4250i/4400i ACTUATORS
(4 actuators, 3 axis system)

INSTALLATION GUIDE

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The 4250i may be installed in a single seat and loveseat only. The 4400i may be installed in a single seat, loveseat and 3 seats sofa.

WARNING: DO NOT USE ANY ATTACHMENTS THAT ARE NOT RECOMMENDED BY THE MANUFACTURER, AS THEY MAY CAUSE DAMAGE OR MALFUNCTIONS.
IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus
   (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two
   blades with one wider than the other. A grounding type plug has two blades and a third grounding
   prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit
   into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles,
    and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the
    apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid
    injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been
    damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects
    have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate
    normally, or has been dropped.
15. Do not expose this apparatus to dripping or splashing and ensure that no objects filled with liquids, such
    as vases, are placed on the apparatus.
16. To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug
    from the AC receptacle.
17. The mains plug of the power supply cord shall remain readily operable.
18. Do not expose batteries to excessive heat such as sunshine, fire or the like.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

This symbol indicates that you must communicate with the manufacturer for disposal of the equipment.

WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
1- D-BOX 4250i/4400i, 3 axis actuators system overview

The D-BOX 4250i/4400i actuators system is designed to be installed into the armrest of qualified home theater seating.

When properly installed, the system will give you a three (3) axis motion simulator designed for the home entertainment. The seat will move you front to back, side to side and up and down. In order for the seat to be able to stand the stress of the motion, it is important that the structure be well built. We suggest that the seat manufacturer reinforce their seats by making a single piece wood panel on the back supporting the armrests or add a steel bar that will join the two side armrests together. The front reinforcement part can also be made of hard wood or steel. See pictures at the end of this document for more details.

Each actuator has a piston that will go in and out of the cylinder to make the motion. At the end of each piston there is a hard plastic pivot piece that will be in contact with the floor (or a floor protector and anti-slip cup). Under each cup there is a rubber pad to protect the floor and also to make sure that the seat will stay in place during a movie or a game.

2- D-BOX 4250i/4400i system dimensions and setup:

Caution: When removing the actuators from the packaging box, be careful not to bend the metal plate holding the two actuator cable connectors. Also, be careful not to pull on the two connectors. One connector is used to power the motor (white connector) while the other carry the optical encoder signals.
The D-BOX 4250i/4400i, 3 axis motion system consists of:

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACM unit (Actuator Control Module)</td>
<td>2</td>
</tr>
<tr>
<td>Actuator (max. capacity 250 lbs each 4250i and 400 lbs each 4400i)</td>
<td>4</td>
</tr>
<tr>
<td>Power Cable, 6 feet (000-090-0010-Z00)</td>
<td>2</td>
</tr>
<tr>
<td>Single Cup, Aluminum (810-0002)</td>
<td>4</td>
</tr>
<tr>
<td>Screw, Bolt, Hex, Cap, 1/4-20 X 3/4, Black (100-0551)</td>
<td>16</td>
</tr>
<tr>
<td>Washer, Lock, 1/4, Black (102-0051)</td>
<td>16</td>
</tr>
<tr>
<td>CAT5 cable, 50 feet (092-0014)</td>
<td>1</td>
</tr>
</tbody>
</table>

**Included with the L bracket option – 4 actuators (#801-0006)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washer, Lock, tooth, 1/4, Zn (102-0053)</td>
<td>16</td>
</tr>
<tr>
<td>Screw, Bolt, Hex, Cap, 1/4-20 X 1, Black (000-100-0555-Z00)</td>
<td>16</td>
</tr>
<tr>
<td>Tiewrap, 7 3/8&quot; (190-0014)</td>
<td>8</td>
</tr>
<tr>
<td>L bracket</td>
<td>8</td>
</tr>
<tr>
<td>Clamp, Cable, 3/8&quot; (094-0007)</td>
<td>2</td>
</tr>
<tr>
<td>Clamp, Cable, ½&quot; black (094-0012)</td>
<td>8</td>
</tr>
<tr>
<td>Plate, Plastic, Adhesive, Tiewrap (Tiewrap) (190-0007)</td>
<td>2</td>
</tr>
<tr>
<td>ACM bracket</td>
<td>2</td>
</tr>
</tbody>
</table>

**Required Tools**

- 3/8 inch drive ratchet
- 3/8 inch drive 7/16 inch socket
- Phillips screwdriver / electric screwdriver
- Wire cutters
We suggest that the ACM units be mounted into each of the side armrests or on the back wood panel of the seat. Each actuator is supplied with a 51." motor power cable harness. One (1) 10’ shielded Cat-5 cable is supplied to connect both ACM together (in daisy chain and One (1) 50’ shielded cat-5 cable is supplied to connect the ACM unit to the appropriate Motion Controller port (Kineline port A to D). Below you will find the dimensions of the 4250i/4400i actuators and the ACM unit.

