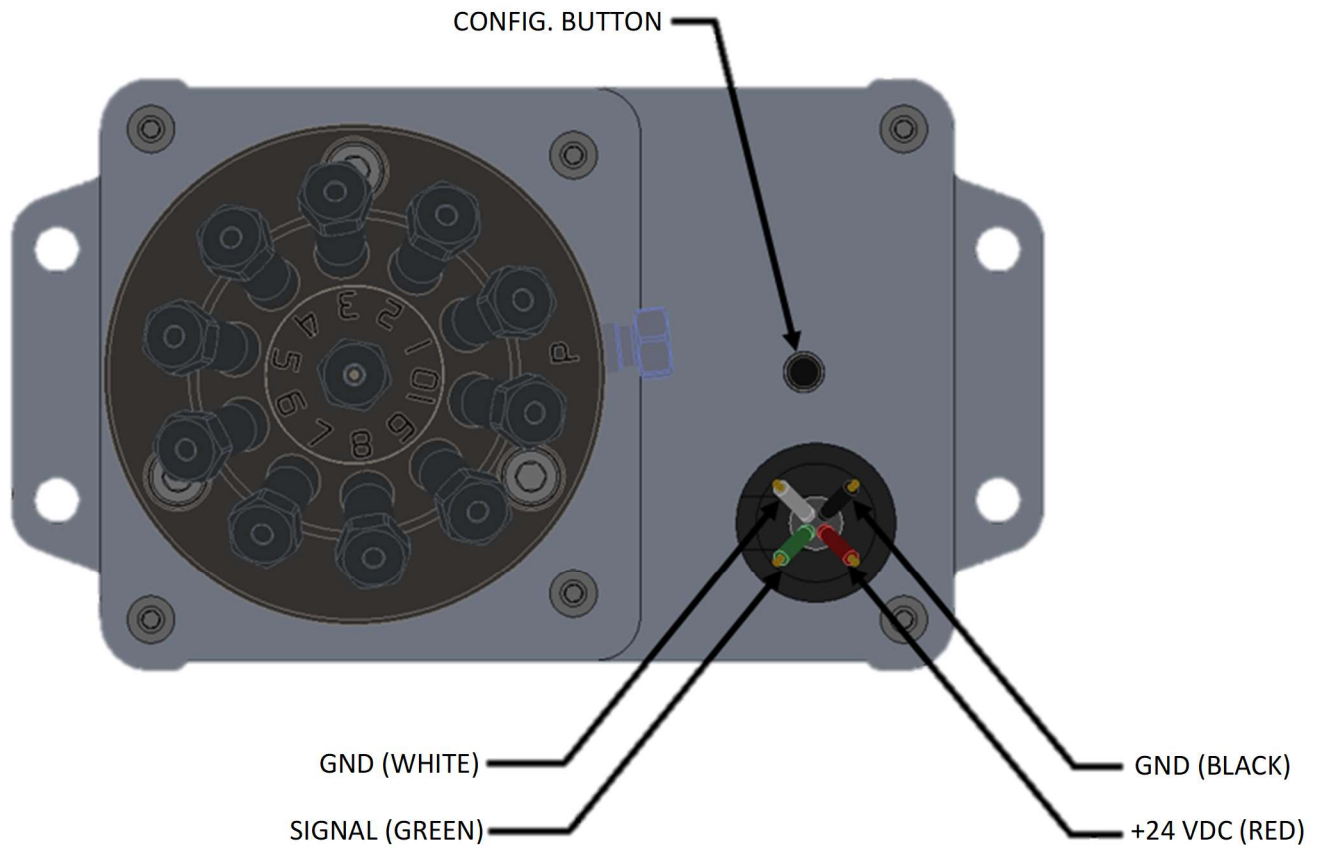
| SPECIFICATION | VALUE |
|---------------------------|---------------------|
| Electrical supply | 24 VDC @ 2 Amp min. |
| Standby power consumption | 840 mW |

1.3 POSITIVE VOLTAGE OPERATION

| SPECIFICATION | VALUE |
|-------------------------------------|---------------------------------------|
| Input current @ 5 VDC | 5 V / 1.0 kΩ = 5.00 mA |
| Input current @ 12 VDC | 12 V / 1.0 kΩ = 12.00 mA |
| Input current @ 24 VDC | 24 V / 1.0 kΩ = 24.00 mA |
| Voltage range guarantee "ON" state | 5 to 24 VDC |
| Voltage range guarantee "OFF" state | 0 VDC, ground (Do not leave floating) |



