

# AX-12 Dual Gripper Kit Assembly Manual



## AX-12 Dual Gripper Kit Contents

### Hardware Kit

- (2) AX-12 Side brackets
- (1) AX-12 Rear bracket
- (2) AX-12 45 degree brackets
- (2) Grippers
- (12) ¼" #4 screws
- (4) #4 nuts
- (2) Self adhesive gripper pads

### Full Kit

- (2) AX-12 Side brackets
- (1) AX-12 Rear bracket
- (2) AX-12 45 degree brackets
- (2) Grippers
- (12) ¼" #4 screws
- (4) #4 nuts
- (2) Self adhesive gripper pads
- (2) AX-12 Servos

**Tip** – Use “Lock Tite” thread locker or equivalent when installing the 2mm screws for best results.

**Note** – The 2mm screws referred to throughout the construction manual are the stock 2mm screws supplied with the AX-12 servo.

1. Using (4) #4 1/4" screws, assemble (2) AX-12 side brackets as shown in figure #1. Tighten the #4 screws at the same time so the brackets fit together as evenly as possible.



Figure 1

2. Using (8) 2mm nuts, install the nuts in the 1<sup>st</sup> and 3<sup>rd</sup> slots from the servo horn on the top and bottom of the AX-12 servo.
3. Using (8) 2mm screws install the AX-12 side bracket assembly from step 1 onto each of the AX-12 servos as shown in figure 2.



Figure 2

- Using (4) #4 1/4" screws and (2) #4 nuts , install the gripper to each of the AX 45 brackets as shown in figure 3 and 4. Note that (2) of the #4 screws are secured by the integrated pem nuts and (2) are secured by installing (2) #4 nuts.



**Figure 3**



**Figure 4**

5. Install the gripper padding to each of the grippers. Trim off the excess gripper padding evenly and cleanly using the edge of the gripper as a guide.
6. Install the plastic standoff and washer to each of the AX- 45 brackets as shown in figure 5. Note that the washer is installed on the inside of the AX 45 bracket.



**Figure 5**

- Using (4) 2mm screws and (1) AX-12 set screw (1 set for each side of the gripper), install the gripper assembly to the AX-12 servo as shown in figure 6 and 7. Be sure that the servo horn is centered before installing the gripper assembly by aligning the center marks of the servo horn.



Figure 6



Figure 7

8. Install (4) 2mm nuts into the bottom, inside of each of the AX-12's servos as shown in figure 8.



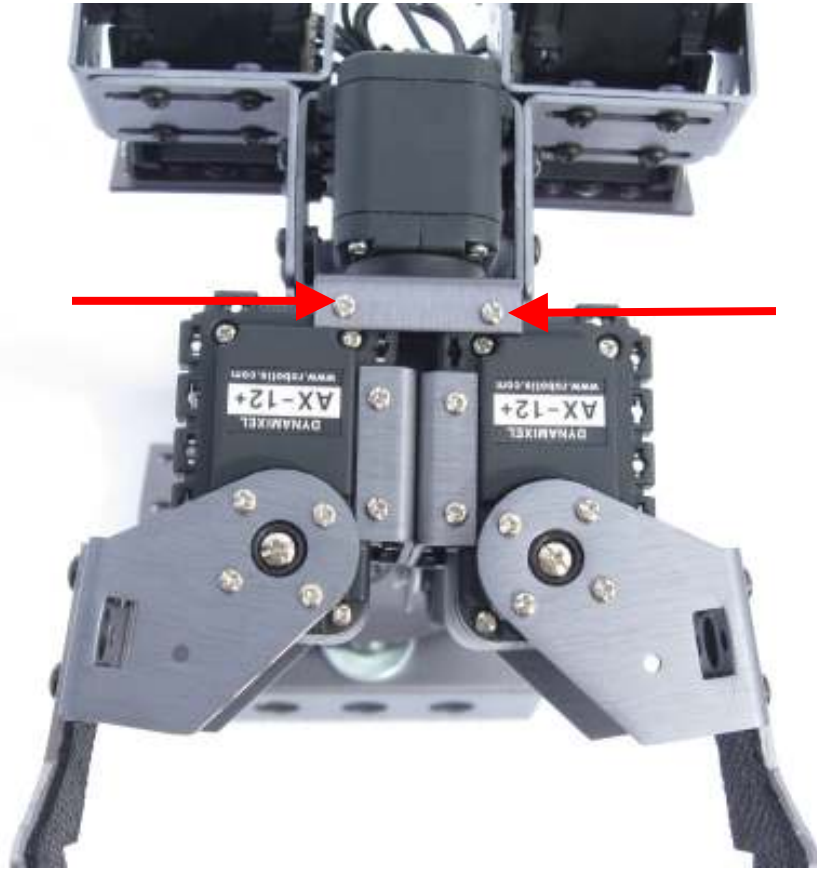
**Figure 8**

9. Using (4) 2 mm screws, install the AX-12 rear bracket to the wrist rotation AX-12 servo as shown in figure 9. Please note the orientation of the bracket in figure 9. Be sure that the servo horn is centered before installing the AX-12 rear bracket by aligning the center marks of the servo horn.



**Figure 9**

- Using (4) 2mm screws, install the gripper assembly to the AX 12 rear bracket as shown in figure 10.



**Figure 10**

- Change the ID of each of the AX-12 servos of the gripper assembly to address 7 and address 8 using the Robot Terminal program as shown in figure 11. (All software can be downloaded at the Crustcrawler web site([www.Crustcrawler.com](http://www.Crustcrawler.com)))

**Tip**

- CM-5 users, use the “Robot Terminal” program
- USB2dynamixel users, use the “Dynamixel Configurator” program

- Connect the AX-12 servo wires to each of the gripper servos and then to the wrist rotate servo to complete the daisy chain of the Smart robotic arm. The assembly is now complete.