D-BOX 4250i/4400i actuators dimensions (.75" Bracket)

![D-BOX 4250i/4400i actuators dimensions (.75" Bracket)](image)

ACM (Actuator Control Module) dimensions

![ACM (Actuator Control Module) dimensions](image)
3- Positioning the components

The D-BOX 4250i/4400i actuators have been designed to be installed into armrest of qualified home theater seating. Each Actuator must be inserted into the armrest hole especially made for that purpose. The ACM unit can be installed either on the back wood panel or into the armrest depending on mounting clearance. Please see drawing below. Also refer to armrest hole specifications in the present document.

Typical Loveseat (Front View “footrest is hidden”)

Each actuator is inserted into the armrest and held in place using (4) four 1/4-20 screws with lock washers. We suggest to reinforce the seat using a rear wood panel. That panel will hold the armrests together and strengthen the whole seat.

The ACM unit could be mounted on the rear wood panel or into each side armrest.
4- Positioning the actuators (Bottom view of seating)

Each actuator should be mounted at the bottom of each armrest. For that purpose an actuator mounting hole and an actuator cable access hole should be provided. See drawing below for more details;

Typical Loveseat armrest Installation (bottom view)
5- Arm Rest mounting hole dimensions

In the drawings below you will find the dimensions of the hole needed to mount the actuators and be able to screw it in place using four (4) 1/4-20 screws. You will also find the dimensions of the cutout hole for the actuator’s cable harness.

Actuator cutout hole

Actuator cable harness hole

6- Setting up the actuators in the seat

Before making the connections between each ACM units and its associated pair of actuators, you should insert and screw down both actuators in each armrest and run the cable through the actuator cable harness access hole in the front of the actuator (if the ACM is mounted on the back panel). When the actuators are properly secured using four (4) 1/4-20 screws and a lock washer, you can connect the cable into the ACM unit.

Note: be careful not to damage the connectors or the aluminum plate at the end of the actuator’s cable.
7- Connecting the actuators to the ACM (Actuator Control Module)

**IMPORTANT NOTICE**: Before doing any connection into the ACM unit **make sure there is no power by detaching the A/C cord**. There is high voltage inside the ACM unit, and only service qualified technician are allowed to do the connections.

A. The connections between the ACM and the actuators must be done correctly in order for the system to work properly. The exact position of each actuator in regards to the seat is indicated on a sticker located on the top of the ACM. This sticker indicates if it is a left or a right ACM and will also give you the exact position of each actuator connected to the ACM. See drawing below for more details;

![Diagram showing the position of actuators](image1)

B. In order to connect each actuator into the ACM unit, you need to take the **ACCESS COVER** off by removing the Philipps screws holding it in place and lifting it gently toward the back. You also need to locate all of the Philipps screws (10) that are included in the package.

![Removing ACM's access cover](image2)

C. Pass the cable assembly of each motor through the proper ACM housing hole (making sure the actuator is at the proper position in regards to the sticker) and secure the metal door using two (2) Philipps screws supplied in the package (start by the two (2) screws at the bottom of the metal door). See drawing below;
D. After both actuator's metal doors have been properly secured to the housing, connect the motor and the encoder connector of both actuators (as shown in drawing below). You should hear a click when the connector is fully inserted. Finally, assemble and secure the access cover, there is one (1) screw on each side and two (2) screws on the rear. Note that the screws attaching the rear cover passes through the actuator metal door.
Note: Each time you will power-up the motion seat you will hear the motors locking themselves up. This usually takes a few seconds unless the piston of either actuator has not been pulled in completely at the last shutdown.

Note: When you have finished installing the actuators and the ACM in the seat, make sure that all the cables (motor cables, power cables and Cat-5 cables) are properly secured. Also make sure that none of the cables can rub against a moving part (such as the reclining mechanism) because it may damage the insulation and make the product unsafe for use.
9- Pictures of D-BOX installation (in a loveseat)

Photos below are of the 2250i/2400i but are very similar to the 4250i/4400i installation, the main differences are two ACM units (left and right) instead of one ACM unit and one front actuator instead of front pivot.
Pictures of D-BOX installation (in a loveseat)

NOTE: Cables must be positioned so they won’t interfere with the recliner’s mechanism.
Pictures of D-BOX installation (in a loveseat)

NOTE: Cables must be positioned so they won’t interfere with the recliner’s mechanism.
Pictures of D-BOX installation (in a single electrical reclining seat)

NOTE: Cables must be positioned so they won’t interfere with the recliner’s mechanism.
Pictures of D-BOX installation (in a single electrical reclining seat)
Appendix 1
Installation of the ACM bracket

Step 1:
The mounting bracket needs to be fixed with two wood screws.

Step 2:
Make sure that the ACM unit is pushed all the way into the bracket channel.

Step 3:
Add two wood screws at the bottom of the ACM unit to securely fastened it.