1.4 CABLE PINOUT

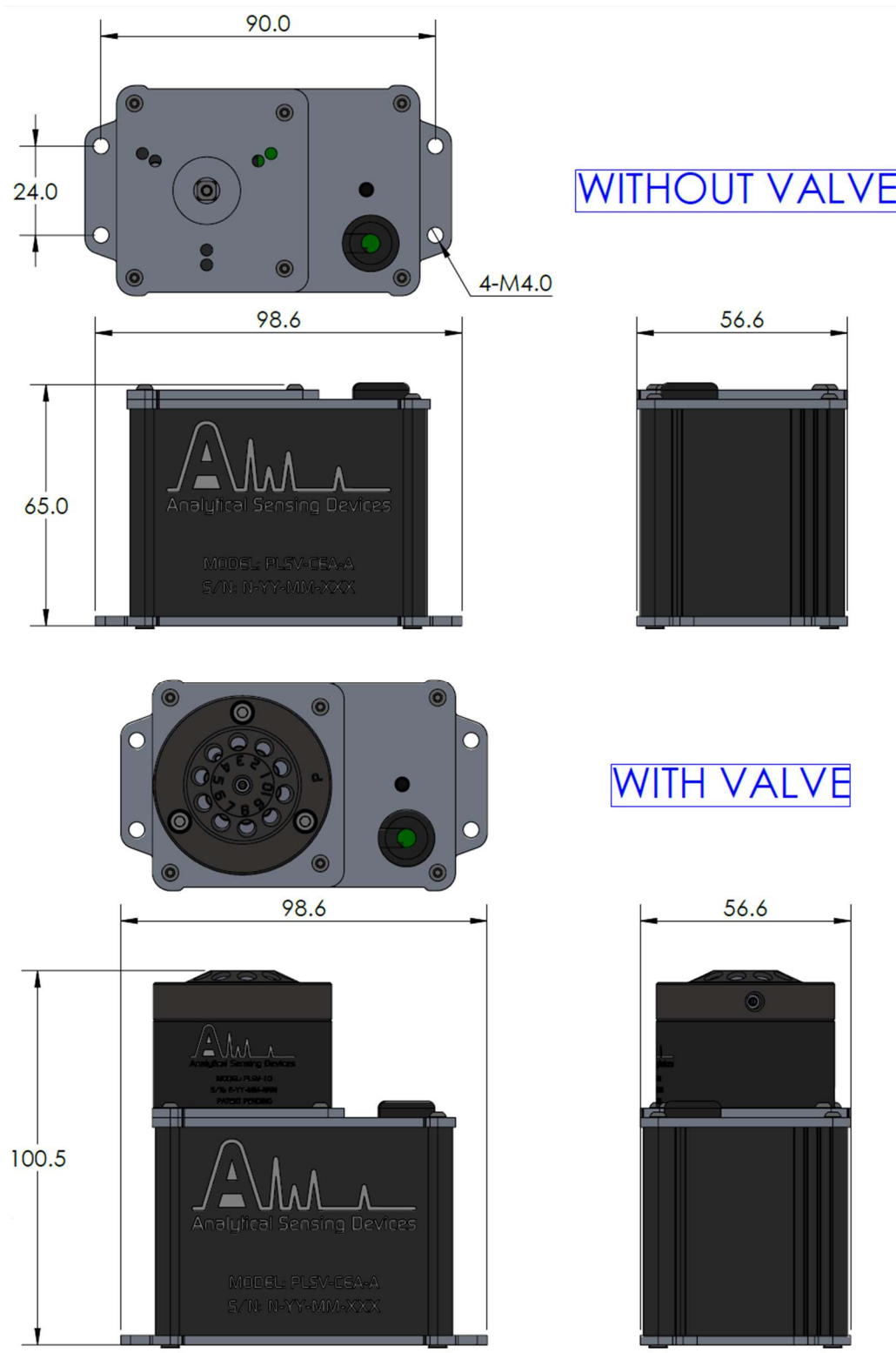


| WIRE COLOR | NAME | DESCRIPTION |
|------------|---------------|------------------|
| Red | SUPPLY INPUT | +24 VDC @ 2 Amp* |
| Black | SUPPLY GROUND | GND |
| Green | SIGNAL INPUT | +5 – +24 VDC |
| White | SIGNAL GROUND | GND |

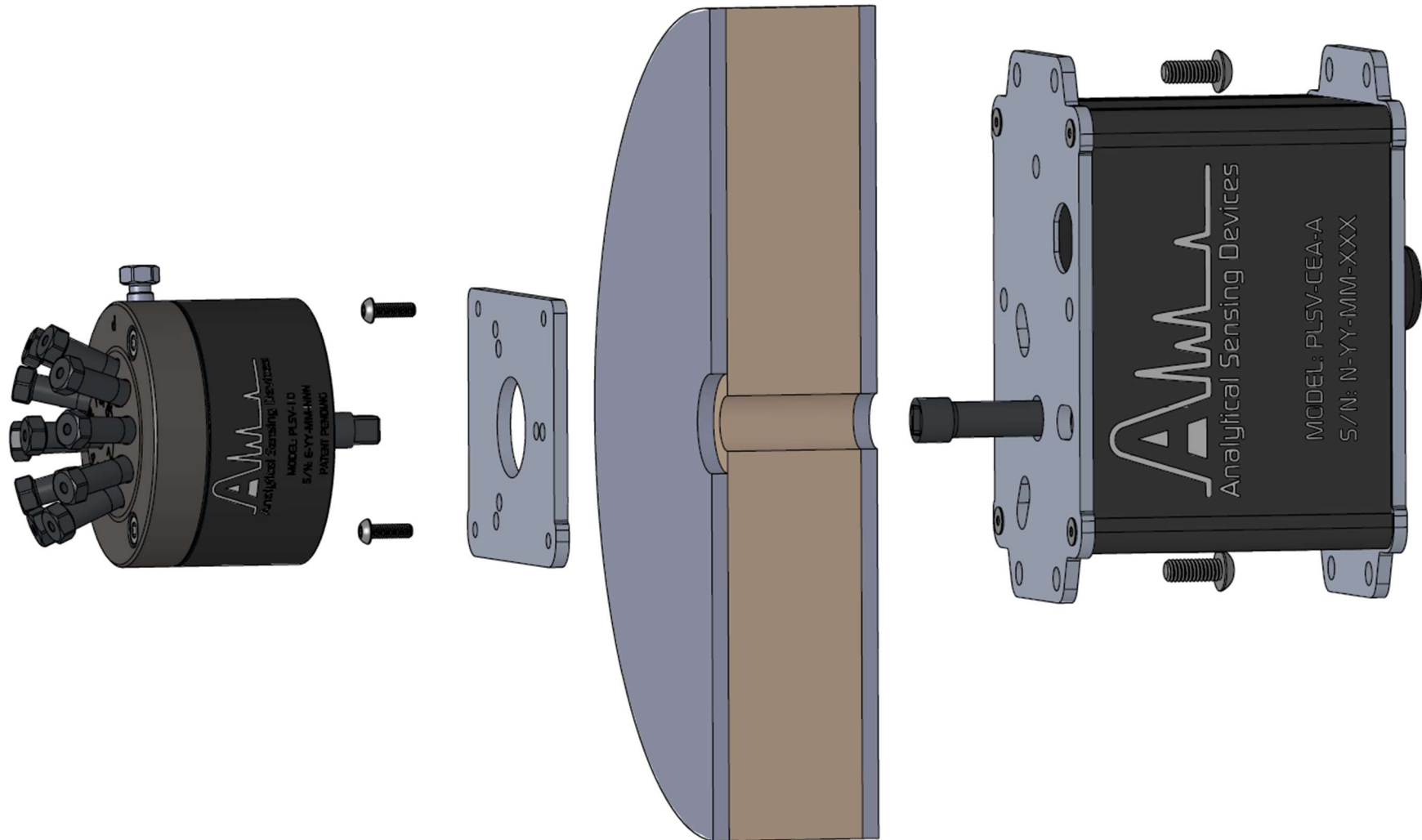
*: Power supply must be able to provide a minimum of 2 Amp to ensure proper operation.

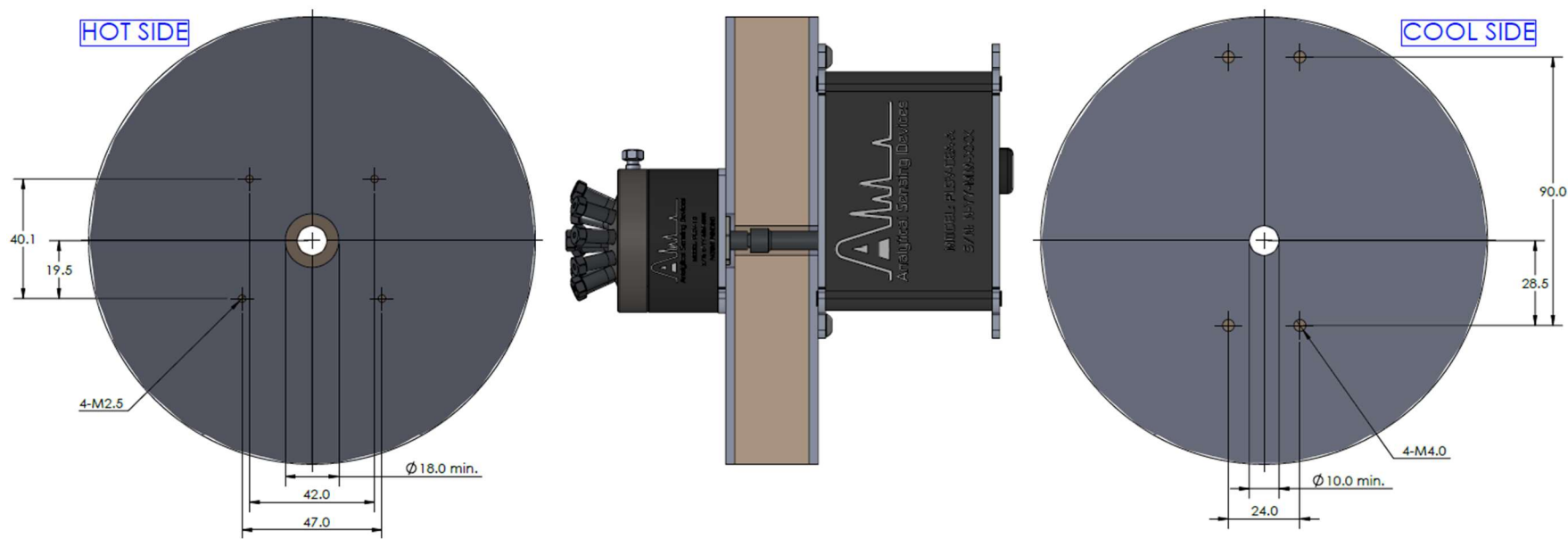
2.0 MECHANICAL AND TUNING INFORMATION

2.1 DIMENSIONS



2.2 OVEN INSTALLATION





Oven wall assembly shown with a 25.4 mm (1 in) standoff; other lengths available.

2.3 INSTALLING A VALVE ON A PLSV-CEA

1. Install your PLSV valve on the provided bracket.
2. Torque the three (3) M3 screws to 9.0 lbs-in (1.0 Nm).
3. Using an open wrench or any other appropriate tool, rotate the valve shaft clockwise (CW). See picture below.



4. With the actuator connected to an appropriate power supply, press the config. button for 5 seconds at least. You should be able to hear and / or see the actuator move to its config. assembly position.
5. For your safety, remove the power from the actuator.
6. Making sure both the valve's and the actuator's logos are pointing in the same way, install the valve bracket on the actuator. The valve shaft should mate with the actuator drive freely.
7. Torque the four (4) M2.5 screws to 7 lbs-in (0.8 Nm)
8. Reapply power to the actuator and then press the config. button for 5 seconds at least. The actuator will now identify the positions and the stroke angle of the valve. Give at least 30 seconds for this operation to complete.
9. The installation is now complete. Please note that the actuator will be in calibration mode for some time. For further information about the calibration mode see section 3.2.

3.0 PLSV-CEA OPERATION

3.1 OPERATION MODE

While in operation mode, the user can switch between position 1 and position 2 of the valve.

The “ON” state brings the valve to position 1 (ports 1 and 2 connected) and the “OFF” state bring the valve to position 2 (ports 2 and 3 connected).

The time delay between two different commands is set to 5 seconds.

3.2 CALIBRATION MODE

When a valve is first installed, a calibration is required to identify the positions (1 or 2) and the stroke angle between the positions.

The calibration mode is activated by holding the configuration button at least 5 seconds when the actuator is powered up.

The calibration sequence is based on an adaptive algorithm: when activated, the unit will perform several rotations between the positions to identify and learn the best travel angle between the two positions. When the identification process is completed, the unit stores the learned information in non-volatile memory for future use. Please note that during this calibration period, the actuator may take more time to come to a stop between each actuation. This is normal behavior.